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ВЕСТНИК

НАЦИОНАЛЬНОЙ АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН

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НАН РК сообщает, что научный журнал «Вестник НАН РК» был принят для индексирования в Emerging Sources Citation Index, обновленной версии Web of Science. Содержание в этом индексировании находится в стадии рассмотрения компанией Clarivate Analytics для дальнейшего принятия журнала в the Science Citation Index Expanded, the Social Sciences Citation Index и the Arts & Humanities Citation Index. Web of Science предлагает качество и глубину контента для исследователей, авторов, издателей и учреждений. Включение Вестника НАН РК в Emerging Sources Citation Index демонстрирует нашу приверженность к наиболее актуальному и влиятельному мультидисциплинарному контенту для нашего сообщества.

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PHARMACOTHERAPEUTIC ACTION ANALYSYS OF MINERAL SUBSTANCES OF MEDICINAL PLANTS, WHICH ARE USED IN THYROID GLAND DISEASES

Abstract. Diseases of thyroid gland refer to the most widely spread ones, and are accompanied by the change of hormonal background of the human organism in the whole and lead to disorders of vitally important processes in other organs, triggering appearance of concomitant diseases. Among major causes of thyroid gland diseases are psychological and emotional overloads; malnutrition and unbalanced nutrition that results in deficiency of mineral substances and vitamins in the organism; radioactive conditions and unfavorable ecological situations; chronic diseases.

Taking into account such a great role of macro- and microelements in the normal work of the thyroid gland, it is necessary to provide their physiologically necessary content in the organism. The sources of mineral substances can be medicinal plants and remedies made of them.

Therefore, the aim of the work was to determine content of macro- and microelement composition of medicinal plants - Lycopus herb, Feijoa leaves, Cetraria islandica thalli, Bugleweed European herb, Genista herb, leaves of Lemna minor, thalli of Fucus vesiculoses and thalli of Laminaria, which are used in treatment of thyroid gland diseases and their water extracts and 10 %, 30 % and 50 % alcohol tinctures. Quantitative content determination of macro- and microelements has been carried out by the atomic emission spectrography method. Quantitative determination of general iodine content has been performed by the iodometry method (titrant – 0.01 M sodium thiosulphate solution) after preliminary burning of the raw material in the alkaline solution by the methodology of State Pharmacopoeia of Ukraine 2.0 volume 3, monograph «Buri vodorosli».

The presence of 15 macro and microelements has been determined in the result of the performed spectral analysis of the studied types of medicinal plant raw materials and their extracts. Silicium, mangan, magnesium, calcium, sodium and potassium are contained in comparatively big amounts. When determining qualitative and quantitative content of mineral substances our attention was focused on the elements which had great significance at diseases of thyroid gland, the deficiency or misbalance, which can damage the thyroid gland or other organs functioning, the use of which can eliminate negative symptomatic manifestations in diseases of thyroid gland (Fe, Mn, Mg, Ca, Cu, Zn, Se, I). The representatives of brown algae – Laminaria (0,11 %) and Fucus (0,05 %) and also the representative of fresh water reservoirs – duckweed (0,028 %) are characterized by the highest iodine content. The samples of Laminaria, Fucus, Feijoa and Lemna (duckweed) were characterized by the highest iodine content. The most maximum iodine content had water extracts, when ethyl alcohol concentration was increased, the iodine content didn't change significantly. High selenium content has been determined in the thalli of Laminaria (0,81 mg/kg), Lemna (duckweed) (0,72 mg/kg) and fresh Feijoa fruit (0,31 mg/kg). The highest selenium content (mkg/l) had water Fucus extract (40) and 50 % Lemna (duckweed) tincture (14). There is an interesting fact, that iodin:

selenium ratio in these samples was 1:4(5), that can stipulate similar mechanisms of the effect for thyroid gland. Among the tested substances high selenium and iodine content had simultaneously Laminaria samples – 5 % tincture (3,8) and 10 % tincture (6,6). Though the iodine: selenium ratio had another character and made 18(19):1.

Keywords: Laminaria, Fucus, Cetraria islandica (L.) Ach., Lemna minor S.F. Gray, Xanthium strumarium L., Genista tinctoria L., Lycopus europaeus L., Feijoa sellowiana Berg., Feijoa sellowiana Berg., correction of minereal substanceses deficiency, thyroid gland diseases.

Thyroid gland diseases, especially connected with iodine deficiency are widely spread in the world and in Ukraine, that is connected with the content of "nonspecific" strumagenes in the environment [1, 2]. A lot of chemical compounds are referred to them, they are contained in the industrial wastes, pesticides, some medicinal preparations and also macro- and microelement misbalance. Low efficiency of iodotherapy in conditions of ferum deficiency has been proved, that is explained by the participation of ferume in the modification of L-phenylalanine into L-thyrosine. At the same time a positive dynamics has been marked among the patients with hypothyroidism against a background of therapy with vitamin A. Malnutrition, low content of vitamin A in the diet leads to the damage of thyreoglobulin structure, and, correspondently, synthesis of thyrotrophic hormones (TH). Deficiency or excess of other mineral substances (Co, Cu, Fe, Br, Mn) can be correlated by means of TH biosynthesis [3-5].

Selenium, zinc and chrome play specific role in the iodine metabolism. As selenium is a constituent of iodinthyroninedefodinaze – enzeme, which is responsible for peripheral change of T_4 in T_3 in liver and kidneys, its deficiency is accompanied with deficiency of the above-mentioned enzeme, and, as a result, incompleteness of iodine exchange. Zinc effects secretion of the thyroid stimulating hormone, therefore, its deficiency can be one of the reasons of hypothyroidism (some patients are registered to have deficiency of zinc or disorders of zinc : cuprum ratio).

Data concerning correlating dependency between communication of the thyroid disease and abnormality of content in the environment of manganese, cobalt, zinc, molybdenum, cuprum are given in the literary sources. There are experimental and clinical data, that prove the hypothesis of the goitrogenecity effect of the zinc deficiency - important component of many metabolic processes. Zinc is contained in more than 200 metal proteins, including nuclear receptor T_3 [6, 7], it explains the necessity of this element for realization of TH biologic effect. Changes in the zinc level in the daily urine – indicator for evaluation of thyroid gland dysfunction; therefore, in case of its dysfunction, a decreased excretion of zinc with urine is observed. Hypoplasia of thymus and immunodeficiency development, mainly of T-cellular, has been determined under experimental zinc deficiency. Zinc deficiency can lead to increased accumulation of cadmium, lead and cuprum in blood (functional antagonists of zinc), especially against the background of the protein deficiency in the diet. Carcinogenic properties of cadmium, zinc and other toxic metals are connected with their ability to replace zinc ions in the "finger" proteins of the karyons, transcription factors and proteins that bind hormones, damaging intracellular transduction of signals and gene expression [8, 9].

The main significance of cobalt is that it is a component of vitamin B_{12}. Along with it, it is known, that cobalt suppresses the iodine binding with thyroid gland due to the unknown mechanism, and overdosage of cobalt in children sometimes can result in hypothyroidism and hyperplasia of a thyroid gland. The thyrostatic effect of this microelement is rather noticeable, therefore, in 1950-th there were attempts to use cobalt chloride for hypothyroidism treatment. On the territory of Ukraine there are biogeochemical territories with endemic cobalt deficiency, and therefore, the goiter develops in children living on this territories, and sometimes with decreased function of thyroid gland. The ferum deficiency in children with endemic iodine deficient goiter and ferum deficient anemia interferes with the therapeutic effect of the iodine containing products. It is not excluded, that ferum takes part in the TH synthesis or its deficiency reduces absorption of iodine [10, 11]. Molybdenum in small amounts is useful for organism, it is known, that the level of cAMF cell increases under the effect of the molybdenum compounds, it can be one of the central mechanisms of its influence on the immune system. Mangan can be found in the composition of different organism tissues, being a cofactor of guanylcyclase, the functions of which are important for cellular proliferation, and also is a component of enzymes, including superoxidedismutase, that protects from peroxide radicals. A disorder of the magnesium balance leads to appearance of a number of immune radicals - abnormal activation of the compliment, high frequency of allergic reactions and infectious processes develop, the most frequent of which are chronic fungal and viral diseases [8, 11].

Cuprum is one of the essential microelements necessary for human vital functions. A significant part of the blood plasma cuprum is in the ceruloplasmin, the most important cuprum containing protein. Corticosterone and thyroxin cause cuprum reduction in blood. In human, on the contrary, the increase of this element concentration in blood is observed under hyperthyroidism and its reduction is observable under hypofunction of thyroid gland. Under cuprum deficiency in the organism, the reduction of superoxide dismutase activity is determined, superoxide dismutase, in its turn, is responsible for inhibiting of peroxide oxidation in the cell membranes lipids, and also cuprum dependent enzeme – lysiloxidase, that take part in the formation of the transverse links of collagen and elastic fibers [13]. When giving a total evaluation of the significance of the enzeme autoagression in relation to such highly specialized structures as elastic membranes, it is necessary to think over the role of those endogenic factors, which provide their trophism, functioning and keeping in the human organism. It is easily to assume, that the enzymatic attack turns out to be the most destructive just for structures, which are constitutionally incomplete, in particular, not provided with normal microelemental composition. A significant improvement of the treatment results of the toxic goiter with 131 I by taking lithium carbonate due to its positive effect on the iodine pickup has been registered [14].

A number of authors discuss the hypothesis that light deficiency of selenium can make a definite contribution into a development and progression of the autoimmune thyroiditis. The reduction of the antibodies titre till thyroperoxidase (for 40 % in comparison with the group of patients, who were taking only L-T_4) and change of the gland echogenicity have been registered in the result of the treatment of patients suffering from compensed hypothyroidism and who were prescribed sodium selenite [6, 7].

Taking into consideration such a great role of macro- and microelements for the normal work of thyroid gland, it is necessary to maintain their physiologically necessary content in the organism. Different mineral and vitamin-mineral complexes are used for this aim, besides, the source of these mineral substances can be both medicinal plants and drugs made of them. The advantage of the former is the fact, that they both liquidate macro- and microelements deficiency, and have other medioprophylactic properties, providing complex effect for the organism [15, 16].

Therefore, the aim of our work was to determine macro- and microelement content of medicinal plants – bugleweed herb (Lycopus), Feijoa leaves, Cetraria thalli, fresh Feijoa fruit, thalli of Cetraria islandica, Lycopus eurapaeus, Genista herb, leaves of Lemna minor, thalli of Fucus vesiculoses and thalli of Laminaria, which are used in thyroid gland diseases and their water extracts and 10 %, 30 % and 50 % alcohol tinctures.

Materials and methods. The determination of the macro- and microelements quantitative content was performed by the atomic emission spectrography method, that is based on the plant ash evaporation in the electric arc, photographic recording of the emission distributed in spectrum and intensivity measuring of some elements spectral lines [17]. Quantitative determination of the general fund was performed by the iodometry methods (titrant – 0.01 M sodium sulphate solution) after preliminary burning of the raw material in the alkaline media by the methodology of the State Pharmacopoeia of Ukraine 2.0 Volume 3, the monograph “Bury vodorosli” [18].

Results and discussion. In the results of the performed analysis результаті проведеного аналізу, it has been determined that Lycopus herb, Xanthium strumarium herb, Feijoa leaves, fresh Feijoa fruit, thalli of Cetraria islandica, Lycopus herb (трава дроку красильного), leaves of the Lemna minor, thalli of Fucus vesiculoses and thalli of Laminaria contain in their composition 15 macro- and microelements (table 1). Silicium, mangan, magnesium, calcium, sodium and potassium are contained in comparatively big quantities.

When determining qualitative and quantitative content of mineral substances, first of all, we were interested in the elements, that have primary significance at thyroid gland diseases, deficiency or misbalances of which can be disturbed by the thyroid gland functioning, and the use of which can eliminate negative symptomatic signs at diseases of thyroid gland (Fe, Mn, Mg, Ca, Cu, Zn, Se, I).

It is necessary to pay attention that above-mentioned elements play important role under thyroid gland pathologies. Therefore, in cases of thyroid gland diseases the calcium metabolism is damaged, that leads to calcium deficiency in the organism. Magnesium deficiency leads to hyperexcitability, irritation, emotional disorders, which are the main symptoms in cases of thyroid gland dysfunction. Against the backdrop of constant magnesium deficiency, the risk of the heart arteries atherosclerosis, heart attacks and arrhythmia increases.

Table 1 – The results of determination of mineral substances content in the tested types of raw materials

Composition in mkg/100g															
Fe	Si	P	Al	Mn	Mg	Pb	Ni	Mo	Ca	Cu	Zn	Na	K	Se, мг/кг	I, %
Herb of Xanthium															
1,6	5,4	9,2	1,1	8,1	81,0	<0,03	0,11	<0,02	215	0,27	<0,01	5,4	54,0	<0,15	0,019
Herb of Genista															
12,0	570,0	76,0	16,0	7,5	69,0	<0,03	0,09	<0,02	290,0	0,19	<0,01	810,0	2100,0	<0,15	0,013
Herb of Lycopus European															
16,0	630,0	140,0	40,0	20,0	485,0	<0,03	0,16	0,08	670,0	4,0	0,81	970,0	2430,0	<0,15	0,016
Leaves of Feijoa															
5,1	825,0	105,0	20,0	1,0	310,0	<0,03	0,10	<0,03	1030,0	0,26	<0,01	105,0	2060,0	<0,15	0,024
Fresh fruit of Feijoa															
14,2	510,0	160,0	29,0	5,3	410,0	<0,03	0,11	<0,03	2100,0	0,31	<0,01	230,0	2900,0	0,31	0,037
Lemna minor															
934,0	2495,0	515,0	155,0	155,0	935,0	<0,03	0,93	<0,02	4990,0	0,78	<0,01	1870,0	4680,0	0,72	0,028
Thalli of Cetraria islandica															
17,0	75,0	21,0	25,0	4,2	34,0	0,08	0,04	<0,03	68,0	0,13	8,0	21,0	170,0	<0,15	0,023
Thalli of Laminaria															
30,0	160,0	34,0	20,0	30,0	1200,0	<0,03	<0,03	0,1	1600,0	0,5	<0,01	3600,0	6000,0	0,81	0,110
Thalli of Fucus vesiculosus															
24,0	110,0	25,0	13,0	34,0	800,0	<0,03	<0,03	<0,03	1200,0	0,3	<0,01	3100,0	5400,0	<0,15	0,050
Co < 0.003; Cd < 0,001; As < 0,001; Hg < 0,001; Sr < 0,1.															

Phosphor in the form of phosphoric acid takes part in the building of numerous enzymes, necessary for fat exchange, carbohydrates synthesis and their disintegration, regulates metabolism, takes part in the nervous system activity. Due to potassium ions the neurotransmission from neuron to neuron takes place. Potassium deficiency leads to disorders of cardiovascular system and can cause muscle weakness. Potassium deficiency in the organism in thyroid gland diseases is connected with dyspnea, fatigue, insomnia, low sugar level in the blood. Potassium is necessary for heart muscles, one of the major regulators of water-salt metabolism. Ions of ferum are found in the composition of the blood pegment hemoglobin, that has one of the most important functions in the organism – transmission of oxygen to cells and tissues [8, 10].

High content of elements had duckweed leaves (mkgr/100 г): ferum – 934, mangan – 155, magnesium – 935, calcium – 4990, cuprum – 0,78. High zink content had Cetraria thalli – 8 mkg/100 g and Lycopus herb – 0,81 mkg/100 g.

Selenium is a constituent of iodothironindefodinase – enzyme, responsible for peripheral conversion of T_4 into T_3 in liver and kidney, and its deficiency is accompanied by deficiency of the above-mentioned enzyme, and, as a result, incompleteness of iodine exchange. High selenium content has been determined in Laminaria thalli (0,81 mg/kg), duckweed leaves (0,72 mg/kg) and fresh Feijoa fruit (0,31 mg/kg). In other types of medicinal raw materials, the selenium content was determined as <0,15 mg/kg, what is explained by the sensitivity of this method.

For Fucus and Ascophyllum thalli the State Pharmacopoeia of Ukraine gives iodine content in raw material by the iodometry methods as follows: not less than 0.03 % and not more than 0.2 % of the total iodine ($A_м$ 126.9), on dry raw material base; for Laminaria thalli – not less than 0,1 % of the total iodine ($A_м$ 126.9), on dry raw material base. The results of the obtained experimental data demonstrated that all thalli of raw materials samples of Laminaria, Fucus and Ascophyllum met the requirements of the normative documentation. According to table 1 data, by the titration analysis results, the highest iodine content has been determined for representatives of brown algae – Laminaria (0,11 %) and Fucus (0,05 %), and also representatives of fresh water reservoirs – Lemna (duckweed) (0,028 %). Among geophytes the

tendency of iodine contents (%) is the following: Feijoa fruit (0,037) > Feijoa leaves (0,024) > Centraria thalli (0,023) > Xanthium herb (0,019) > Lycopus herb (0,016) > Genista herb (0,013).

Determination of the macro- and microelemental composition in the plant substances is a logical continue of the investigation concerned with the mineral composition determination in crude plant materials, and is necessary for getting more complete information as for the composition and effect of the obtained plant substances in cases of thyroid gland diseases. Spectral analysis of macro- and micro-elements in the tested substances has shown the following tendency: potassium > sodium > magnesium > > phosphorus > silicium > aluminium > mangan > ferum > zinc > cuprum (downward quantitative content) (table 2).

Table 2 – The results of determination of mineral substances content in plant substances

Content, mkg/100g															
Fe	Si	P	Al	Mn	Mg	Pb	Ni	Mo	Ca	Cu	Zn	Na	K	Se, mkg/l	I, mkg/ml
Water extract of Laminaria															
0,96	0,60	6,00	0,60	0,30	54,00	<0,03	<0,03	<0,03	36,00	<0,01	<0,01	72,00	360,00	<3,0	183±15
30 % tincture of Laminaria															
0,02	55,40	3,50	0,14	0,04	45,00	<0,03	<0,03	<0,03	137,00	0,07	0,11	190,00	670,00	<3,0	75±6
50 % tincture of Laminaria															
0,03	77,30	2,90	0,29	0,06	87,00	<0,03	<0,03	<0,03	145,00	0,09	0,14	230,00	870,00	<3,0	73±7
5 % tincture of Laminaria															
5,40	270,00	37,80	0,27	0,13	162,00	<0,03	<0,03	<0,03	324,00	0,03	0,54	432,00	270,00	3,80	69±6
10 % tincture of Laminaria															
0,04	0,40	40,00	0,04	0,02	180,00	<0,03	<0,03	<0,03	120,00	0,02	<0,01	240,00	120,00	6,60	130±9
Water extract of Lemna															
1,00	10,40	11,70	0,78	1,90	11,70	0,08	0,08	<0,03	19,50	0,01	0,03	23,00	117,00	<3,0	4,6±0,5
30 % tincture of Lemna															
0,24	27,20	3,40	0,03	0,34	10,2	<0,03	0,03	<0,03	3,40	0,05	0,02	17,00	36,00	<3,0	1,5±0,3
50 % tincture of Lemna															
0,92	3,70	7,80	0,14	1,80	20,7	<0,03	0,05	<0,03	9,20	0,04	<0,01	27,00	138,00	14,00	2,5±0,7
Water extract of Fucus															
0,70	35,00	4,90	0,07	0,17	21,00	<0,03	<0,03	<0,03	68,00	0,13	8,00	21,00	170,00	40,00	10±1
30 % tincture of Fucus															
1,70	33,60	5,60	2,80	0,03	16,80	0,05	0,03	<0,03	28,00	0,02	0,03	45,00	168,00	<3,0	7±2
50 % tincture of Fucus															
0,03	5,50	3,40	0,02	0,34	20,70	<0,03	0,03	<0,03	17,20	0,03	<0,01	41,00	185,00	<3,0	5±2
Water extract of Genista															
0,19	7,60	4,70	0,19	0,09	5,70	<0,03	0,04	<0,03	15,20	<0,01	0,02	9,50	57,00	<3,0	0,6±0,2
30 % tincture of Genista															
0,05	5,00	4,10	0,01	0,24	7,20	<0,03	<0,03	<0,03	12,00	0,012	<0,01	2,40	48,00	<3,0	1,3±0,5
50 % tincture of Genista															
1,35	24,0	5,10	1,20	0,15	18,00	<0,03	<0,03	<0,03	24,00	0,15	0,30	15,00	150,00	<3,0	0,4±0,1
Water extract of Lycopus															
0,23	7,70	5,80	0,14	0,01	8,70	<0,03	0,03	<0,03	17,40	0,01	0,03	8,70	85,00	<3,0	0,6±0,1
30 % tincture of Lycopus настойка вовконогу															
0,18	5,90	6,30	0,01	0,04	11,00	<0,03	<0,03	<0,03	22,20	0,09	0,02	7,40	110,00	<3,0	0,4±0,1

Continue. Table 2

50 % tincture of Lycopus															
1,1	15,40	6,10	2,00	1,10	13,20	<0,03	0,11	<0,03	17,60	0,06	0,22	11,00	88,00	<3,0	0,4±0,1
Water extract of Cetraria															
0,52	10,40	2,20	1,00	0,65	3,90	<0,03	<0,03	<0,03	10,40	<0,01	0,65	6,50	39,00	<3,0	1,8±0,2
30 % tincture or Centraria															
0,03	2,10	1,00	0,18	0,03	1,50	<0,03	<0,03	<0,03	3,60	<0,01	0,06	0,90	9,00	<3,0	1,1±0,3
50 % tincture of Centraria															
0,30	6,00	1,70	1,00	0,50	3,00	<0,03	<0,03	<0,03	7,00	<0,01	0,50	1,50	30,00	<3,0	2,5±0,2
Water extract of Feijoa leaves															
0,18	14,40	1,80	0,09	0,09	5,40	<0,03	<0,03	<0,03	14,40	<0,01	0,18	1,80	90,00	<3,0	3,5±0,4
30 % tincture of Feijoa leaves															
0,10	12,30	1,50	0,05	0,06	4,70	<0,03	<0,03	<0,03	10,00	<0,01	0,11	1,40	110,00	<3,0	1,5±0,2
50 % tincture of Feijoa leaves															
0,16	15,00	1,30	0,08	0,07	3,90	<0,03	<0,03	<0,03	12,80	<0,01	0,15	1,60	100,00	<3,0	0,9±0,3
Water extract of Feijoa fruit															
0,06	19,20	0,84	0,04	0,03	3,60	<0,03	<0,03	<0,03	2,40	0,09	0,01	1,20	36,00	<3,0	1,5±0,3
30 % tincture of Feijoa fruit															
0,01	3,00	0,40	<0,01	<0,01	1,20	<0,03	<0,03	<0,03	3,30	<0,01	<0,01	1,80	12,00	<3,0	1,3±0,3
50 % tincture of Feijoa fruit															
0,03	5,00	1,00	<0,01	0,01	5,00	<0,03	<0,03	<0,03	10,0	<0,01	<0,01	5,00	40,00	<3,0	1,5±0,2
Co < 0.003; Cd < 0,001; As < 0,001; Hg < 0,001; Sr < 0,1.															

The biggest selenium content (mkg/l) was characteristic for Fucus extract (40) and 50 % Lemna (duckweed) tincture (14). It is interesting to note that the iodine:selenium ration in the tested samples was 1:4(5), that can stipulate the similar mechanism of the influence for thyroid gland. Among the tested samples high iodine and selenium content had simultaneously Laminaria samples – 5% tincture (3,8), 10% tincture (6,6). Though the iodine:selenium ratio had different character and was 18(19):1. In other types of medicinal crude materials the selenium content was determined as <3,0 mkg/l, that is explained by the sensitivity of this method.

Samples of Laminaria, Fucus, Feijoa and Lemna were characterized by the highest iodine content. The maximum iodine content had water extracts, when ethyl alcohol concentration was increased, significant increase iodine content didn't take place (table 2).

Among other mineral substances, that have great importance for normal functioning of thyroid gland high cuprum content (mkg/100 g) is characteristic for 50 % Lycopus tincture (0,055) and Genista (0,15), 30 % (0,05) and 50 % tinctures of Lemna (0,04), tinctures of Laminaria and Fucus, water extracts of Feijoa fruit (0,09).

Zinc has been determined in almost all plant substances. The highest content (mkg/100 g) had water fucus extract (8,0), also it is necessary to note water Cetraria extract (0,65) and 5 % Laminaria tincture (0,54). High ferum content (mkg/100 g) was characteristic for 5 % Laminaria tincture (5,4), 30 % Fucus tincture (1,7), 50 % Genitsa tincture (1,35), 50 % Lycopus tincture (1,1).

Samples do not have significant changes by quantitative mangan content. The highest content (mkg/100 g) was characteristic for Lemna extracts – water extract (1,9), 30 % tincture (0,34), 50 % tincture (1,8), 50 % Fucus extract (0,34), 30 % Genista tincture (0,24), and Cetraria water extract (0,65).

Laminaria samples (mkg/100 g) – 5 % tincture (324), 10 % tincture (120), 30 % tincture (137), 50 % tincture (145) were characterized by the highest calcium content.

Conclusion. The results of experimental studies of determination of macro- and microelement content in raw material of medicinal plants and their extracts, which are used in thyroid gland diseases have been presented in the article. The presence of 15 macro- and microelements has been determined by

spectral analysis; which contained in their composition silicium, mangan, magnesium, calcium, sodium and potassium in comparatively large quantities; iodine and selenium content has been determined. The representatives of brown algae – Laminaria (0,11 %) and Fucus (0,05 %), and also the representative of fresh water reservoirs – Lemna (0,028 %) were characterized by highest iodine content. Samples of laminaria, fucus, feijoa and Lemna were characterized by the highest iodine content. Water extracts had maximum iodine content, significant increasing of iodine content has not been noticed at ethyl alcohol concentration increasing. High selenium content has been determined in Lamanaria thalli (0,81 mg/kg), Lemna leaves (0,72mg/kg) and fresh Feijoa fruit (0,31 mg/kg). The highest selenium content (mkg/l) had Fucus water extract (40) and 50 % Lemna tincture (14). It is interesting to note that the iodine: selenium ration in these samples was 1:4(5), that can explain similar mechanism of action on thyroid gland. Among tested substances high iodine and selenium content simultaneously had laminaria samples – 5 % tincture (3,8), 10 % tincture (6,6). Though iodine:selenium ratio had another character and made 18(19):1.

Therefore, it is reasonable to take into account the pharmacotherapeutic potential of the vitally important microelements of medicinal plants for development of herbal medicine with predetermined medicinal effects for correction of thyroid gland diseases and microelementosis.

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АНАЛИЗ ФАРМАКОТЕРАПЕВТИЧЕСКОГО ДЕЙСТВИЯ МИНЕРАЛЬНЫХ ВЕЩЕСТВ ЛЕКАРСТВЕННЫХ РАСТЕНИЙ, ПРИМЕНЯЮЩИХСЯ ПРИ ЗАБОЛЕВАНИЯХ ЩИТОВИДНОЙ ЖЕЛЕЗЫ

Аннотация. Заболевания щитовидной железы (ЩЗ) относятся к одним из наиболее распространенных, сопровождаются изменением гормонального фона всего организма и приводят к нарушению жизненно важных процессов в других органах, то есть провоцируют возникновение сопутствующих заболеваний. Среди основных причин заболеваний щитовидной железы выделяют психологические и эмоциональные перегрузки; неправильное и несбалансированное питание, в результате чего в организме возникает дефицит минеральных веществ и витаминов; радиоактивную обстановку и неблагоприятную экологическую ситуацию; хронические заболевания.

Учитывая такую важную роль макро- и микроэлементов в нормальной работе ЩЗ, необходимым является поддержание их физиологически необходимого содержания в организме. Источником минеральных веществ могут быть лекарственные растения и средства, полученные из них. Поэтому, целью работы было определение содержания макро- и микроэлементного состава лекарственных растений – трава дурнишника обыкновенного, листья фейхоа, плоды фейхоа свежие, слоевища цетрарии исландской, трава зюзника европейского, трава дрока красильного, листец ряски малой, слоевища фукуса пузырчатого и слоевища ламинарии, которые применяются при заболеваниях щитовидной железы, их водных экстрактов и 10 %-ных, 30 %-ных и 50 %-ных спиртовых настоек.

Определение количественного содержания макро- и микроэлементов проводили методом атомно-эмиссионной спектрографии. Количественное определение общего йода проводили методами йодометрии (титрант – 0.01 М раствор натрия тиосульфата) после предварительного сжигания сырья в щелочной среде по методике ГФУ 2.0 Т. 3 монография "Бурые водоросли". В результате проведенного спектрального анализа в исследуемых видах лекарственного растительного сырья и их экстрактах установлено наличие 15 макро- и микроэлементов. В сравнительно больших количествах содержатся: силиций, марганец, магний, кальций, натрий и калий. При определении качественного состава и количественного содержания минеральных веществ нас прежде всего интересовали элементы, имеющие первоочередное значение при заболеваниях ЩЗ, при дефиците или дисбалансе которых может нарушаться функционирование ЩЗ или других внутренних органов, а их применение может устранять негативные симптоматические проявления при заболеваниях ЩЗ (Fe, Mn, Mg, Ca, Cu, Zn, Se, I). Наибольшим содержанием йода характеризовались представители бурых водорослей – ламинария (0,11 %) и фукус (0,05 %), а также представитель пресных водоемов – ряска (0,028 %). Высокое содержание йода установлено в образцах ламинарии, фукуса, фейхоа и ряски. Наибольшее содержание йода имели водные экстракты, при увеличении концентрации спирта этилового существенного увеличения содержания йода не происходило. Высокое содержание селена следует отметить в слоевищах ламинарии (0,81 мг/кг), листеце ряски (0,72 мг/кг) и свежих плодах фейхоа (0,31 мг/кг). Наибольшее

содержание селена (мкг/л) было в водным экстракте фукуса (40) и 50 % настойки ряски (14). Интересным является тот факт, что соотношение йод:селен в этих образцах составляло 1:4(5), что может обусловливать похожий механизм влияния на ЩЗ. Среди исследуемых субстанций высокое содержание йода и селена одновременно обнаружено в образцах ламинарии – 5 % настойке (3,8), 10 % настойке (6,6). Хотя соотношение йод:селен имело другой характер и составляло 18(19):1.

Ключевые слова: Laminaria, Fucus, Cetraria islandica (L.) Ach., Lemna minor S.F. Gray, Xanthium strumarium L., Genista tinctoria L., Lycopus europaeus L., Feijoa sellowiana Berg., Feijoa sellowiana Berg., коррекция дефицита минеральных веществ, заболевания щитовидной железы.

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FLUID FILTRATION TO MULTI-BORE HORIZONTAL WELLS IN A DEFORMABLE POROUS MEDIUM

Abstract. The scientific work considers finite element modeling of fluid filtration in a deformable porous medium. A transversely isotropic medium has been taken as a deformable medium. Fluid filtration process to a horizontal well in the transversely isotropic medium has been analyzed. Numerical solution of the problem is carried out by high-performance finite element modeling.

Key words: fluid, filtration, horizontal well, deformation, transversely isotropic medium, finite element modeling.

Introduction. Nowadays refining computer technologies are giving a lot of opportunities to solve difficult problems on personal computers. Currently, numerical computer simulation of filtration process is much more important as other types of simulations. Therefore, using numerical methods in order to solve filtration problem going through a deformable porous medium we must carry out computer modeling in association with it.

In the work there is designed computer modeling of fluid filtration process which goes to the multi-bore well in the transversely isotropic medium. Numerical solution of the problem has been done by the finite element method and a software package has been created. In the software package the program automatically divides the computational area into finite elementsaccording to its given parameters, in addition, the parameters of the well trunks and layers have been taken into account. Additionally, in the software package the element properties will be added to the computational scheme extracted from finite element in [1]. Algebraic equation system will be done and the algorithm of the problem depends on thenodenumbers of the computational areas. Whilethe node points of the computational area are increased or decreased respectively the area division is increased or decreased automatically. Therefore, nowadays designing computer modeling of fluid filtration to multi-bore horizontal wells in a deformable porous mediumby the gained results is an actual problem.

Problem statement. There two wells locatedin elastically deformable transversely isotropic porous media in the depth of H from the ground level.

General type of drift and crosscut type multi-bore horizontal wells is considered and we can call it diagonal type. Diagonal well – its longitudinal axis makes a corner with any directions of the drift type direction. Flat pleats in the elastic horizontal pleat porous medium are inclined to horizontal plane with φ corner. O pointis taken as the coordinate origin, Oz is directed vertically upward. Ox and Oy are horizontal with each other, and the well makes ψ corner withhorizontal Ox axis laid along this pleat (figure 1).

As tackling such kind of problem statement the influence of porous media on stress-strain state around the well can be estimated.

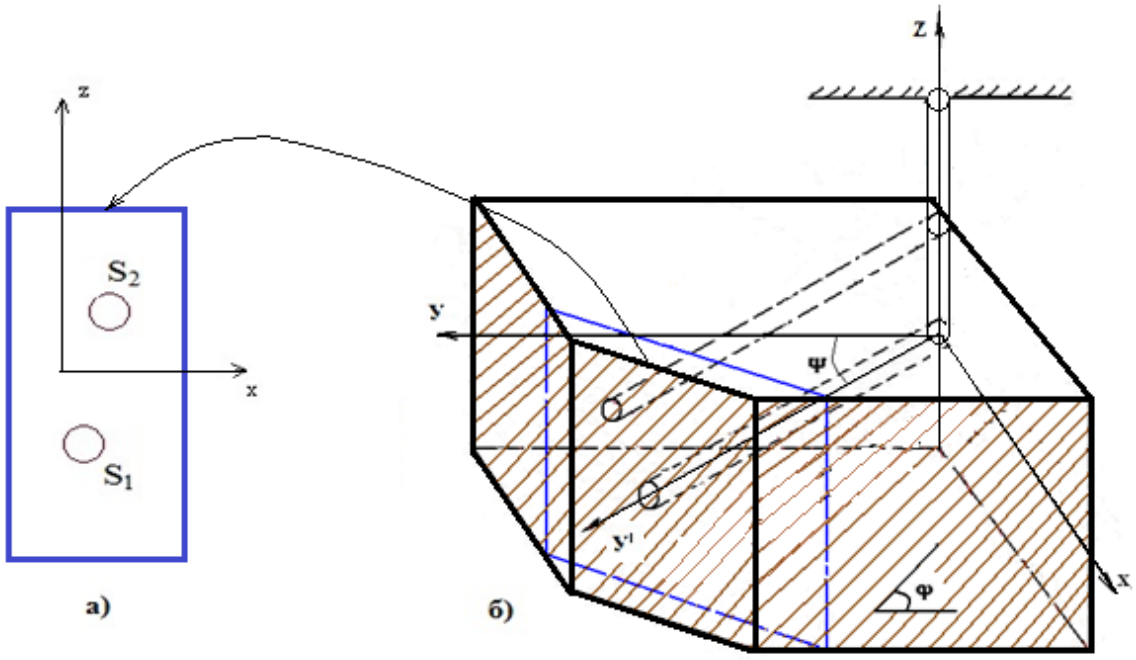


Figure 1 – Horizontal wells with differently directed multi-bores

It is a drift type horizontal well when $\psi = 0$. When general rotation angle of the horizontal well near its truck is $0 \le \psi \le 90°$, it will be given by Hooke's Law [2-4]:

$$\sigma_{ij} = d_{iklj}\varepsilon_{ij} + \delta_{ij}p \tag{1}$$

thereare σ_{ij} and ε_{ij} – components of stress and strain, δ_{ij} – Kronecker symbols, p – fluid pressure. Deformation coefficients of differently directed horizontal wells are shown in works [5, 6].

Filtration coefficients according to the change of angle ψ in the transversely isotropic medium [7].

$$\begin{aligned} k_x &= \left(k_{x'}\cos^2\psi + k_{y'}\sin^2\psi\right)\cos^2\varphi + k_{z'}\sin^2\varphi, \\ k_{xz} &= k_{x'}\cos^2\psi + k_{y'}\sin^2\psi, \\ k_z &= \left(k_{z'}\cos^2\psi + k_{y'}\sin^2\psi\right)\cos^2\varphi + k_{x'}\sin^2\varphi. \end{aligned} \tag{2}$$

We consider initial and boundary conditions as below:

$$p(x,y,z,0) = p_0 \tag{3}$$

$$p\big|_{AB} = p_1,\ p\big|_{DC} = p_2.\quad p\big|_{S_1,S_2} = p^*. \tag{4}$$

$$\left.\frac{\partial p}{\partial n}\right|_{AD,BC} = 0. \tag{5}$$

$$u_x\big|_{AD,BC} = 0,\ u_z\big|_{DC} = 0. \tag{6}$$

The solutions of problems of stresses and displacements around crosscut and drift wells in the case of homogeneous porous media are presented in [8-11] but porous media in all the works are considered as isotropic media.

The use of the finite element modeling. Numerical simulation, additionally, the method of division into triangles for modeling of fluid filtration in inhomogeneous porous media are shown in the work of B. Amaziane, M.E. Ossmani, Ch. Serres [12] and so on. Finite element requiresa general flat deformation calculated algorithm withfour-point rectangular isoperimetric element in order to gain the numerical solution of the problem. $x_i, z_i, (i = 1,2,3,4)$ coordinates of any "*e*" element points and components u_i, w_i, v_i of displacements have been characterized through function h_i.

Forces in each nodal point under the influence of weight are calculated by elements weight concentrated on it. For the problem statementthe basic matrix 3N- order equations system of the finite element modelingis written by the displacement components of N nodal points[13]:

$$\{F\} = [K]\{U\} \tag{7}$$

here $[K] = \sum_{i=1}^{n} [k^e]_i$ – stiffness matrix of the system; $\{U\} = (u_1,...,u_N, w_1,...,w_N, v_1,...,v_N)^T$ – displacement vector; $\{F\} = (F_{x_1},...,F_{x_N}, F_{z_1},...,F_{z_N}, F_{y_1},...,F_{y_N})$– force vector.

Numerical solution of the problem. The influence of the stress-strain state of the transversely isotropic porous medium and filtration coefficients on the flow rate of the horizontal well have been analyzed. Experiments will be developed with the following initial data for the problem (1)-(7) in accordance with the real conditions of conducting the horizontal well:

h_1 = 8m, h_2 = 14m, h = 22m, h_3 = 150m, μ = 2.4 cps, p_0 = 10 atom, $p_1 = p_0 + 1.2$, $p_2 = p_1 + \gamma h$, γ = 0.908 t/m^2.

k = 0.106d, E = 1 t/m^2, v = 0.25, G_2 = 0.4 t/m^2.

The area having lots of wellbores is divided into 2464 triangle elements and 1362 nodes. Stationary filtration problem is given to solve 1362 and 4046 consistent algebraic equation systems according to the pressure and displacement. It is solved, taking into consideration its boundary conditions, by Zeidel-Gauss iteration method which has a high coefficient of $\beta\,(1 \le \beta \le 2)$ relaxation.

The developed algorithm and software package have been tested in a special task in determining the flow rate of the horizontal well in the isotropic planes. The gained results (table 1) fluctuate just for 1-2% compared to the real solution.We examine anisotropy which depends on the horizontal angle of the presented pleat and deformation impact in the case of $k_z = k_x/10$, $k_z = 10k_x$ are shown in tables 2, 3.

The software package divides the area automatically into finite elements with the given results. With the help of it, the computational area is divided into triangle elements in accordance with the wells dimensions.

On the basis of the computational results, when the vertical and horizontal permeability of the anisotropic transversely isotropic deformable and undeformable pleats changes, we can observe that its stress-strain state will significantly influence on the flow rate of the horizontal well, because the flow rate of the horizontal well in 45^{o}inclined angle layer with tiny pleats has the lowest value (figure 2).

Table 1 – (T/day) value of *l* debit of the horizontal well in different length in the isotropic layer

l	Q_{anal}	Q_{nedef}	Q_{def}	$\lvert Q_{anal}-Q_{nedef}\rvert$	$\lvert Q_{anal}-Q_{def}\rvert$	$\lvert Q_{nedef}-Q_{def}\rvert$
1	2.91	2.91	2.25	0	0.66	0.66
2.4	6.98	6.99	5.39	0.01	1.59	1.6
13.7	39.87	39.9	30.76	0.03	9.11	9.14
20	58.2	58.25	44.91	0.05	13.29	13.34
50	145.5	145.62	112.26	0.12	33.24	33.36
100	291	291.25	224.53	0.25	66.47	66.72

Table 2 – Comparative analysis of the horizontal well debit (T/day)

in the deformable and undeformable inclined transversely isotropic layers with permeability $\frac{k_z}{k_x} = 0{,}1$

l		1	2.4	13.7	20	50	100
$\varphi = 0$	Q_{nd}	2.54	6.09	34.76	50.74	126.85	253.70
	Q_d	2.52	6.04	34.46	50.30	125.75	251.50
$\varphi = 30°$	Q_{nd}	1.46	3.50	19.96	29.14	72.85	145.70
	Q_d	1.01	2.41	13.78	20.12	50.30	100.60
$\varphi = 45°$	Q_{nd}	1.60	3.84	21.95	32.04	80.10	160.20
	Q_d	0.85	2.05	11.70	17.08	42.70	85.40
$\varphi = 60°$	Q_{nd}	2.90	6.96	39.70	57.96	144.90	289.80
	Q_d	1.87	4.49	25.63	37.42	93.55	187.10
$\varphi = 90°$	Q_{nd}	6.27	15.05	85.93	125.44	313.60	627.20
	Q_d	5.20	12.47	71.19	103.92	259.80	519.60

Table 3 – Comparative analysis of the horizontal well debit (T/day)

in the deformable and undeformable inclined transversely isotropic layers with permeability $\frac{k_z}{k_x} = 10$

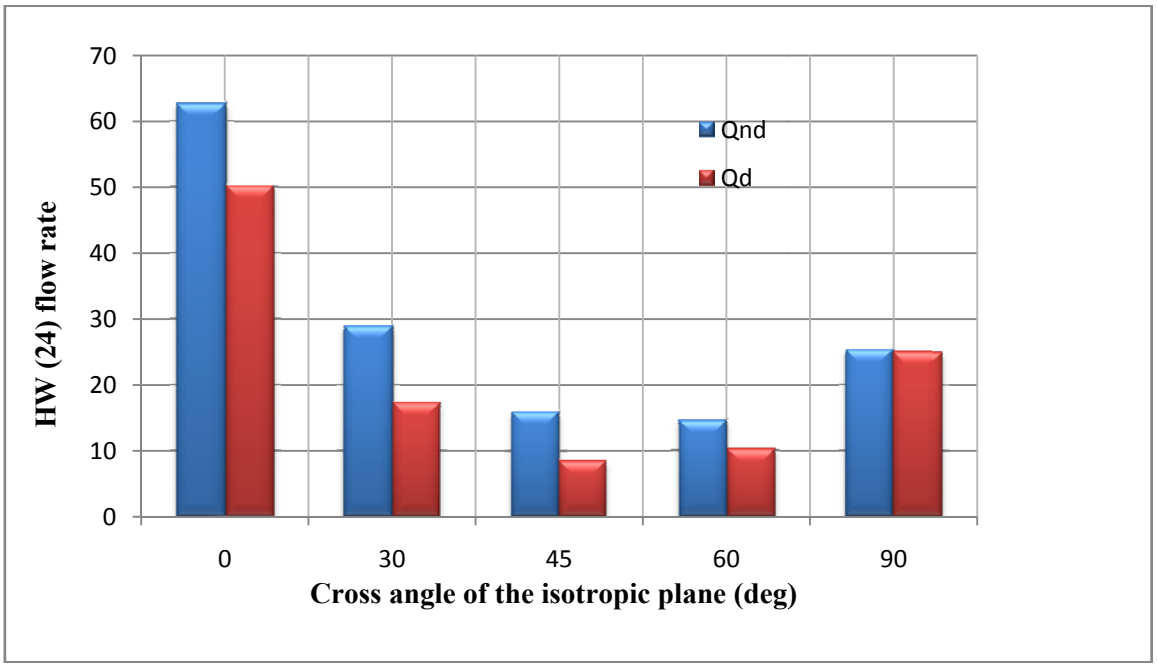
l		1	2.4	13.7	20	50	100
$\varphi = 0$	Q_{nd}	62.72	150.54	859.31	1254.46	3136.15	6272.30
	Q_d	50.26	120.63	688.60	1005.26	2513.15	5026.30
$\varphi = 30°$	Q_{nd}	28.99	69.56	397.09	579.70	1449.25	2898.50
	Q_d	17.35	41.64	237.70	347.00	867.50	1735.00
$\varphi = 45°$	Q_{nd}	16.02	38.45	219.46	320.38	800.95	1601.90
	Q_d	8.54	20.49	116.94	170.72	426.80	853.60
$\varphi = 60°$	Q_{nd}	14.57	34.97	199.62	291.42	728.55	1457.10
	Q_d	10.25	24.60	140.41	204.98	512.45	1024.90
$\varphi = 90°$	Q_{nd}	25.37	60.89	347.56	507.38	1268.45	2536.90
	Q_d	25.04	60.10	343.08	500.84	1252.10	2504.20

Wells debit in the highest vertical permeability on average goes up for 20.2(T/day). The elastic deformation in $k_z = k_x / 10$ makes horizontal well debit reduce on average to 0.665 (T/day) and in $k_z = 10k_x$ on average to 7.045 (T/day).

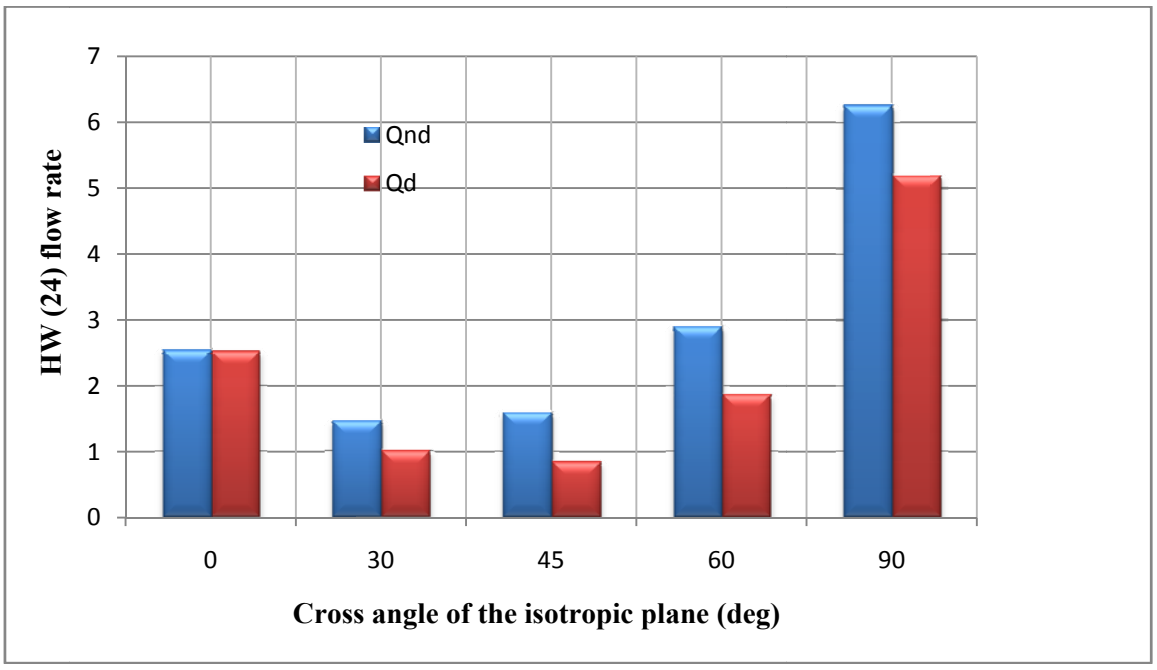
Different versions of computational experiments have been carried out by verifying with the help of the software package. The results demonstrated below will be revealed according to the shown parameters

$$k_x = 0.106\text{д}, \quad k_z = 2k_x,$$
$$E_1 = 1.074\text{т/м}^2, \quad E_2 = 0.523\text{т/м}^2,$$
$$v_1 = 0.413, \quad v_2 = 0.198, \quad G_2 = 0.12\text{т/м}^2.$$

In figure 3 the impact of stress-strain state on the field of pleats pressure is demonstrated. In the feature the dashed lines$\varphi=0$show the value of isolation, and the solid lines infer to the other values of the isotropic plane inclined angle.



a



b

Figure 2 – Charts of the horizontal well debits with unit length in the deformable and undeformable anisotropic media: a – $\frac{k_z}{k_x} = 0.1$ and b – $\frac{k_z}{k_x} = 10$

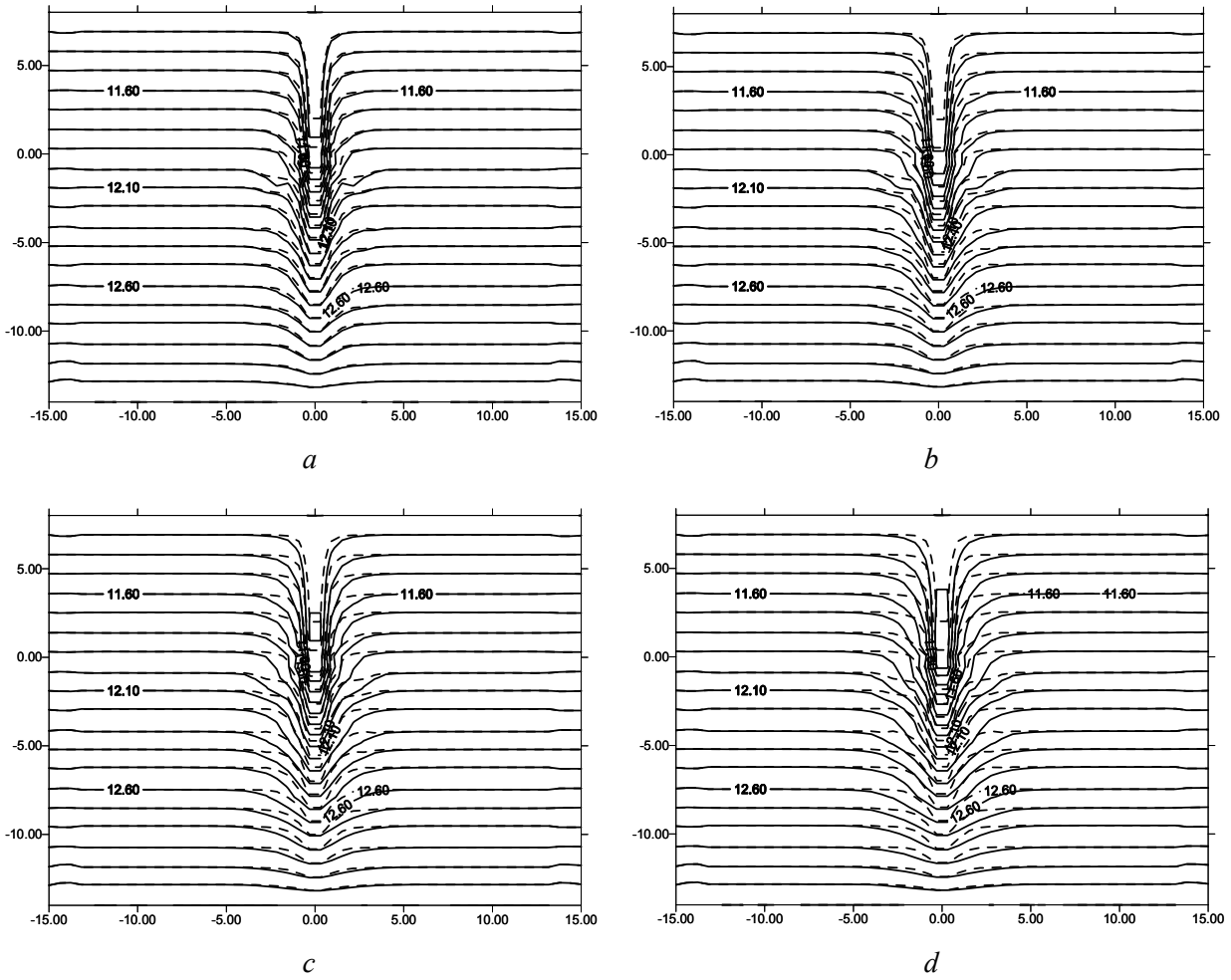


Figure 3 – Changes of the pressure field of the isotropic plane inclined angle: a) φ = 30°; b) φ = 45°; c) φ = 60°; d) 90°

In conclusion, by the gained results the production of fluid is calculated that flows in the horizontal multilayer medium to the drift type multi-bore horizontal well. The stress-strain state of the anisotropic medium and the effect of filtration coefficient on the flow rate of the horizontal well have been considered. The production of the well in the horizontal layer is researched.

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ДЕФОРМАЦИЯЛАНАТЫН КЕУЕК ОРТАДА СҰЙЫҚТЫҚТЫҢ КӨПДІҢДІ ГОРИЗОНТАЛЬ ҰҢҒЫМАҒА ФИЛЬТРАЦИЯЛАНУЫ

Аннотация. Жұмыста деформацияланатын кеуек ортада сұйықтықтың фильтрациялануын шекті элементті модельдеу қарастырылды. Деформацияға ұшырайтын орта ретінде трансверсальды-изотропты орта алынды. Трансверсальды-изотропты ортада горизонталь ұңғы (ГҰ) арқылы сұйықтықтың фильтрациялану процестері қарастырылды. Есептің сандық шешімі жоғары ретті шекті элементті қолдануымен жүзеге асады.

Түйін сөздер: сұйықтық, фильтрация, горизонталь ұңғы, деформация, трансверсальды-изотропты ортада, шекті элементтер әдісі.

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ФИЛЬТРАЦИИ ЖИДКОСТИ К МНОГОСТВОЛЬНЫМ ГОРИЗОНТАЛЬНЫМ СКВАЖИНАМ В ДЕФОРМИРУЕМОЙ ПОРИСТОЙ СРЕДЕ

Аннотация. В работе рассматривается конечное элементное моделирование фильтрации жидкости в деформируемой пористой среде. В качестве деформируемой среды была взята транверсально-изотропно деформируемая среда. Проанализирован процесс фильтрации жидкости к горизонтальной скважине в транверсально-изотропной деформируемой среде. Численное решение задачиосуществлено с помощью высокопроизводительного моделирования конечных элементов.

Ключевые слова: жидкость, фильтрация, горизонтальная скважина, деформация, транверсально-изотропная среда, метод конечных элементов.

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COMPARATIVE ASSESSMENT OF VARIETIES OF THE SPRING TRITICALE

Abstract. The relevance of the studies is justified by the fact that in the Chuvash Republic, the triticale was grown on an area of 2.6 thousand hectares, mainly winter varieties. In recent years, research has focused on selection work with spring triticale. The determination and study of the new basic material are always relevant because the quality of the basic material always determines the efficiency of the selection work. The aim of the work was to carry out a comparative assessment of new varieties of spring triticale in the conditions of the Chuvash Republic.

An assessment of new varieties of spring triticale in the conditions of the Chuvash Republic was carried out. It is revealed that the Saur variety is characterized by the largest number of productive stems, weight of kernels from spike and thousand-kernel weight. The number of productive stems was the lowest in the Rovnya variety. This variety showed the minimum values and the number of spikelets in the ear. At the same time, in the Rovnya variety, the number of kernels in the spike was the largest. The Ulyana variety was inferior to all other varieties by the kernel weight from 1 spike and by thousand-kernel weight. The variety of Khaikar significantly exceeded the standard for the number of productive stems, kernel weight from 1 spike and the 1000-kernel mass, and the number of spikelets and kernels in the spike was at the level of Ulyana. The Saur and Khaikar varieties significantly outperform the standard. Field germination of seeds was rather low. In the Ulyana variety, the seeding rate did not have a significant effect on this indicator. It ranged from 56.0 to 56.5%. The density of shoots depended on both the seeding rate and the variety. The number of plantlings with an increase in the seeding rate increased in the Ulyana variety from 225 to 339 and in the Khaikar variety – 276 to 372 pieces/m^2. However, with the increase in the seeding rate, the survival ability and preservation of plants decreased. A particularly sharp decrease was characteristic of the seeding rate of 6 million germinated seeds. The optimal seeding rate of varieties of spring triticale in the conditions of the Chuvash Republic is 5 million germinated seeds per 1 hectare.

Keywords: spring triticale, variety, spike structure, seeding rate, survival ability, preservation, yield.

Introduction. Triticale is an artificial grassy herb derived from the hybridization of wheat and rye. There was a hope that triticale would combine high yield potential and good quality of wheat grain, as well as resistance to biotic and abiotic stresses of rye. Grains of triticale can be used to feed people and livestock. Since the last century, the triticale has been given considerable attention as a potential energy culture. Today, research is currently underway on the use of biomass yields in the production of bio-energy. The aim of the triticale cultivation program is mainly focused on improving economic characteristics, such as grain yield, biomass, nutritive factors, plant height, and features such as early maturity and large grain volume. Intensive reproduction and selection made very rapid genetic improvements in the quality of triticale seeds. Agronomical advantages and improved properties of the end use of triticale grains over wheat, achieved as a result of the research and development, make triticale an attractive option for increasing world food production, in particular, for stressful growth conditions [1]. The high content of dietary fibers together with spring triticale attracts close attention to this culture as a possible source of valuable food raw materials for dietary nutrition [2]. The protein content of this culture is higher than that of wheat, although the fraction of glutenins is smaller. Triticale can be used in the production of bread and other food products, such as pasta and flakes for breakfast [3].There is a wide variation in the chemical composition of triticale, which indicates the potential of triticale as an alternative to cereals for various

foods and beverages [4]. Cereal crops are considered promising that produce biomass in temperate regions of Europe that will be used for both fuel alcohol and biogas production[5].

For the first time triticale was obtained by Rimpau in 1888 when crossing soft wheat and rye, and a subsequent spontaneous doubling of chromosomes [6]. The triticale culture in world agriculture is relatively young and is grown in production for less than 50 years. The value of this culture lies in the successful combination of the positive properties of wheat and rye. Like wheat, it is high-yielding and has high grain quality indicators. As rye, it is resistant to unfavorable environmental factors.Triticale (×Triticosecale Wittm.) Is an amphidiploid created artificially and combines in its genome complete chromosome sets of wheat and rye. Now, hexaploid forms of triticale with a higher potential for productivity are mainly widespread. Despite the fact that the triticale has a very short history of development and the genomes that form this culture, have not gone through evolutionary ways of co-adaptation, intensive selection work with the initially sterile hybrid between wheat and rye led to the creation of a new economically important culture within one century [6, 7]. The selection program for triticale is widely deployed in many countries of the world, but, according to some plant breeders and biochemists, the widespread introduction of triticale is constrained by the absence of varieties with good technological properties [9].

Triticale first appeared in the fields in 1975. In recent years, there has been a steady increase in the production of triticale grain. In 2016, according to FAO, triticale was grown in 40 countries around the world on an area of 4,157,018 hectares. It should be noted that 89.4% of world production is concentrated in European countries [10]. The leading producers of triticale are Poland, Belarus, Germany, France, China.

As for yield, triticale exceeds all other cereals of the first group. So, in the conditions of 2016, the average yield of triticale in the world was 36.6 c/ha, which is 7.6-50.3% higher than the yield of other cereal crops.

According to Rosstat, in 2016 in the Russian Federation, the total area of triticale crops was 223,078 hectares. The share of spring triticale accounted for only about 6% of the area occupied. The small area of triticale crops, especially spring crops, is explained by the insufficient knowledge of its biology and the specific features of agricultural technology in concrete soil and climatic conditions. A poor choice of varieties of spring triticale plays a negative role in this. The varieties of spring triticale began to be included in the State Register only since 2000 and to date, there are only 14 varieties in this list. Most of these registered varieties (57.1%) were grown at the National Center for Grain named after P.P. Lukyanenko "and at Vladimir Scientific Research Institute of Agriculture. In this regard, it is necessary to strengthen the selection work for the creation of new varieties.

In the Chuvash Republic, triticale was grown on an area of 2.6 thousand hectares, with only winter triticale. The investigations carried out earlier by us showed the promise of spring triticale in the conditions of Chuvashia [11]. In this regard, in 2015, in the Chuvash State Agricultural Academy, in the Department of Agriculture, Plant Growing, Breeding and Seed Production, the selection work began with this culture. In the selection of any crop, as well as spring triticale, the identification and study of a new basic material are always relevant. The quality of the basic material always determines the efficiency of the selection work [12]. Therefore, the main aim of our work was a comparative assessment of new varieties of spring triticale in the Chuvash Republic.

Material and methods. The studies of spring triticale varieties have been carried out since 2015 at the Studenchesky scientific and practical center of the Chuvash State Agricultural Academy. The soil of the site is medium-loamy dark gray. The arable layer of the plot had an acidity close to neutral. The humus content was low, exchangeable potassium - increased, mobile phosphorus - high. The experiment was laid in sixfold replication and is represented by 4 varieties. The plot area is 6 m^2.The seeding rate is 6 million germinated seeds. The seeds of the first reproduction were used for seeding. Sowing was carried out in the first half of May, gathering - in late August. The Saur and Khaikar grades are grown at the Don Zonal Research Institute of Agriculture, the Rovnya variety - at the Vladimir Scientific Research Institute of Agriculture, the Ulyana variety - at the Scientific and Practical Center of the National Academy of Sciences of Belarus for Agriculture. Of these, the Saur, Khaikar and Rovnya varieties are included in the state register of breeding achievements permitted for use as for 2018. The Ulyana variety was taken as a control, as it is included in the register of varieties of agricultural crops recommended for production in the Chuvash Republic.

Results and discussion. The variety of Rovnya differs from other varieties by a short stalk. The height of the plants in the varieties Ulyana, Saur and Khaikar was higher than 90 cm, while in the Rovnya variety it was only 67.7 cm. According to the yield of the Saur and Khaikar varieties, they significantly exceed the standard Ulyana variety, especially the Saur.

The minimum yield was typical for the Ulyana variety and it was 36.8 centner/ha. In the Rovnya variety, this indicator was higher than that of the standard, but the differences were not reliable. In the Saur variety from 1 hectare, 79.2 c/ha was obtained, which is 32.7% higher than that of the Khaikar variety. The study of the structural elements of the yield showed that significant differences between the varieties were identified by the number of productive stems, kernel weight from the spike, 1000-kernel weight. According to the number of spikelets in the spike and the number of grains in the spike among the varieties, the differences are not reliable.

The Saur variety was characterized by the largest number of productive stems, the mass kernels from the spike and 1000-kernel weight. The number of productive stems was the lowest in the Rovnya variety. This variety showed the minimum values and the number of spikelets in the spike. At the same time, in the Rovnya variety, the number of grains in the spike was the largest. The Ulyana grade was inferior to all other varieties by the mass of kernels from 1 spike and by 1000-kernel weight. The Khaikar variety significantly exceeded the standard in the number of productive stems, kernel weight from 1 spike and the 1000-kernel weight, and the number of spikelets and kernels in the spike was at the level of the Ulyana.

First of all, the yield of any culture depends on the elements of the yield structure. These indicators are closely interrelated with the field germination of seeds, survival ability and preservation of plants. This pattern is also characteristic of the triticale. To obtain high yields, it is necessary to apply scientifically based seeding rates

The density of plantlings depended on both the seeding rate and the variety features. The number of plantlings with an increase in the seeding rate increased in the Ulyana variety from 225 to 339, and the Khaikar variety - from 276 to 372 pieces/m^2. Field germination of seeds was rather low. In the Ulyana variety, the seeding rate did not have a significant effect on this indicator. It ranged from 56.0 to 56.5%. In the Khaikar variety, it was higher and with an increase in seeding rates of up to 6 million germinated seeds, it declined significantly (table 1).

Table 1 – Effect of the seeding rate on field germination

Variety	Seeding rate, million germinated seeds per 1 ha	Seed sown per 1 m^2, pcs.	Density of plantling, pcs./m^2	Field germination, %
Ulyana	4	400	225	56.3
	5	500	280	56.0
	6	600	339	56.5
Khaikar	4	400	276	69.0
	5	500	342	68.4
	6	600	372	62.0
$НСР_{05}$	–	–	26	3.9

The density of plant standing before harvesting in the Ulyana variety increased from 168 to 250 pieces/m^2 with an increase in the seeding rate. At the same time, in Khaikar variety, when the seeding rate was increased from 4 to 5 million germinated seeds, the density of plant standing before harvesting increased, and a further increase in the seeding rate led to a reduction in this index. Preservation and survival ability of plants in the Ulyana variety at all seeding rates was approximately the same. In the Khaikar variety, these indicators were higher. However, with the increase in the seeding rate, the survival ability and preservation of plants were reduced. A particularly sharp reduction was typical for the seeding rate of 6 million germinated seeds (table 2).

One of the main indicators determining the biological yield of any crop is the number of stems bearing a full spike (table 3).

Table 2 – Effect of the seeding rate on the survival ability and preservation of plants

Variety	Seeding rate, million germinated seeds per 1 ha	Density of plantling before harvesting, pcs./m^2	Survival ability, %	Preservation, %
Ulyana	4	168	42.0	74.7
	5	208	41.6	74.3
	6	250	41.7	73.8
Khaikar	4	218	54.5	78.9
	5	259	51.7	75.6
	6	242	40.3	65.0
HCP_{05}	–	20	3.2	2.8

Table 3 – Effect of the seeding rate on the structure of the plant stand

Variety	Seeding rate, million germinated seeds per 1 ha	Number of stems, pcs. per 1 m^2				Tilling capacity	
		Productive	Unfertile stems	Undergrowth	Total	General	Productive
Ulyana	4	220	26	18	264	1.6	1.3
	5	245	42	11	298	1.4	1.2
	6	328	52	2	382	1.5	1.3
Khaikar	4	288	78	26	392	1.8	1.3
	5	351	69	11	431	1.7	1.4
	6	342	70	10	422	1.7	1.4
HCP_{05}	–	23	11	5	25	0.3	0.2

In the Ulyana variety, an increase in the seeding rate led to a significant rise in the density of productive stems. At the same time, other patterns were revealed in other varieties. For example, in the Khaikar variety, the maximum density of the productive stem is revealed at the seeding rate of 5 million germinated seeds. At the same time, the Khaikar had more productive stems than the Ulyana. Productive tilling capacity in both varieties did not depend on the seeding rate in general and ranged from 1.2 to 1.4 (table 3).

The yield analysis showed that an increase in the seeding rate from 4 to 5 million germinated seeds is accompanied by a reliable rise in the grain yield, especially in the Khaikar variety. In the Ulyana variety, a further increase in the seeding rate did not result in significant change in yield. However, in the Khaikar variety, there was a significant reduction in this indicator (table 4).

Thus, significant differences between varieties are revealed by the number of productive stems, the weight of kernels from the spike and the thousand-kernel weight. The Saur and Khaikar varieties significantly exceeded the standard. The optimal seeding rate of varieties of spring triticale in the conditions of the Chuvash Republic is 5 million germinated seeds per 1 hectare.

Table 4 – Effect of the seeding rate on yields

Variety	Seeding rate, million germinated seeds per 1 ha	Yield, centner/ha	Beviation	
			centner/ha	%
Ulyana	4	28.3	–	–
	5	32.2	3.9	13.8
	6	33.2	4.9	17.3
Khaikar	4	37.0	–	–
	5	54.5	17.5	47.3
	6	43.4	6.4	17.3
HCP_{05}	–	–	3.2	

Conclusion. The Saur variety was characterized by the largest number of productive stems, kernel weight from the spike and 1000-kernel weight. The number of productive stems was the lowest in the Rovnya variety. This variety showed the minimum values and the number of spikelets in the spike. At the same time, in the Rovnya variety, the number of kernels in the spike was the largest one. Ulyana variety was inferior to all other varieties by the kernel weight from 1 spike and by 1000-kernel weight. The Khaikar variety significantly exceeded the standard for the number of productive stems, kernel weight from 1 spike and the thousand-kernel weight, and the number of spikelets and kernels in the spike was at the level of Ulyana. Saur and Khaikar significantly exceeded the standard. The optimal seeding rate of spring triticale varieties in the conditions of the Chuvash Republic is 5 million germinated seeds per 1 hectare.

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Чуваш мемлекеттік ауыл шаруашылығы академиясы, Чебоксар, Чуваш Республикасы, Ресей,
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ЖАЗДЫҚ ТРИТИКАЛЕ СОРТТАРЫН САЛЫСТЫРМАЛЫ БАҒАЛАУ

Аннотация. Чуваш Республикасында 2,6 мың. га табиғи алқапқа тритикаленің күздік сорты артық өсірілгендіктен, зерттеудің өзектілігі жүргізілген тәжірибемен негізделген. Соңғы жылдары зерттеулер жаздық тритикалемен селекциялық жұмыстар жүргізуге бағытталған. Бастапқы жаңа шикізатты анықтау және зерттеу әрқашан да өзекті болып табылады, өйткені бастапқы шикізаттың сапасы әрдайым селекциялық жұмыстың ұтымдылығын айқындайды. Чуваш Республикасы жағдайында жаздық тритикаленің жаңа сорттарын салыстырмалы түрде бағалау жүргізілетін жұмыстың мақсаты болды. Чуваш Республикасы жағдайында жаздық тритикаленің жаңа сорттарын бағалау жүргізілді. Саур сорты өнімді сабақтарының көп мөлшерімен, масақтан түсетін дән салмағымен және салмағы 1000 тұқымымен сипатталады. Өнімді сабақтарының ең аз мөлшері Ровнясортында байқалды. Бұл сорт масақтағы дәндерінің саны бойынша да ең төменгі көрсеткішті көрсетті. Осы ретте Ровнясортында масақтағы дәндерінің саны өте жоғары болды. Ульянасорты 1 масақтағы дән салмағы және 1000 тұқым салмағы бойынша басқа сорттармен салыстырғанда тиісінше төмен болды. Өнімді сабақтар саны бойынша 1 масақтағы дән салмағы және 1000 тұқым салмағы бойынша Хайкар сорты стандарт талабынан басым болды, ал масақтағы дәні мен масақтар саны бойынша Ульянасортына пара-пар келді. Түсімділігі бойынша Саур жәнеХайкар сорты стандарт талаптарынан басымдылық көрсетті. Егістік алқаптарда тұқымның өсіп-өнуі едәуір төмен болды. Ульянасортында себу нормасы аталмыш көрсеткішке айтарлықтай әсерін тигізбеді. Ол 56,0–56,5% шамасында ауытқыды. Өскіннің тығыздығы тұқымды себу нормасына және сортына байланысты болды. Тұқымды себу нормасын арттырғанда Ульянасортында 225-ден 339-ға дейін және Хайкар сортында 276–372 дана/м^{2}өскін мөлшері еселеніп көбейді. Бірақ-та тұқымды себу нормасын арттырғанда өсімдіктің өміршеңдігі және сақталуы төмендеді. Әсіресе себу нормасы 6 млн. тұқым өскіні үшін кенеттен төмендеу тән қасиет болды. Чуваш Республикасы жағдайында тритикаленіңжаздық сортын 1 га-ға 5 млн. тұқым өскінін себу қалыпты норма болып есептеледі.

Түйін сөздер: жаздық тритикале, сорт, масақ құрлымы, себу нормасы, өміршеңдігі, сақталуы, түсімділігі.

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СРАВНИТЕЛЬНАЯ ОЦЕНКА СОРТОВ ЯРОВОГО ТРИТИКАЛЕ

Аннотация. Актуальность проведенных исследований обоснована тем, что в Чувашской Республике тритикале выращивалось на площади 2,6 тыс. га, преимущественно озимые сорта. В последние годы исследования направлены на селекционную работу с яровым тритикале. Выявление и изучение нового исходного материала является всегда актуальным по причине того, что качество исходного материала всегда определяет эффективность селекционной работы. Целью работы являлось проведение сравнительной оценки новых сортов ярового тритикале в условиях Чувашской Республики.

Проведена оценка новых сортов ярового тритикале в условиях Чувашской Республики. Выявлено, что сорт Саур характеризуется наибольшим числом продуктивных стеблей, массой зерен с колоса и массой 1000 семян. Число продуктивных стеблей был наименьшим у сорта Ровня. Этот сорт показывал минимальные значения и по числу колосков в колосе. В то же время, у сорта Ровня число зерен в колосе было наибольшим. Сорт Ульяна уступал всем другим сортам по массе зерен с 1 колоса и по массе 1000 семян. Сорт Хайкар достоверно превосходил стандарт по числу продуктивных стеблей, по массе зерен с 1 колоса и по массе 1000 семян, а по числу колосков и зерен в колосе был на уровне сорта Ульяна. Сорта Саур и Хайкар по урожайности достоверно превосходят стандарт. Полевая всхожесть семян оказалась довольно низкой. У сорта Ульяна норма высева не оказала существенного влияния на данный показатель. Она колебалась в пределах 56,0–56,5%. Густота всходов зависела как от нормы высева семян, так и от сорта. Количество всходов с увеличением нормы высева семян увеличивалось у сорта Ульяна от 225 до 339 и 276–372 шт./м^2 у сорта Хайкар. Однако с увеличением нормы высева семян происходило уменьшение выживаемости и сохранности растений. Особенно резкое уменьшение было характерно для нормы высева 6 млн. всхожих семян. Оптимальной нормой высева сортов ярового тритикале в условиях Чувашской Республики является 5 млн. всхожих семян на 1 га.

Ключевые слова: яровое тритикале, сорт, структура колоса, норма высева, выживаемость, сохранность, урожайность.

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GRAIN MINERAL COMPOSITION OF INTROGRESSIVE WHEAT-WILD FORMS IN BREEDING OF SPRING WHEAT ON THE NUTRITIONAL PROPERTIES

Abstract. One of the most important problems of our time is providing people with balanced diet by adding all of the essential factors necessary for the health. A convenient and perspective object is interspecific and intergeneric wheat-wild hybrids that can combine nutritional, technological properties and agronomic suitability. From this point of view, introgressive forms from interspecific and intergeneric hybrids with systematic breeding of wheat type up to the F6-F8 generation are valuable with permanent forms of cytological control of 42-chromosome forms in the early generations. To use this material for practical purposes, it is necessary to characterize the mineral composition, both the metabolic potential and the biochemical composition of the grain, against a background of productivity.

The content of macro- and microelements in the grain was determined by inductively-plasma-atomic emission spectrometry.

The genotypes Ilinskaya x *T.timopheevii* (N, K, P, Zn) and Kazakhstanskaya 10 x *T.dicoccum* (Mg, Mn, Fe, Zn) showed stably increased level of mineral composition in the North. The genotype Kazakhstanskaya 10 x *T.dicoccum* in both the south and the north were characterized by a stable increase in the content of N, Mg and Fe, as well as the genotype Ilinskaya x *T.timopheevii* according to Zn content.

It was noted the predominance of spring introgressive forms over wild and cultivated forms on the content of P, K, Mg, Fe and Ca. The obtained results indicate that in the breeding for a high level of metabolism, the use of transitional wheat-wild spring-type forms is promising for extreme continental conditions.

Key words: spring wheat, wild relatives and hybrids, macro- and microelements of grain, breeding.

Introduction. One of the most important problems of our time is providing people with balanced diet by adding all of the essential factors necessary for the body.

The biological approach of the natural enhancement of microelements in plants has been termed "biofortification". One of the most important factors of stable production of spring wheat high-quality products as an export crop is breeding and early introduction into agricultural production of new varieties, combining high economically valuable traits with a genetically determined high content of microelements and adapted to the agroclimatic conditions of the region.

Recently, interest in natural and organic products has increased, which led to the reopening of ancient wheat as a source of grain for healthy nutrition. A number of wheat species are used and adapted for cultivation on an industrial scale, for example, *T.turgidum* (khorosan), *T.spelta, T.compactum*. However, these wheat have drawbacks (shedding, difficult threshing, etc.) that prevent their widespread using. In this regard, the constant interspecific and intergeneric wheat-wild hybrids are a convenient and promising object, which ideally can combine nutritional, technological properties and agronomic suitability.

It is known that wild and primitive wheat (T.*monococcum, T.dicoccum* and *T.dicoccoides*) are identified as more promising genetic sources of microelements, in comparison with modern wheat varieties and breeding lines. The species *T.dicoccoides* is a resource of genetic diversity for agronomic properties, amino acid composition and protein content. Similar studies are developing on phosphorus [1] and nitrogen, the assimilation of nutrients (N, P, K) by di-, tetra- and hexaploid wheat [2]. The increase in ploidy of wheat is accompanied by an increase in the efficiency of the use of N for the growth of biomass and grain yield. The influence of N and P on biomass is maximally effective in *T.boeoticum*, minimally in *Ae.speltoides*. The influence of N, P and K on productivity is most effective in *Ae.speltoides* and least in *T.estivum*. According to the content of mineral elements in the grain, in particular Fe and Zn, *T.diccocoides'* accessions , T. durum fore crops are most studied, characterized by an increased content of Fe in the grain.

Other types of wheat were characterized sporadically by mineral composition of the grain [3], as well as samples of Aegilops [4]. A number of works are devoted to the search for sources of not only a high content of microelements, but also their bioavailability [5].

Wheat has long been used by mankind for food, according to the high value of grain. Problems of nutrition and health are being addressed with success in wheat breeding, which allow to obtain high yields and successes in processing allowing to obtain high-quality white flour.

One way to overcome these problems is to return or resynthesis to ancient wheat as more nutritious and digestible.

Another approach considers it necessary to develop modern wheat on the basis of new technological methods of breeding and processing.

Thus, in order to enhance signs of resistance to diseases, stresses and increase of protein content it was created a new material as a result of successful hybridization of Triticum and Aegilops species with modern commercial varieties at the breeding center of KazSRIA&PG under a program of remote crossing [6].

From this point of view valuable are introgressive forms from interspecific and intergeneric hybrids with systematic of wheat type up to the F6-F8 generation and with constant cytological control of 42-chromosome forms in the early generations [7-9], characterized by resistance to disease [10, 11] and productivity at the level of 8-9 t/ha, including in the CIMMYT experiments.

To use this material for practical purposes, it is necessary to characterize the mineral composition, both the metabolic potential and the biochemical composition of the grain, against a background of productivity. Detailed phenotyping of the material for grain quality is promising for further genetic analysis of introgressive forms involving different species [12-16]. In addition, transitional forms are the most optimal approach for the evaluation and subsequent transfer of unique wheat gene alleles from its wild relatives. Maintain and keep normally identified gene (allele) of wheat-alien hybrids (WAH) much easier than tracking it in populations of wild relatives.

Goals. To study the features of mineral composition of the spring wheat introgressive form grains in comparison with wild relatives and varieties and to identify sources and donors of high content of macro- and microelements for the development of breeding for nutritional and technological properties.

Materials and methods.

Plant material. Species of wheat and Aegilops (table 1) were used: tetraploid (T.dicoccum, T.militinae, T.timopheevii, T.dicoccoides), hexaploid (T. kharae, T.aestivum); b) constant transitional forms from intergeneric and interspecific crossings F6-F8 [6]; c) topcrosses between transitional forms and registered varieties [17].

The material was grown in 2006-2009 in south-east agroecological conditions the Kazakh Research Institute of Agriculture and Plant Growing (KazRIA&PG), 42^0 N, 77^0 E, 740m above sea level, and in 2014-2016 in north conditions the Karabalyk Agricultural experimentation station, 43^0 N, 75^0, at $5m^2$ plots in 2 replications in accordance with the accepted agrotechnics.

Methods. The content of macro- and microelements in the grain was determined by inductively-plasma-atomic emission spectrometry (ICP-AES) [3]; The N content is determined by the Kjeldahl method. The cluster analysis was carried out by SP Martynov's algorithm using the minimum product between the Euclidean distances and the correlation coefficient D $(1\text{-}R)^2$ [18].

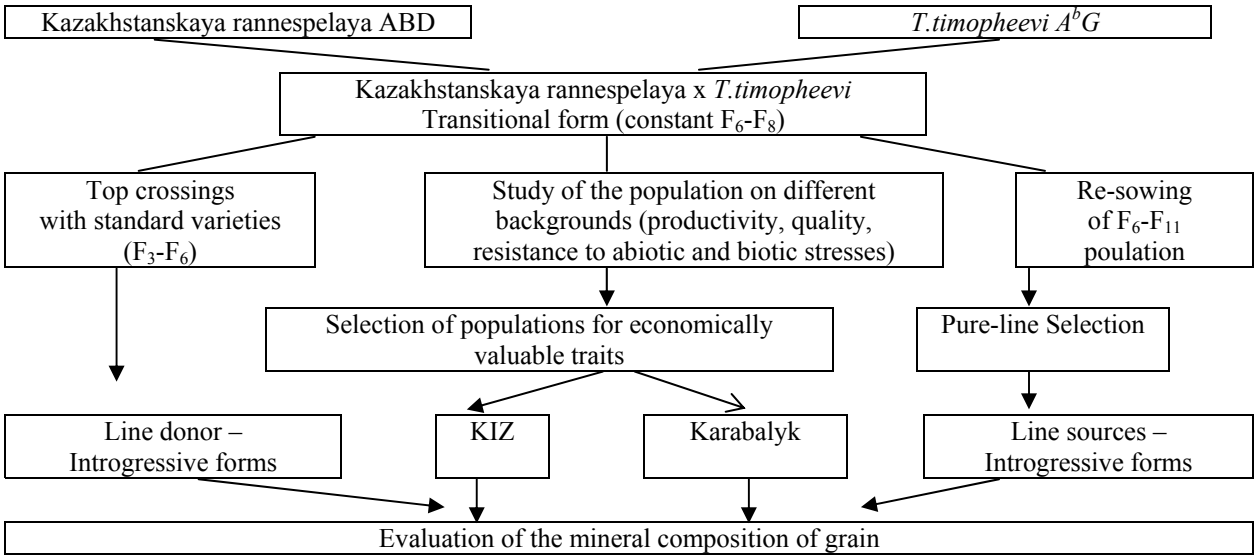

Figure 1 – General scheme for the creation and study of transitional (introgressive) forms

Results. Characterization of introgressive spring wheat forms according to the mineral composition of the grain and distinguishing the source of the high content of macro- and microelements.

The nitrogen content in the grains of introgressive wheat forms varied from 13.0% (Kazakhstanskaya rannespelaya x *T.timopheevii*) to 21.8% (Kazakhstanskaya 10 x *T.timopheevii*). The Il'inskaya x *T.timopheevii* (13.5-17.9%) and the Kazakhstanskaya 17 x *T.kiharae* (16.4-16.8%) forms differ by relatively low nitrogen content. Transitional forms occupied an intermediate position between varieties of Kazakhstanskaya 10 (13.8-15.3%), Kazakhstanskaya rannespelaya (13.0-15.1%), Kazakhstanskaya 25 (16.9-17.1%), Ilinskaya (14, 1-14.3%) and wild forms: T.timopheevii (16.0-17.3%), *T.kiharae* (21.9-22.2%), *T.dicoccoides* (19.3%); *T.militinae* (22.2-23.6%), *T.dicoccum* (18.9%).

The phosphorus content varies from 3531 mg/kg (Kazakhstan 17 x *T.kiharae*) to 5944 mg/kg (Kazakhstanskaya 10 x T.dicoccum). The Kazakhstanskaya 10 x *T.timopheevii* (4902-5729 mg/kg) and Kazakhstanskaya rannespelaya x *T.timopheevii* (4246-5563 mg/kg and 3831-5779 mg/kg on the 2 numbers with the same origin) are characterized by a stable high phosphorus content. Hybrid forms are characterized by superiority over parental forms, such as Kazakhstanskaya 10 from 3830 to 4674 mg/kg, Kazakhstanskaya rannespelaya 3646 to 3888 mg/kg), Kazakhstan 25 (3034-4367 mg/kg) and wild relatives *T.kiharae* (4257 mg/kg), *T.dicoccoides* (2959-4618 mg/kg) and T. timopheevii from 3359 to 5433 mg/kg (Table 30). The transitional forms occupied an intermediate position between the varieties (3888-4122 mg/kg) and the species *T.timopheevii* (5433 mg/kg) by phosphorus content only in the first reproduction (table 1).

Potassium content ranged from 3509 mg/kg - 4349 mg/kg in minimum values to 4411-6684 mg/kg in the maximum values by all reproductions of transitional forms.

The maximum values were stably differed by the Kazakhstanskaya 10 x *T.dicoccum* (3624-6684 mg/kg), with excess over the parent forms: Kazakhstanskaya 10 (3960 mg/kg - 4315 mg/kg) and the hybrid transitional form Kazakhstanskaya 10 x *T.timopheevii* (4242 -4829 mg/kg) with excess over *T.timopheevii* from 3512 mg/kg to 4515 mg/kg, respectively (table 1).

The content of Ca in the grain of transitional spring forms varied from 443 mg/kg (6631 x *T.militinae*-1) to 729 mg / kg (Kazakhstanskaya 10 x *T.dicoccum*). Synthetic forms were characterized by high calcium content relative to varieties (411-542 mg/kg for Kazakhstanskaya 10 variety, 405-499 mg/kg for Kazakhstanskaya rannespelaya variety, 415-504 mg/kg for Kazakhstanskaya 25 variety, Ilinskaya 418-429 mg/kg) and relative to wild relatives *T.militinae* - 284-393 mg/kg, *T.timopheevii* 333-368 mg/kg; *T.dicoccoides* 341-421 mg/kg; *T.dicoccum* and *T. kiharae* 396-421 mg/kg (Table 31).Genotypes: Kazakhstanskaya 30 x T.timopheevii (605-668 mg/kg); 6569 x *T.militinae*-1 (561-644 mg/kg); Kazakhstanskaya 10 x *T.timopheevii* (awned) (464-646 mg/kg) and 6625 x *T.timopheevii* (574-598 mg/kg) were differed by a stable maximum value.

Table 1 – Characteristics of transitional spring forms in terms of nitrogen (N x 5,7), potassium and phosphorus content (N, P, K) in grain

Genotypes of spring wheat synthetics	N content (protein), %		P content (phosphorus)		K content, mg/kg	
	Min	max	min	max	min	max
Parents: wild relatives						
T.kiharae	21,9	21,9	4257	4257	4076	4076
T.dicoccoides	19,3	19,3	2959	4618	3344	3753
T.dicoccum	18,9	18,9	3023	3023	3221	3221
T.timopheevii	16,0	17,3	3350	5433	3512	4515
T.militinae	22,2	23,6	4403	4848	3747	4108
Parents: varieties						
Kazakhstanskaya 10	13,8	15,3	3830	4674	3960	4315
Kazakhstanskaya rannespelaya	13,0	15,1	3646	3888	3343	4003
Kazakhstan 25	16,9	17,1	3034	4367	3401	3671
Iliinskaya	14,3	14,3	3909	3909	4476	4476
Kazakhstanskaya 10 x *T.kiharae*	15,6	18,6	4827	4827	4708	4708
Kazakhstanskaya 17 x *T.kiharae*	16,4	16,8	3531	4029	4286	4531
Kazakhstanskaya 10 x *T.dicoccum*	16,7	17,8	3789	5944	3624	6684
Iliinskaya x T.timopheevii	13,5	17,9	3664	3951	3777	4391
iliinskaya x T.timopheevii	15,4	15,4	3869	3869	4349	4349
Kazakhstanskaya r/sp x T.timopheevii	13,0	20,6	3831	5779	4189	4480
Kazakhstanskaya r/sp x T.timopheevii	19,8	21,8	4226	5563	4411	4672
Kazakhstanskaya r/sp x T.timopheevii	13,0	14,8	3615	3968	4442	4442
6583 x T.timopheevii	15,4	20,5	3717	4696	4017	4653
6625 x T.timopheevii-1	15,4	19,4	3974	4728	3673	4153
6625 x T.timopheevii-2	18,9	19,6	4014	4608	3752	4151
6625 x T.timopheevii-3	18,1	18,1	3721	3721	3509	3509
Kazakhstanskaya 25xT.timopheevii-1	17,7	17,7	3781	3781	3980	3980
Kazakhstanskaya 25xT.timopheevii-1	18,1	18,1	3942	3942	4022	4022
Kazakhstanskaya 10 x T.timopheevii (awn)	21,0	21,6	4902	5750	4242	4829
Kazakhstanskaya 10 x T.timopheevii (awnless)	20,5	21,8	5669	5729	4581	4704
Kazakhstanskaya 30 x T.timopheevii	19,4	19,5	4717	5392	4186	4545
6628 x T.timopheevii	19,4	20,6	3956	4720	3627	4334
6628 x T.timopheevii	18,1	18,1	4544	4544	4244	4244
6631 x T.timopheevii	18,7	21,4	4240	5268	4434	5802
6569 x T.militinae-1	18,9	20,0	4065	4634	4073	4417
6569 x T.militinae-2	19,5	19,5	4205	4205	3858	3858
6628 x T.militinae	19,0	19,0	4149	4149	3829	3829
6631 x T.militinae-1	18,4	19,7	4477	4638	3978	4733
6631 x T.militinae-2	20,0	20,0	4402	4402	4181	4181
Kazakhstanskaya 10 x T.zhukovkyi	17,7	17,7	5251	5251	4213	4642
Dawıl x T.timopheevii	17,7	19,0	4334	4334	4422	4422

The Mg content in the grain of transitional forms is noted at the level of variability from 1230 mg/kg Kazakhstanskaya 17 x *T.kiharae* and 1228-1243 mg/kg for Ilinskaya x *T.timopheevii* to the maximum 1869 mg/kg (Kazakhstanskaya 10 x *T.timopheevii*) and Kazakhstanskaya 10 x *T.dicoccum*, which in general exceeds the range of variability in both varieties (1118-1459 mg/kg) and wild relatives (1182-1676 mg/kg). An intermediate level of Mg content (1187-1659 mg/kg) in transitional forms between varieties (1171-1288 mg/kg) and wild forms (1676 mg/kg) was noted in the first reproduction. Kazakhstanskaya 10 x *T.timopheevii* was characterized by stably maximum values of Mg content (table 2).

Table 2 – Characteristics of transitional spring forms in terms of Mg, Mn, Ca mg/kg

Genotypes of spring wheat	Ca content		Mg content		Mn content	
Transitional forms	Min	max	min	max	min	max
Kazakhstanskaya 10 x *T.kiharae*	456	564	1187	1508	62	62
Kazakhstanskaya 17 x *T.kiharae*	557	566	1230	1276	37	43
Kazakhstanskaya 10 x *T.dicoccum*	468	729	1337	1912	39	58
Iliinskaya x *T.timopheevii*	504	596	1228	1243	38	51
Iliinskaya x *T.timopheevii*	617	617	1199	1199	49	49
Kazakhstanskaya r/sp x *T.timopheevii*	472	565	1171	1294	40	47
Kazakhstanskaya r/sp x *T.timopheevii*	493	528	1629	1840	44	66
Kazakhstanskaya r/sp x *T.timopheevii*	579	579	1653	1653	61	61
6583 x *T.timopheevii*	553	622	1390	1678	42	51
6625 x *T.timopheevii-1*	574	598	1238	1659	47	56
6625 x *T.timopheevii-2*	518	626	1491	1547	41	59
6625 x *T.timopheevii-3*	515	515	1416	1416	37	37
Kazakhstanskaya 25 x *T.timopheevii-1*	474	474	1249	1249	33	33
Kazakhstanskaya 25 x *T.timopheevii-1*	462	462	1308	1308	34	34
Kazakhstanskaya 10 x *T.timopheevii (ost)*	464	646	1658	1811	53	68
Kazakhstanskaya 10 x *T.timopheevii(bezost)*	512	571	1715	1869	60	65
Kazakhstanskaya 10 x *T.timopheevii*	566	566	1558	1558	60	60
Kazakhstanskaya 30 x *T.timopheevii*	605	668	1547	1583	53	65
6628 x *T.timopheevii*	519	632	1418	1510	45	59
6628 x *T.timopheevii*	528	528	1611	1611	47	47
6631 x *T.timopheevii*	522	609	1530	1715	45	80
6569 x *T.militinae-1*	561	644	1386	1453	40	52
6569 x *T.militinae-2*	530	530	1479	1883	41	41
6628 x *T.militinae*	571	571	1401	1401	44	44
6631 x *T.militinae-1*	473	604	1549	1641	48	59
6631 x *T.militinae-2*	443	443	1596	1596	45	45
Kazakhstanskaya 10 x *T.zhukovkyi*	526	554	1443	1581	44	46
Dawıl x *T.timopheevii*	539	539	1331	1331	48	48
Parents: varieties						
Kazakhstanskaya 10	411	542	1252	1459	44	46
Kazakhstanskaya rannespelaya	405	499	1118	1274	39	45
Kazakhstan 25	415	504	1141	1404	40	42
Iliinskaya	418	418	1288	1288	42	42
Arai	419	419	1439	1439	37	37
Parents: wild relatives						
T.kiharae	421	421	1490	1490	64	64
T.dicoccoides	341	421	1182	1448	35	37
T.dicoccum	396	396	1183	1183	35	35
T.timopheevii	333	368	1169	1676	36	50
T.militinae	284	393	1419	1438	45	53

Table 3 – Characteristics of transitional spring forms in terms of Fe, Zn and S mg/kg

Genotypes of spring wheat	Fe content		Zn content		S content	
Transitional forms	min	max	min	max	min	max
Kazakhstanskaya 10 x *T.kiharae*	45	54	45	45	1901	1901
Kazakhstanskaya 17 x *T.kiharae*	33	43	32	39	1723	1832
Kazakhstanskaya 10 x *T.dicoccum*	44	58	39	51	1811	2184
Iliinskaya x *T.timopheevii*	35	45	34	43	1792	2001
Iliinskaya x *T.timopheevii*	43	43	34	34	1756	1756
Kazakhstanskaya r/sp x *T.timopheevii*	43	54	31	49	1660	1997
Kazakhstanskaya r/sp x *T.timopheevii*	53	70	67	68	2397	2506
Kazakhstanskaya r/sp x *T.timopheevii*	74	74	66	66	2333	2333
6583 x *T.timopheevii*	41	49	34	56	1800	2191
6625 x *T.timopheevii-1*	43	50	37	52	1893	2122
6625 x *T.timopheevii-2*	41	50	42	50	1966	1979
6625 x *T.timopheevii-3*	39	39	48	48	1971	1971
Kazakhstanskaya 25 x *T.timopheevii-1*	33	33	45	45	1936	1936
Kazakhstanskaya 25 x *T.timopheevii-1*	35	35	47	47	1975	1975
Kazakhstanskaya 10 x *T.timopheevii (ost)*	56	66	62	66	2346	2357
Kazakhstanskaya 10 x *T.timopheevii (bezost)*	63	70	69	76	2305	2411
Kazakhstanskaya 10 x *T.timopheevii*	58	58	59	59	2289	2289
Kazakhstanskaya 30 x *T.timopheevii*	53	56	48	65	2161	2205
6628 x *T.timopheevii*	44	51	43	51	2054	2103
6628 x *T.timopheevii*	47	47	55	55	1998	1998
6631 x *T.timopheevii*	52	66	57	60	1977	2049
6569 x *T.militinae-1*	44	48	43	51	644	2030
6569 x *T.militinae-2*	44	44	52	52	1883	2065
6628 x *T.militinae*	46	58	49	49	2048	2048
6631 x *T.militinae-1*	46	57	46	62	2017	2277
6631 x *T.militinae-2*	53	53	57	57	2243	2243
Kazakhstanskaya 10 x *T.zhukovkyi*	49	49	41	57	1889	1955
Dawıl x *T.timopheevii*	46	46	35	35	1807	1807
Parents: varieties						
Kazakhstanskaya 10	39	43	33	44	1601	1740
Kazakhstanskaya rannespelaya	37	42	30	37	1514	1732
Kazakhstanskaya 25	40	40	34	46	1813	1888
Iliinskaya	37	37	40	40	1630	1630
Arai	38	38	38	38	1774	1774
Parents: wild relatives						
T.kiharae	55	55	51	51	1767	2142
T.dicoccoides	30	36	35	39	1817	1817
T.dicoccum	37	37	35	35	1802	1802
T.timopheevii	35	47	36	53	1841	1849
T.militinae	33	54	40	48	2275	2330

The Mn content in the grain of synthetic spring forms ranges from 33 mg/kg (Kazakhstanskaya 25 x *T.timopheevii*) to 68-80 mg/kg (Kazakhstanskaya 10 x *T.timopheevii*) in the awned and awnless variants – (6631 x *T.timopheevii*). Stable high Mn content by reproductions was formed in the same genotypes of Kazakhstanskaya 10 x T. timopheevii from 53 to 68 mg/kg for awning variants; from 60 to 65 mg/kg for awnless and for Kazakhstanskaya 30 x *T.timopheevii* - from 53 to 65 mg/kg. Moreover, among the parental forms only for *T.kiharae* noted similar levels of Mn ~ 64 mg/kg and in some reproductions for *T.militinae* and *T.timopheevii* (50-53 mg/kg).

Varieties characterized by Mn content at the level of 39-45 mg/kg (for the Kazakhstanskaya rannespelaya), 44-46 mg/kg (Kazakhstanskaya 10); 40-42 mg/kg (Kazakhstanskaya 25) and 38-42 mg/kg (Ilinskaya).

The sulphur content in the grain of spring transitional forms varied from 1660 mg/kg (Kazakhstanskaya rannespelaya x *T.timopheevii*-1) to 2506 mg/kg (Kazakhstanskaya rannespelaya x *T.timopheevii*-2) and Kazakhstanskaya 10 x *T.timopheevii* (awned), surpassing of S level in the grain of varieties Kazakhstan 10 (1601-1740 mg/kg), Kazakhstanskaya rannespelaya (1514-1732 mg/kg), Kazakhstanskaya 25 (1813-1888 mg/kg), Ilinskaya (1630 mg/kg) and in the grain of wild relatives *T.kiharae* (1767-2142 mg/kg), *T.timopheevii* (1841-1849 mg/kg), *T.dicoccum* (1802-1817 mg/kg), *T.militinae* (2275-2330 mg/kg). The stable maximum content of S (more than 2000 mg/kg) is noted for the genotypes of Kazakhstanskaya rannespelaya x *T.timopheevii*-2 and 3, Kazakhstanskaya 10 x *T.timopheevii* awning and awnless forms and in some reproductions for the Kazakhstanskaya 10 x *T.dicoccum* (table 3).

The content of Fe in the grain of spring transitional forms varied from 33-35 mg/kg (Kazakhstanskaya 17 x *T.kiharae*, Kazakhstanskaya 25 x *T.timopheevii*, Ilinskaya x *T.timopheevii*) to 70-74 mg/kg (Kazakhstanskaya 10 x *T.timopheevii* and Kazakhstanskaya rannespelaya x *T.timopheevii*). The biofortification level of Fe (> 50 mg/kg) is noted for 30-63% of genotypes, depending on the conditions of the year of reproduction. As stable sources of high Fe content marked genotypes: Kazakhstanskaya rannespelaya x *T.timopheevii* - 2,3 (53-74 mg/kg with an average of 62 mg/kg); Kazakhstanskaya 10 x *T.timopheevii* both in the awned variant (56-66 mg/kg) and in the awnless (63-70 mg/kg); Kazakhstanskaya 30 x *T.timopheevii* (53-56 mg/kg); 6631 x *T.timopheevii* (52-66 mg/kg); 6625 x *T.timopheevii*-2 (41-50 mg/kg with an average of 47 mg/kg).

At the same time, a high Fe content was revealed for parental forms only for *T.kiharae* (51-55 mg/kg), and for varieties at the level of 39-43 mg/kg for variety Kazakhstanskaya 10; 37-42 mg/kg for varieties Kazakhstanskaya rannespelaya, Kazakhstanskaya 25 up to 40 mg/kg, for Ilinskaya - 37-38 mg/kg.

The Zn content in the grain of spring transitional forms (table 3) varies from 31-32 mg/kg (Kazakhstanskaya rannespelaya x *T.timopheevii*-1 and Kazakhstanskaya 17 x *T.kiharae*) to 69-76 mg/kg for the genotype Kazakhstanskaya 10 x *T.timopheevii* awnless). The stable maximum value of Zn is typical for the same population in the awned variant (62-66 mg/kg), for the forms of Kazakhstanskaya rannespelaya x *T.timopheevii* 2, 3 (66-68 mg/kg) and 6631x*T.timopheevii* (57-60 mg/kg). Parental forms relatively of synthetic were characterized by a lower content of Zn both in cultural forms (Kazakhstanskaya rannespelaya 30-37 mg/kg, Ilinskaya 38-40 mg/kg, Kazakhstanskaya 10 from 33 to 44 mg/kg and Kazakhstanskaya 25 from 34 to 46 mg/kg), and wild relatives (*T.dicoccum* and *T.dicoccoides* 35-39 mg/kg, *T.militinae* 40-48 mg/kg, *T.timopheevii* 36-53 mg/kg, *T.kiharae* 51-52 mg/kg).

Thus, the synthetic forms of wheat occupied an intermediate position between wild relatives and modern varieties according to the content of macro- and microelements [19-20]. It has been revealed transitional forms with the level of mineral composition typical for wild forms close to modern varieties depending on growing conditions (figures 2, 3).

In general, it has been selected synthetic spring wheat's accessions with the maximum content: Kazakhstanskaya 10 x *T.dicoccum*- K (6684 mg/kg), P (5944 mg/kg), Ca (729 mg/kg), Mg (1869 mg/kg) ; Kazakhstanskaya 10 x *T.timopheevii* - N (21.8%), S, Fe, Zn (176), Mg, Mn (180); Kazakhstanskaya rannespelaya x *T.timopheevii* - Fe (74 mg/kg), S (2506 mg/kg).

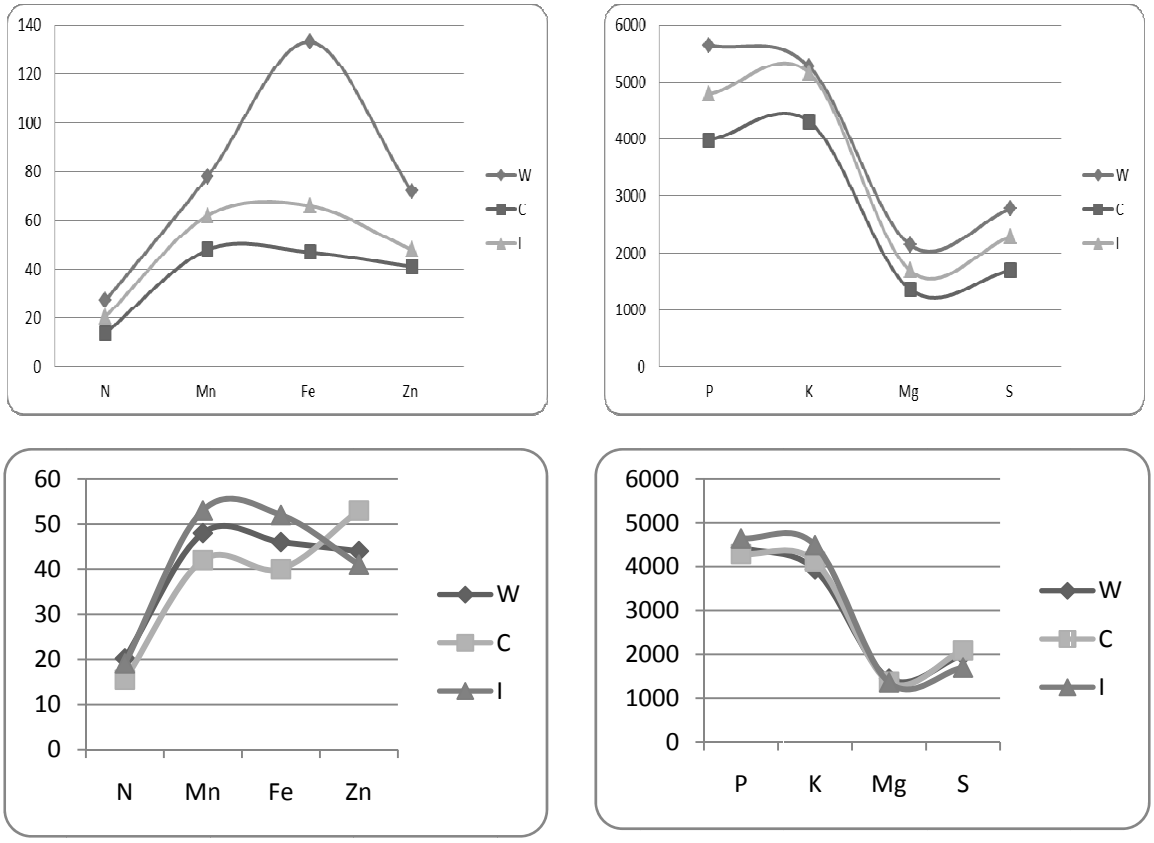

Figure 2 – Comparative characteristics of the range of variability of macro- and microelements content (mg / kg) in the grain of wild relatives (W), modern varieties (C) and synthetic forms of wheat (I) 1 and 2 – winter wheat; 3 and 4- spring wheat

Conclusion. Constant lines between wild forms and spring common wheat varieties have been previously analysed on the content of Zn in the grain. Constant lines with significant content of Zn in grain were identified as sources with high content of Zn in grain.

Wild relatives of wheat are analyzed by the content of N, P, K, S, Mg, Ca, Mn, Fe, Zn, Al, Cd, Cu in the grain.

The content of Cd in a grain of different species of wheat and wild relatives is found from less than 20 mg/kg to 25 mg/kg - *T.kiharae*; 26 mg/kg - *T.militinae*; 35 mg/kg *T.dicoccum*.

Our studies (VOGIS, 2018) reveal that the most favorable ratio of calcium to phosphorus is characteristic for *T.turgidum* species (1: 6,0); *T.persicum* (1: 5,7); at a maximum of 1:19 (*T.compactum*) and 1: 16.0 (*T.spelta*). For introgressive spring forms, the ratio of Ca:P varied from 1: 6.3 (Ilinskaya x *T.timopheevii*) to 1: 11.0 (Kazakhstanskaya 10 x *T.timopheevii*) against the background of wild relatives 1: 7.0 (*T.dicoccoides*) up to 1: 15,5 (*T.militinae*). The most nutritious in addition to the Ilinskii x *T.timopheevii* are Kazakhstanskaya 17 x *T.kiharae* (1: 6,3 - 1: 7,1); Kazakhstanskaya rannespelaya x *T.timopheevii*-1; (1: 7.0 -1: 7.7); and 6583 x *T.timopheevii* (1: 6,6-1: 7,6).

Among the wild relatives as parental forms *T.dicoccoides* (1: 2.5), *T.dicoccum* (1: 2,6) and among the introgressive forms: 6625 x *T.timopheevii*-1, 2, 3 (1: 2.6 - 1: 2.8); 6583 x *T.timopheevii* and 6631 x *T.militinae* (1: 2.7 - 1: 3.0) are balanced by the ratio Ca: Mg.

In general, samples with the maximum content are selected out: Kazakhstanskaya 10 x *T.dicoccum* - K, P, Ca, Mg; Kazakhstanskaya 10 x *T.timopheevii* - N, S, Fe, Zn, Mg, Mn; Kazakhstanskaya rannespelaya x *T.timopheevii* - Fe, S; Ilyinsky x *T.timopheevii* - Zn, P, K.

According to the results of top crossings with the testers (the commercial and most common varieties Arai, Kazakhstanskaya 10, Kazakhstanskaya rannespeelaya) was revealed the transfer of this trait to the offspring in F2-F3 generations for 3 constant lines: Kazakhstanskaya rannespelaya x *T.timopheevii*; 6625 x *T.timopheevii* and 6583 x *T.timopheevii*.

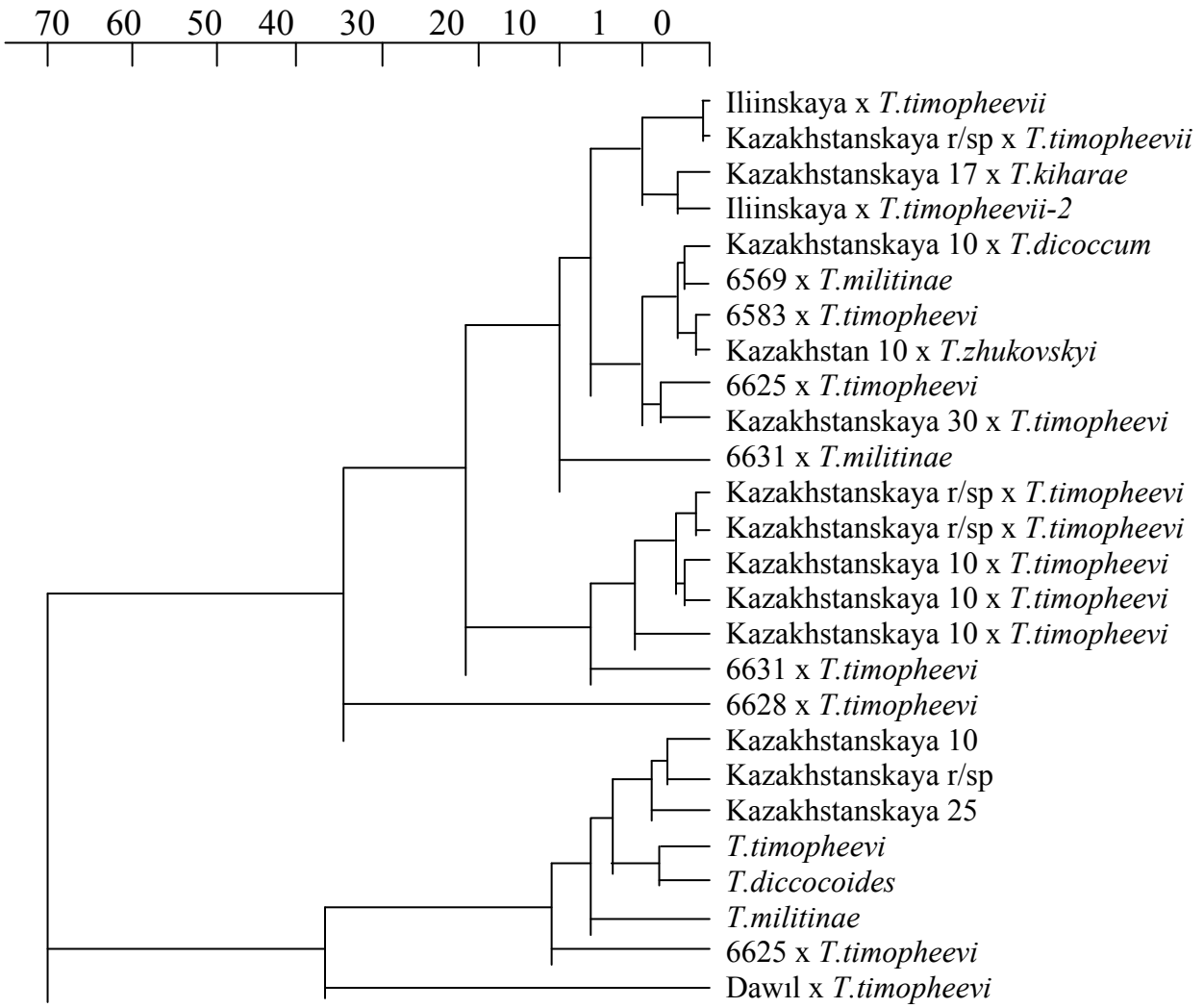

Figure 3 – Dendrogram of similarities-differences of spring synthetic forms and their parents (wild relatives and varieties) according to the mineral composition of the grain in the first reproduction

Genotypes Kazakhstanskaya rannespelaya x *T.timopheevii*-1, 2, 3 and Kazakhstanskaya 10 x *T.timopheevii*-1, 2 were distinguished by an increased level of mineral composition in all reproductions in the south of Kazakhstan (KIZ).

In northern conditions the Ilyinskaya x *T.timopheevii* (N, K, P, Zn) and the Kazakhstanskaya 10 x *T.dicoccum* (Mg, Mn, Fe, Zn) were characterized by a stably increased level of mineral composition.

The genotypes Kazakhstanskaya 10 x *T.dicoccum* as well as the Ilinskaya x *T.timopheevii* in both the south and the north were differed by a stable increase in the content of N, Mg and Fe according to Zn content.

Among the spring wheat introgressive forms prevailed over wild and cultured on the content of P, K, Mg, Fe and Ca; the predominance of varieties according to the content of Zn and S are at the maximum values. Wild relatives remain with the highest values of protein and magnesium. According to the content of macro- and microelements, the introgressive winter forms of wheat occupy an intermediate position between wild relatives and modern varieties (figure 2).

The selection of sources of high content of certain elements, as well as their values depends on the growing conditions. Almost all spring transitional forms of wheat were characterized by high nitrogen content (Table 1). Accessions of the Kazakhstanskaya rannespelaya variety have been identified as a source with minimum nitrogen comtent (mainly in Karabalyk) and hybrids with it.

The genotype Kazakhstanskaya 10x *T.dicoccum* in 6 of 12 reproductions differs by the maximum value of phosphorus, as well as by the content of potassium. Kazakhstanskaya 10 x *T.timopheevii* and Kazakhstanskaya rannespelaya x *T.timopheevi* are distinguished among genotypes with a stably high NP.

Perspective forms for technological directions, for example, the ratio N: S and nutrient (medical), the ratio of Ca : P are of particular interest.

The sources of the high content of elements are wild relatives and synthetic forms: a) for N → Kazakhstanskaya 10 x *T.timopheevii*; Kazakhstanskaya rannespelaya x *T.timopheevii*; Kazakhstanskaya 10 x *T.dicoccum* → *T.spelta* (cvs Faraon); b) N, K → Kazakhstanskaya 10 x *T.dicoccum* → Kazakhstanskaya 10 x *T.timopheevii* → Kazakhstanskaya rannespelaya x *T.timopheevii* → *T.spelta* (cvs Gremme); c) Fe and Zn → Kazakhstanskaya 10 x *T.timopheevii* → *T.timopheevii* = *T.spelta* → Kazakhstanskaya 10 x *T.dicoccum*.

Thus, these results indicate that in the breeding for a high level of metabolism, the use of transitional wheat-alien forms of the spring type is promising for the extreme continental conditions in the North of Kazakhstan.

The authors state that there is no conflict of interest.

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КҮЗДІК БИДАЙ СЕЛЕКЦИЯСЫНДА ИНТРОГРЕССИВТІ БИДАЙЛЫ-БӨГДЕ ТҮРЛЕРІНІҢ ҚОРЕКТІК ҚАСИЕТТЕРІНЕ ДӘННІҢ МИНЕРАЛДЫҚ ҚҰРАМЫ

Аннотация. Заманауи маңызды ахуалдардың бірі халықты сапалы толыққанды, құрамында ағзаға қажетті элементтері бар құнарландырылған азықпен қамтамасыз ету. Түраралық және туыс аралық бидайлы-бөгде гибридтер ыңғайлы және болашақты нысан болып табылады, ол қоректік, технологиялық қасиеттермен агрономиялық жарамдылықты бірге алып жүре алады. Осы көз қарастан түраралық және туыс аралық гибридтердің интрогрессивті түрлері бидайлы типтен жоспарлы іріктеу F_6–F_8-дейін, ерте тұқымда үнемі цитологиялық бақылауларда 42-хромасомалық түрлер құндылығын көрсетті. Осы материалды тәжірибелң мақсатта қолдану үшін минералды сипаттамасы метаболикалық потенциалы және дәннің өнімділік негізінде биохимиялық құрамы ретінде қажет.

Дәндегі макро- және микроэлементтер құрамы индуктивті-плазмалы-атомды эмиссионды спектрометрия әдісімен анықталды(*ICP-AES*);

ҚР Солтүстік жағдайында келесі генотиптердің минералды құрамы тұрақты жоғары жеңгейімен сипатталды: Ильинская х *T.timopheevii (N, K, P, Zn)* және Казахстанская 10 х *T.dicoccum (Mg, Mn, Fe, Zn)*. Казахстанская 10 х *T.dicoccum* генотипі *N, Mg* және *Fe* құрамы бойынша солтүстікте және оңтүстікте тұрақты жоғарылығымен ерекшеленді, сонымен қатар Ильинская х *T.timopheevii* генотипң құрамындағы *Zn* бойынша ерекшеленді.

P, K, Mg, Fe және Ca құрамы бойынша интрогрессивті түрлерде жабайы және мәдени түрлерге қарағанда басымдылық танытты. Алынған нәтижелер күрт континенталды жағдай үшін күздік өтпелі бидайлы-бөгде түрлері үшін перспективті қолдану метаболизм деңгейінің селекцияда жоғары екенін көрсетеді.

Түйін сөздер: күздік бидай, жабайы туыстармен гибридтер, дәннің макро- и микроэлементтері, селекция.

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МИНЕРАЛЬНЫЙ СОСТАВ ЗЕРНА ИНТРОГРЕССИВНЫХ ПШЕНИЧНО-ЧУЖЕРОДНЫХ ФОРМ В СЕЛЕКЦИИ ЯРОВОЙ ПШЕНИЦЫ НА ПИТАТЕЛЬНЫЕ СВОЙСТВА

Аннотация. Обеспечение людей качественно полноценным питанием, сбалансированным по составу и содержанию необходимых для организма элементов, является одной из важнейших проблем современности. Межвидовые и межродовые пшенично-чужеродные гибриды являются удобным и перспективным объектом, который в идеале может сочетать питательные, технологические свойства и агрономическую пригодность. С этой точки зрения представляют ценность интрогрессивные формы из межвидовых и межродовых гибридов с планомерным отбором пшеничного типа до F_6-F_8 поколения, постоянным цитологическим контролем в ранних поколениях 42-хромосомных форм. Для использования этого материала в практических целях необходима характеристика минерального состава, как метаболического потенциала и биохимического состава зерна на фоне продуктивности.

Содержание макро- и микроэлементов в зерне – определяли методом индуктивно-плазменно-атомной эмиссионной спектрометрии (*ICP-AES*);

В условиях Севера РК стабильно повышенным уровнем минерального состава характеризовались генотипы: Ильинская х *T.timopheevii (N, K, P, Zn)* и Казахстанская 10 х *T.dicoccum (Mg, Mn, Fe, Zn)*. Стабильно повышенным содержанием *N, Mg* и *Fe* отличался генотип Казахстанская 10 х *T.dicoccum* как на юге, так и Севере, а также генотип Ильинская х *T.timopheevii* по содержанию *Zn.*

Для яровых форм отмечено преобладание интрогрессивных над дикими и культурными по содержанию P, K, Mg, Fe и Ca. Полученные результаты указывают на то, что в селекции на высокий уровень метаболизма перспективно использование переходных пшенично-чужеродных форм ярового типа для резкоконтинентальных условий.

Ключевые слова: яровая пшеница, дикие сородичи и гибриды, макро- и микроэлементы зерна, селекция.

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PRODUCTIVITY AND ESTIMATED BREEDING VALUE OF THE DAIRY CATTLE GENE POOL IN THE REPUBLIC OF KAZAKHSTAN

Abstract. With a linear estimation of the physique of first-calf heifers, it is established that in cows of domestic breeds, the parameters correspond to the optimal points of the species and the indicators of the extremities, but the parameters of the udder differ sharply. All the data on productive and exteriors were entered into the program of the Information and Analytical System (IAS), where the estimated breeding value of the studied cows was automatically calculated. The average estimated breeding value (EBV) for all breeds was 81.4. Among all breeds, the highest EBV level was determined in Holstein cows (84.3) of imported selection.

The average milk yield of the studied herds per 1 cow was 5300± 30 kg of milk, with a mass fraction of fat of 3.74±0.02%, the mass fraction of protein of 3.16±0.01%, with a content of 324.7±23.8 thous. of somatic cells. The most productive were the cows of the Holstein breed, their productivity over the Alatau breed was 694 kg (P>0.99), over the black-and-motley breed it was1446 kg (P>0.999), over the Simmental breed it was 1982 kg (P>0.999), over the red steppe - 2038 kg (P>0.999), no significant difference was found in the content of fat and protein of cow. Somatic cells were within normal limits. When studying the dynamics of milk yields according to lactation, it is established that the milk productivity of the Alatau breed is characterized by growth (4844... 5679... 5458 kg) by the second-third lactation and gradual decrease (4716... 4017 kg) by the fifth. On average, for all lactations, cows of this breed brought 5123±275.4 kg. The dairy productivity of Holstein cows is increased by the fifth lactation, without recessions. On average, for cows of black and motley breed for all lactations, the milk yield was 4671±190 kg. Dynamics of milk yield of the Simmental breed increases from the first to the second lactation (3917... 4035 kg), in the third it decreases (4035... 3334 kg), from the fourth to the sixth lactation the sequence increases.

Keywords: selection, selection, assortment, breeding value of cows, linear estimation of the exterior, milk yield, milk composition.

Introduction. In the domestic dairy cattle industry, the actual problem remains monitoring of traditional management systems of breeding processes in production. In modern dairy cattle breeding in our country, the main task of zootechnical science and practice is further intensification of the industry, aimed at increasing the genetic potential of the productive qualities of domestic animals and the extent of its implementation. The advancement of molecular biology, population genetics, biotechnology, the development and implementation of large-scale breeding, the use of computer programs for the analysis of breeding information enriched the arsenal of tools for studying biological patterns and management of animals heredity, and breed formation processes

The use of marker genes is especially important for the evaluation of traits, the phenotypic manifestation of which occurs relatively late or is limited to the sex, as well as for traits that are strongly influenced by non-genetic factors (for example, environmental factors) [1].

Because of the considerable variability of environmental conditions and nonadditive inheritance of dairy productivity, according to some researchers, the productivity of ancestors is not a reliable criterion for the value of their offspring. One of the ways to improve the accuracy of cows' estimation is to take into

account many environmental factors if possible, fluctuations in the dairy production by lactation, heritability, standard deviations, repeatability, etc. [2, 3].

In the world practice, an index estimate is used with the use of information systems, which allow to obtain an objective idea of individual animals and herds as a whole [4].

When determining the breeding (genetic) value of cows, the following phenotypic and genotypic characteristics are taken into account: productivity, exterior, udder health, reproductive qualities and duration of economic use [5].

The duration of economic use of cows is an important economic trait, since the quantity of products obtained depends on it, the volume and intensity of herd repair, as well as the level of recoupment of costs in dairy cattle breeding [6].

With the annual introduction of more valuable animals into the herd, the value of the selection differential increases, as a result of which the genetic improvement of the herd and the increase in its productivity are more successful. Long-term economic use of cows makes it possible to conduct breeding and selective work on farms at a higher level [7].

The development of domestic dairy cattle breeding is impossible without the diversity of the domestic gene pool of breeds, the solution of the problem of using valuable genetic resources on the basis of its own breeding base and the imported gene pool. In this connection, one of the most important factors in accelerating selection work is the widespread introduction of world and domestic achievements in the field of genetics and breeding into production.

At present, the process of approbation of the method of linear estimation of the exteriors and the determination of genetically determined interrelationships between the exterior characteristics with indicators such as the duration of economic use are underway. The appearance of the best genotypes of animals in the shortest possible time and their subsequent use for selective and breeding work with the herd is the basis of genetic progress in modern cattle breeding. It is important to take into account the data on the exteriors, lifelong productivity and the health status of the estimated livestock. The cornerstone of achieving the identified breeding priorities is the accuracy of the evaluation of genetically determined economic traits of animals. In this regard, there is a need to accumulate the information obtained by creating electronic databases and their corresponding software. The use of linear statistical models using computer modeling of the breeding process in dairy herds in the accelerated mode will help to provide an objective estimation of the breeding value of dairy cattle and the selection of animals with a high genetic potential of productivity. The use of pedigree servicing bulls with high estimated breeding value in generations will allow to increase the productivity of dairy cattle [8, 9].

With the annual introduction of more valuable animals into the herd, the value of the selection differential increases, as a result of which the genetic improvement of the herd and the increase in its productivity are more successful. Long-term economic use of cows makes it possible to conduct breeding and selection work on farms at a higher level (повторяется абзац) [6].

Thus, the new methods for estimation of the breeding value, taking into account the linear profile and genetic analysis data of cows will contribute to the intensification of selective and breeding work with dairy herds.

The aim of the research. Conducting a linear estimation of the productivity of the domestic dairy cattle gene pool.

Material and methods. Objects of the research were broodstocks, as well as servicing bulls. Materials of the research were the documents of primary zootechnical and pedigree accounting (from the IAS system), as well as the results of experimental studies, visual assessment, weighing, measurements, control milking of animals. In addition, biochemical studies of milk were carried out. For the analysis of dairy productivity, live weight and genealogy, the data of pedigree and zootechnical accounting of the economy were used. All animals were in the same conditions of feeding and maintenance. Cows were fed the fodder from the farm.

The calculation of the estimated breeding value was carried out according to the methodology developed by the researcher of Kazakh Scientific Research Institute of Animal Breeding and Fodder Production LLP [10].

To study the effect of the level of indices of breeding value on dairy productivity, the class intervals of indices were calculated according to the formula proposed by G.F. Lakin:

$$\lambda = \frac{x_{max} - x_{\min}}{K},$$

where λ – class interval value; x_{max} and x_{min} – maximum and minimum populations; K – number of classes.

The number of classes was determined by the Sturges formula:

$$K=1+3.32 \lg_n [11].$$

The reliability of the difference in the indicators (P) was determined according to Student. The results of the studies were processed on a PC by statistical programs "Excel" according to the generally accepted methodology of variational statistics [12].

Results of the research. After processing the data of the IAS program (taking into account the exclusion of cows with incomplete data), the data for lactation of cows were analyzed (table 1).

Table 1 – Productivity of cows of domestic dairy cattle gene pool

Breed	Productivity for finished lactation							
	Milk yield, l		Fat, %		Protein,%		Somatic cells. thous.	
	X±m	Cv	X±m	Cv	X±m	Cv	X±m	Cv
Alatau (n=534)	5259±71	28	3.84±0.02	12	3.28±0.01	10	756.0±67	207.7
Simmental (n=796)	5654±60	32	3.96±0.01	10	3.37±0.01	7	356.9±20	156.8
Black-and-motley (n=812)	5548±63	32	3.74±0.01	9	3.24±0.01	7	240.6±15	173.2
Holstein b/m (n=505)	6380±67	36	3.80±0.01	11	3.24±0.01	8	217.6±11	176.1
For 305 days of lactation	5712±97		3.83±0.02		3.28±0.01		339.6±54	

It was found that the average milk yield per cow amounted to 5987±97 kg of milk, with an average fat content of 3.83±0.02%, protein content of 3.28±0.01%, with a content of 339.6±54 thousand somatic cells. The highest yield, as expected, was in the cows of the Holstein breed (6380±67 kg). The difference between the yield of Holstein cows and Alatau cows was 1121 kg (P>0.999), with black-and-motley cows 832 kg (P>0.999), Simmental - 726 kg (P>0.999), the highest content of fat was in the Simmental breed (3.96±0,01%), exceeding the Alatau by 0.12% (P>0.999), black-an-motley by 0.22% (P>0.999), Holstein - by 0.16% (P>0.999). In terms of protein content, the Simmental cows were superior to Alatau by 0.09% (P>0.999), black-and-motley and Holstein - by 0.16% (P>0.999). Somatic cells are within normal limits.

Since 2016, monthly trips have been organized to the basic farms to conduct control milking of cows, with the sampling of milk, and the determination of its quality in laboratory conditions. All data on the productivity and quality of milk (yield, fat and protein content, the number of somatic cells) were then added to the IAS program. The reliability of the results of these studies is ensured by the fact that the milk quality analysis was carried out in independent dairy laboratories, the productive data were selected monthly by researchers in the process of control milking, the control of the work was carried out by the Republican Chamber of Dairy Cattle.

The productive indicators of dairy cows in the context of breeds are presented in table 2.

Table 2 – Dairy productivity of cows in the context of breeds

Breed	n	Milk yield, l		Fat, %		Protein, %		Somatic cells, thous.	
		$X±m_x$	C_v	$X±m_x$	C_v	$X±m_x$	C_v	X±m	C_v
Alatau	220	5100±273	33.4	3.78±0.05	8.4	3.22±0.05	8.6	648.0±93.8	87.1
Holstein	2671	5794±93.0	37.0	3.72±0.02	15.6	3.17±0.02	14.7	285.2±8.9	75.1
Black-and-motley	674	4348±166	43.8	3.72±0.04	12.9	3.05±0.05	20.4	336.5±45.6	131
Simmental	403	3812±207	47.6	3.91±0.05	9.2	3.23±0.05	14.7	378.5±37.8	70.9
Red steppe	23	3756±571	40.9	3.53±0.13	9.6	2.84±0.11	10.9	530.7±195	72.6
Total/average	3991	5300±130	40.7	3.74±0.03	14.1	3.16±0.03	15.3	324.7±23.8	84.8

It was found that in the program of the information analytical system (IAS), on average, the dairy productivity of cows was 5300±129.6 kg. The most productive cows were, as expected, cows of the Holstein breed, the excess of their productivity over the Alatau cows was 694 kg (P>0.99), over the black-and-motley cows - 1446 kg (P>0.999), over the Simmental cows - 1982 kg (P>0.999), over the red steppe - 2038 kg (P>0.999).

Domestic and world experience proves that the decisive conditions for solving the problem of providing the population with products are the presence of breeds and herds of animals with a high genetic potential of productivity. In the solution of the tasks in hand, it is of great importance to improve the productive qualities of the animals of herds of the basic farms. The tendency, productivity of cows of Holstein breed prevails over the productivity of domestic breeds, but this difference is insignificant and unreliable (table 3).

Table 3 – Indicators of dairy productivity of first-calf heifers of the basic farms

Breeds	Number of cows, heads	Milk yield, kg		Fat, %		Protein, %		Somatic cells thous.	
		$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv
Alatau	37	4301±206.0	29	3.89±0.03	4.3	3.27±0.03	6.0	625.7±77.4	75
Holstein	480	5214±61.6	25	3.78±0.03	14	3.20±0.02	13	288.4±7.6	57
Black-and motley	49	4463±135.2	21	3.85±0.04	7.3	3.29±0.03	5.8	282.6±13.1	32
Simmental	68	4624±161.2	28	3.95±0.02	3.7	3.39±0.02	3.7	421.5±29.4	57
On average	634	4739±86.4	26	3.81±0.03	12	3.23±0.02	11	321.9±14.4	56

Thus, the domestic breeds of dairy cattle of the basic farms, where three intra-breed types are predominantly bred: "Ak-Yrys" of Alatau, "Sairam" of black-and-motley and "Ertis" of Simmental breeds - are already approaching to productivity of the dairy breed of import selection - Holstein, which predetermines the effectiveness of breeding work carried out by researchers of the department of breeding and selection of dairy cattle of the Kazakh Scientific Research Institute of Animal Breeding and Fodder Production LLP.

The duration of economic use of cows is one of the important indicators in the system of reproduction of the herd - a complex production process, including a set of organizational, economic, veterinary, and technological measures. Productivity and reproductive abilities of animals are the most important components of economic екфшеs, according to which breeding should be carried out. The works of scientists are dedicated to this [13, 14].

On average, for all lactations, cows of the Alatau breed milked 5123±275.4 kg (table 4).

Table 4 – Indicators of dairy productivity and milk composition of the Alatau breed

Age, in lactation	Number of cows, heads	Milk yield, kg		Fat, %		Protein, %		Somatic cells thous./cm^3	
		$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v
1 lactation	62	4844±189	30.8	3.74±0.04	8.6	3.19±0.03	8.6	542.2 ± 57	83.1
2 lactation	58	5679±221	29.7	3.77±0.04	8.5	3.22±0.03	8.1	490.6 ± 57	89.3
3 lactation	36	5458±313	34.4	3.76±0.04	6.8	3.22±0.04	7.3	802.0±155	116.2
4 lactation	34	4716±275	34.0	3.79±0.05	8.3	3.23±0.05	8.6	785.3±89	66.2
5 lactation	12	4017±641	55.3	3.93±0.11	10.0	3.29±0.10	10.3	673.6±181	93.2
6 lactation	14	4421±468	39.7	3.92±0.12	11.8	3.20±0.11	12.8	1045 ± 206	74.0
Total/ on average	216	5077±275,4	33.6	3.78±0.05	8.5	3.21±0.05	8.6	649.8 ± 95	87.6

The dairy productivity of the Alatau breed is characterized by growth (4844... 5679... 5458 kg) by the second-third lactations and gradual decrease (4716 ... 4017 kg) by the fifth, i.e. for this breed, it is characterized by a constant level of milk yields, which confirms its high stress resistance. The uniformity of the lactation flow of the Alatau breed by age is clearly confirmed in the diagram (figure 1). As can be

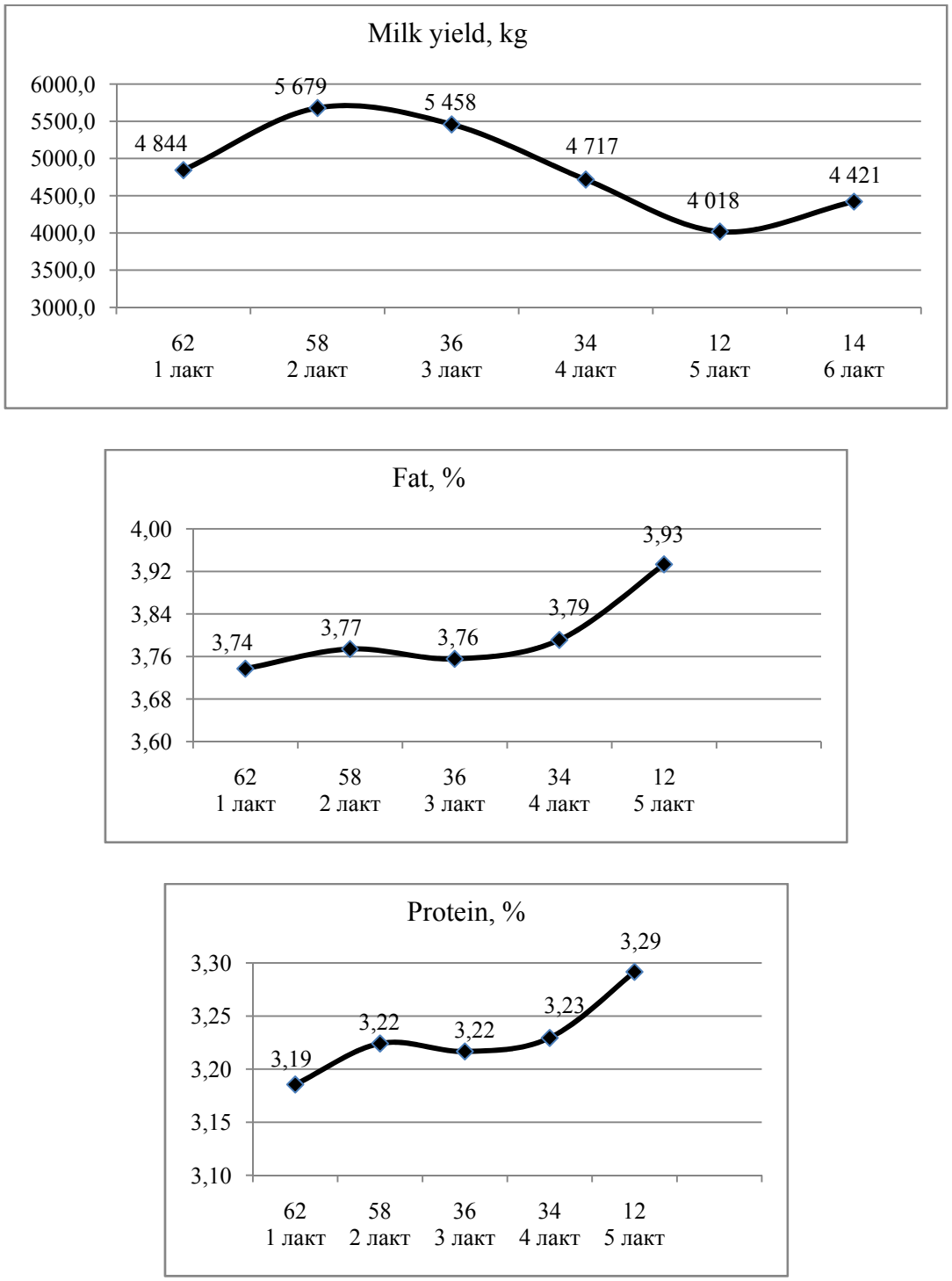


Figure 1 – Diagram of the productivity of the Alatau cows in the context of calving

seen from the graph, the milk yield of Alatau cows from the second lactation is gradually decreasing, while the decline in dairy productivity is gradual. According to the chemical composition, the milk of the Alatau cows does not have any noticeable differences. It has been established that the number of somatic cells increases with cows of the Alatau breed with age.

It has been established that the dairy productivity of Holstein cows increases by the fifth lactation (table 5), without recessions, which is typical for this, the youngest breed, as can be clearly seen from the diagram (figure 2). The chemical composition by age is stable.

Table 5 – Indicators of dairy productivity and milk composition of the Holstein breed

Age, in lactation	Number of cows, heads	Milk yield, kg		Fat, %		Protein, %		Somatic cells thous./cm^3	
		X ±m_x	C_v	X±m_x	C_v	X±m_x	C_v	X±m_x	C_v
1 lactation	722	5280±67.6	34	3.73±0.02	14	3.18±0.02	13	302.2±7.3	65
2 lactation	583	5502±85.4	37	3.78±0.02	11	3.22±0.02	12	274.2±5.3	47
3 lactation	356	5598±98.1	33	3.76±0.02	9	3.21±0.01	8	313.4±14.9	89
4 lactation	158	5650±159.3	35	3.74±0.04	12	3.21±0.03	11	297.2±16.4	69
5 lactation	91	6139±213.1	33	3.79±0.03	8	3.25±0.03	7	256.7±15.4	57
6 lactation	50	5648 ± 281.6	35	3.73±0.05	9	3.25 ±0.03	8	287.3 ±18.3	44
Total	1960	5479±93.3	35	3.75±0.02	12	3.20±0.02	11	293.0±9.5	63

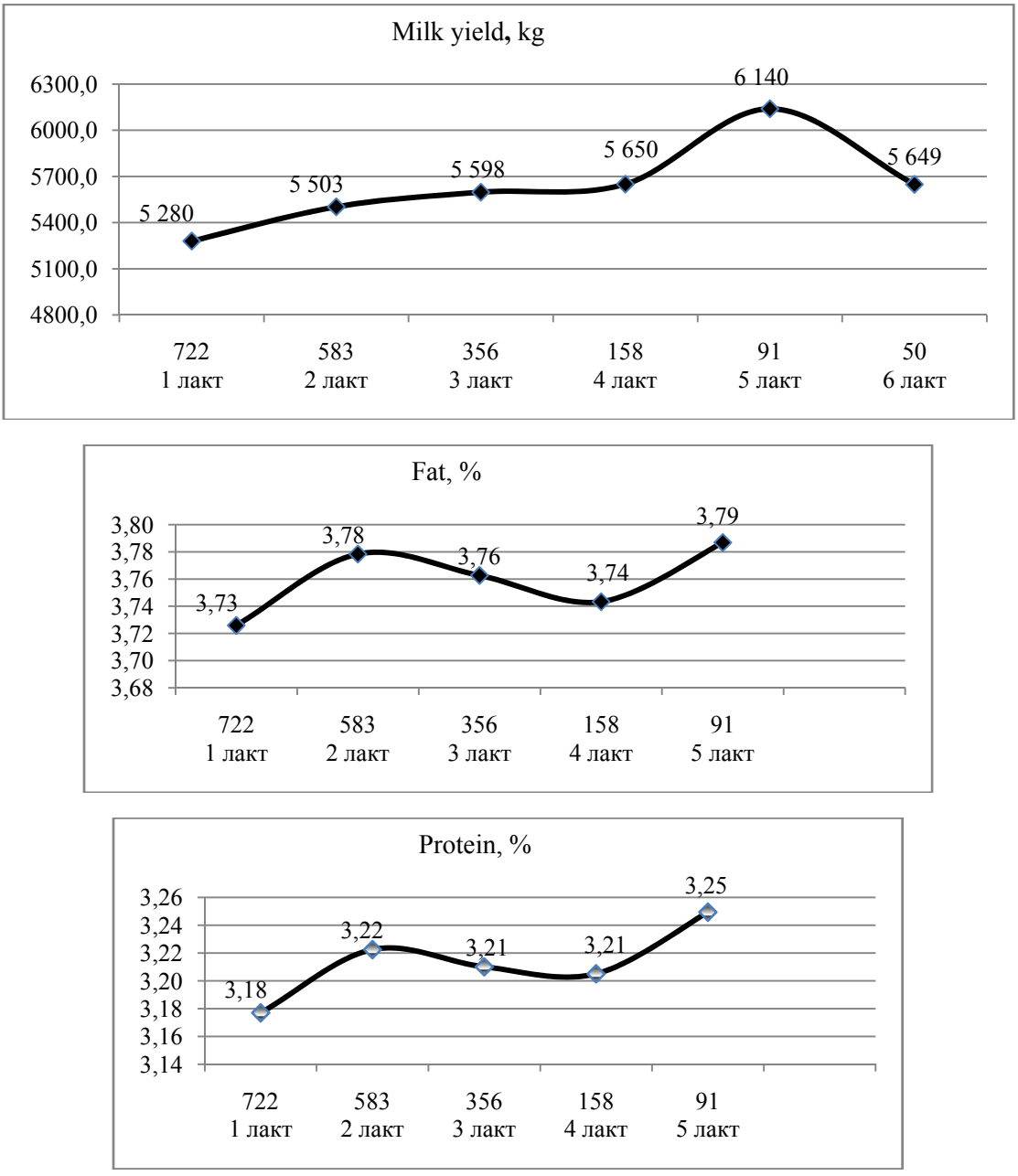


Figure 2 – Diagram of the productivity of the Holstein cows in the context of calving

It is known that the high lifetime productivity of cows is a consequence of the good development and functioning of all organs and systems of vital activity of the animal body during the whole period of its use [15].

It has been established that in black-and-motley cattle from the first lactation, when the maximum milk yield is observed (4936±231 kg), a gradual decrease by the fifth lactation occurs, which confirms the increased reaction of this breed to stress factors of the external environment (table 6).

Table 6 – Indicators of dairy productivity and milk composition of the black-and-motley breed

Age, in lactation	Number of cows, heads	Milk yield, kg		Fat, %		Protein, %		Somatic cells thous./cm^3	
		$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv
1 lactation	117	4936±231	50	3.65±0.05	15	3.05 ± 0.05	19	444.1 ± 101.7	247
2 lactation	121	4692±191	44	3.77±0.03	9	2.97 ± 0.06	23	293.5 ± 26.6	99
3 lactation	108	4811±157	34	3.75±0.04	10	3.14 ± 0.05	18	408.1 ± 64.5	164
4 lactation	68	4493±174	32	3.81±0.03	6	2.97 ± 0.10	26	289.1 ± 27.2	77
5 lactation	54	3989±180	33	3.85±0.03	5	3.23 ± 0.04	8	241.7 ± 8.9	26
6 lactation	22	4391±243	26	3.84±0.07	7	3.21 ± 0.05	6	722.3 ± 273.0	177
Total	490	4658±192	40	3.75±0.04	10	3.07 ± 0.06	19	367.7 ± 62.1	141

On average, for all lactations, the yield of the black-and-motley cattle was 4671±190 kg, i.e. the potential of this breed is available, as evidenced by the variability of this selective feature (32.0... 50.7%), which is clearly visible in the diagram (figure 3).

When working with the black-and-motley breed, it is necessary to strengthen the selection by dairy productivity and milk composition.

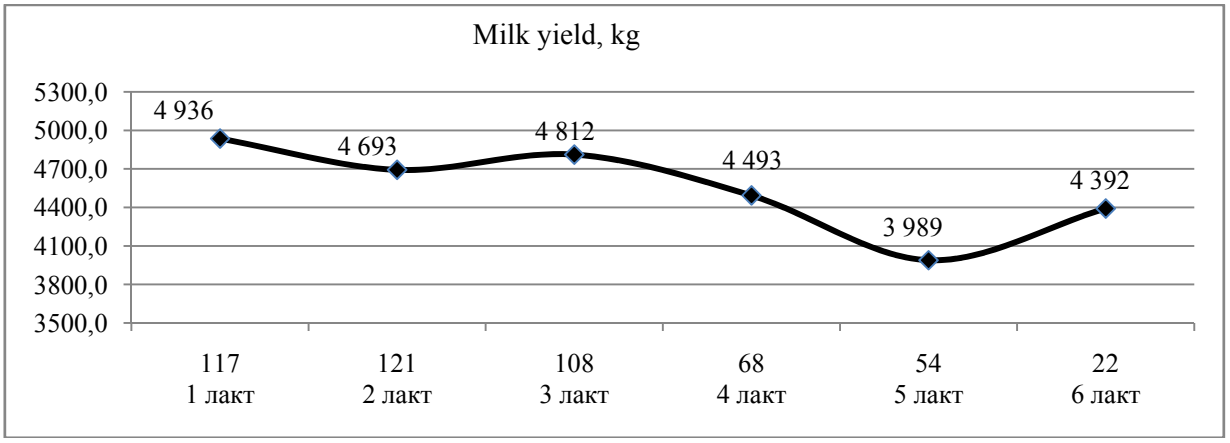
The average productivity of the Simmental cows was only 3809 kg (table 7).

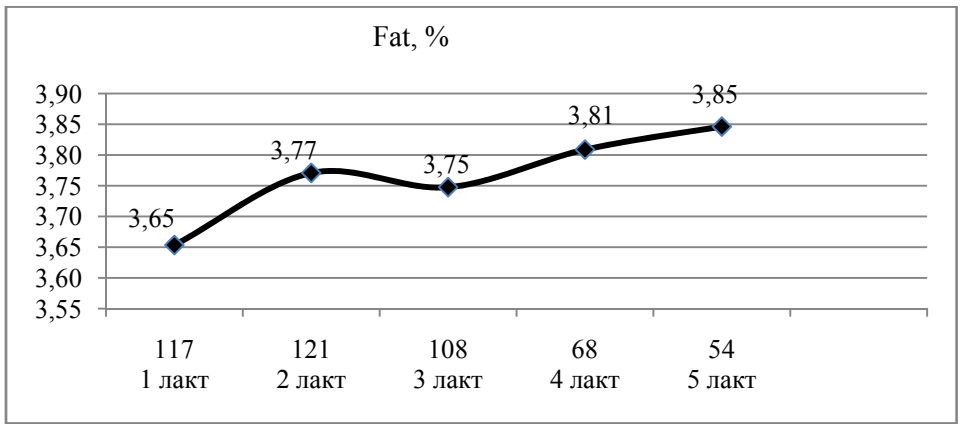
Table 7 – Indicators of dairy productivity and milk composition of the Simmental breed

Age, in lactation	Number of cows, heads	Milk yield, kg		Fat, %		Protein, %		Somatic cells thous./cm^3	
		$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv
1 lactation	134	3917±138.0	40	3.96± 0.02	5.4	3.30±0.03	9.9	387 ± 17.1	50
2 lactation	100	4035±220.1	54	3.88± 0.03	7.8	3.18±0.05	16.2	352 ± 18.2	51
3 lactation	68	3334±200.5	49	3.80± 0.07	15.7	3.22±0.08	20.3	329 ± 17.1	42
4 lactation	56	4391±301.9	51	3.91± 0.04	7.6	2.97±0.09	21.4	418 ± 82.7	148
5 lactation	21	3058±328.8	49	3.81± 0.12	14.2	3.31±0.06	8.6	513 ± 197.4	176
6 lactation	23	2879±246.4	41.0	4.23± 0.16	17.7	3.64±0.06	8.4	365.4± 51.5	67
Total	402	3809±208.0	47.6	3.91± 0.05	9.2	3.23±0.05	14.7	378.7± 37.9	70

Dynamics of milk yields of the Simmental breed of cattle is of a curvilinear nature.

In particular, with the increase in productivity by the second lactation (3917... 4035 kg), in the third, on the contrary, it decreases (4035... 3334 kg), then this sequence is repeated. Therefore, the average productivity of cows of this breed is only 3809 kg, which is clearly visible from the graph (figure 4).





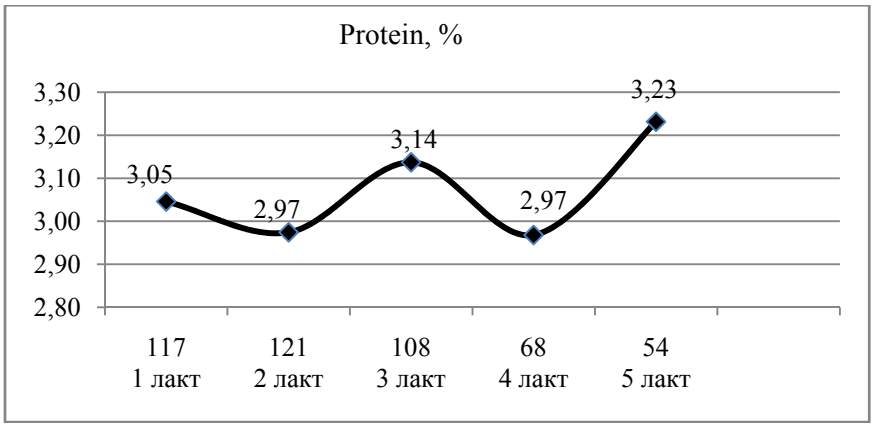


Figure 3 – Diagram of the productivity of the black-and-motley cows in the context of calving

According to the milk composition, a relative stability is set, which is clearly visible in the diagrams.

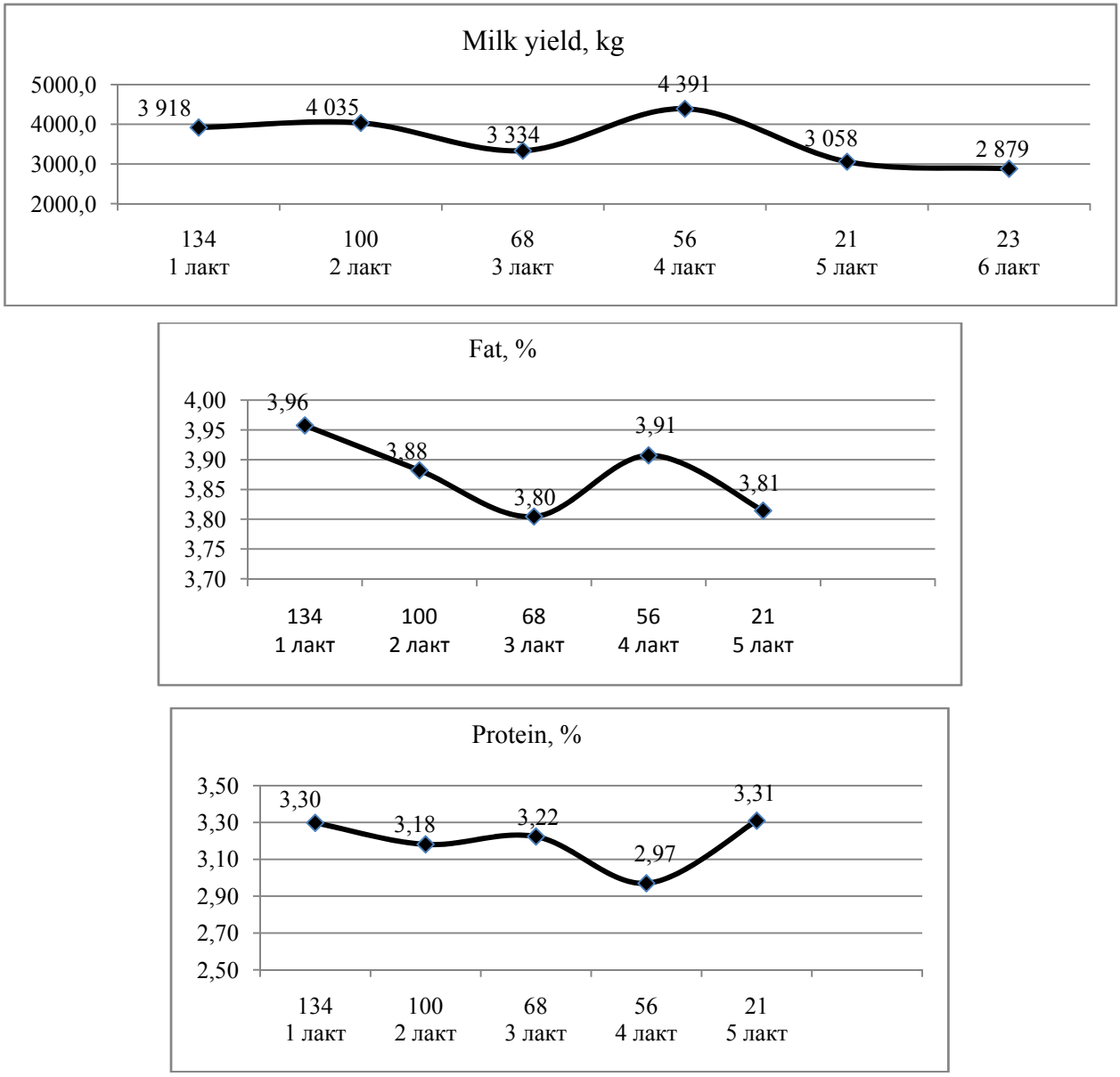


Figure 4 – Diagram of the productivity of the Simmental cows in the context of calving

For the effective management of the selection process, complete, qualitative and reliable information is needed, both about the individual animal and the breed as a whole. In countries with developed livestock breeding, the selection process is closely related to management. One of the tasks of modern animal husbandry is to improve the selection management system, both in general and in individual sectors.

The selective-genetic approach to stock breeding was also undertaken not in many works. In the selection of animals, the need arose to strengthen the mathematical apparatus and to introduce more precise, modern methods of genetics in stock breeding, including DNA analysis and polymorphic protein systems, the analysis of hidden genetic defects. Until now, an exhaustive management system of biological and genetic-statistical parameters of selection has not been created. The situation is complicated by the low organization of stock breeding with herds of dairy cattle. It should be noted that the farms do not give much attention to the conduction of a linear estimation of the exteriors of cows.

One of the most acute problems in the cattle breeding is the lack of servicing bulls of their own selection. Modern selection needs a detailed study of all breeding genetic processes in populations and a consideration of populations as complex biological systems, which in the future, undoubtedly, will make both theoretical and practical significances in cattle breeding and biology [13-16].

At present, the research institutions based on the experience of countries with developed dairy cattle breeding have developed a methodology for index estimation of the breeding value of milking cows. This technique is embedded in the program of the information and analytical system (IAS), which, in the presence of data on productivity (milk yield, fat and protein content in milk, the number of somatic cells) and the exterior, calculates the estimated breeding value of the animal in terms of productivity.

During 2016-2017 and now monthly we carry out control milking of cows with sampling of milk. Then samples are transferred to the dairy laboratory of KazSRIAB&FP LLP for carrying out its biochemical composition, especially interested in the content of fat, protein and the number of somatic cells. These indicators, together with the results of the linear estimation of the exteriors of cows, are entered into the IAS program, which automatically calculates the estimated breeding value of cows by the method developed by the employees of KazSRIAB&FP LLP. The results of the calculations are given in table 8.

Table 8 – Results of calculation of the estimated breeding value of cows in a cut of breeds

Breed	Number of cows, heads	EBV of milk yield for 305 days, kg		EBV of fat for 305 days, %		EBV of protein for 305 days, %	
		$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v
1	2	3	4	5	6	7	8
Holstein	1960	100±0.3	12	99.9±0.1	4.1	99.9±0.1	3.9
Black-and-motley	490	100±0.6	14	99.4±0.4	8.1	91±1.3	31.3
Alatau	216	100±0.9	13	100±0.1	1.6	100±0.1	1.3
Simmental	402	100±0.8	16	100±0.1	2.6	100±0.1	2.8
Total/on average	3091	100±0.5	13	99.8±0.1	4.3	98±0.3	7.9

Continuation of table 8

Breed	Number of cows, heads	Dairy productivity index		Udder health index		The total estimated breeding value	
		$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v
1	2	9	10	11	12	13	14
Holstein	1960	100±0.2	7.6	100±0.01	0.4	84±0.3	15.7
Black-and-motley	490	98±0.5	11.0	99.4±0.3	7.9	77±0.5	14.1
Alatau	216	100±0.5	7.7	100±0.04	0.6	75±0.4	7.8
Simmental	402	100±0.5	9.6	100±0.02	0.5	75±0.3	7.7
Total/on average	3091	99.7±0.3	8.4	99.9±0.1	1.6	81±0.3	13.8

It was found that the aggregate figure of the total estimated breeding value (EBV) for all breeds was 81.4. Among all breeds, the highest EBV level was determined in the Holstein cows (84.3) of imported selection. The EBV level of cows of other breeds does not have a significant difference.

The main task for the selection of the necessary genotypes is to estimate the breeding value of animals that can contribute to the enhancement of the genetic potential of the next generation. Determination of the breeding value of dairy cattle is the main criterion for increasing the genetic potential of animals and their productive indicators.

One of the reasons for the low efficiency of selection work with dairy cattle in Kazakhstan is the use of low-quality pedigree material. Very rarely farmers use high-quality breeding material from leading manufacturers. The regulatory acts adopted in Kazakhstan in the field of cattle breeding have created real prerequisites for the conservation and expansion of the livestock gene pool [13].

Currently, a lot of data have been accumulated that allow to carry out effective selective and breeding work with animals of dairy breeds of cattle. Studies should be conducted taking into account genetically isolated populations, adapted to the climatic conditions of their breeding [14, 15]. At the same time, it is necessary to trace the indicators of economic traits in pedigrees [16-20].

The individual indices of the studied dairy cattle gene pool are in the limit of 100, so we studied the EBV (estimated breeding value), previously dividing them into classes according to the generally accepted methodology.

The dependence of the indices and the level of dairy productivity is determined depending on the class distribution according to the dairy productivity index (table 9).

Table 9 – Distribution of total estimated breeding value by class gap

Total estimated breeding value (lim)	n	Milk yield for 305 days, kg		EBV of milk yield for 305 days, kg		EBV of fat for 305 days, %	
		$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv
1	2	3	4	5	6	7	8
413 – 47.4	3	1799.3 ± 358.1	34.5	76.8 ± 2.13	4.8		
47.5 – 53.6	2	1796.0 ± 505.0	39.8	77.9 ± 3.79	6.9	94.0 ± 3.6	5.4
53.7 – 59.8	15	1406.9 ± 105.0	28.9	75.3 ± 1.05	5.4	100.5 ± 0.4	1.4
59.9 – 66.0	56	2368.3 ± 178.0	56.2	81.7 ± 1.39	12.7	98.4 ± 0.7	4.9
66.1 – 72.2	501	2855.9 ± 39.9	31.2	85.7 ± 0.23	6.1	99.6 ± 0.2	5.6
72.3 – 78.4	1345	5188.3 ± 25.5	18.0	100.5 ± 0.12	4.5	100.2 ± 0.1	3.3
78.5 – 84.6	300	6951.8 ± 67.6	16.8	116.2 ± 0.27	4.1	99.4 ± 0.1	1.9
84.7 – 90.8	85	6944.2 ± 407.4	54.1	116.5 ± 2.89	22.9	99.0 ± 0.3	2.3
90.9 – 97.0	227	3179.3 ± 101.1	47.9	86.5 ± 0.87	15.1	100.0 ± 0.2	2.7
97.1 – 103.2	341	5621.7 ± 48.7	16.0	101.2 ± 0.28	5.2	100.3 ± 0.1	2.3
103.3 – 109.4	172	8041.6 ± 70.1	11.4	116.5 ± 0.39	4.4	100.0 ± 0.1	1.8
109.5 <	48	10255.0 ± 140.5	9.5	132.2 ± 0.73	3.8	99.8 ± 0.1	0.8

Continuation of table 9

Total EBV (lim)	n	EBV of protein for 305 days, %		Dairy Productivity Index		Udder health index	
		$X \pm m_x$	Cv	$X \pm m_x$	Cv	$X \pm m_x$	Cv
1	2	9	10	11	12	13	14
41.3 – 47.4	3			46.1 ± 1.28	4.8	99.6 ± 0.33	0.6
47.5 – 53.6	2	97.7 ± 2.68	3.9	84.9 ± 3.58	6.0		
53.7 – 59.8	15	6.8 ± 6.77	387.3	71.3 ± 1.58	8.6	93.3 ± 6.67	277
59.9 – 66.0	.	63.1 ± 6.36	75.4	83.1 ± 0.25	2.2	100.2 ±0.11	0.8
66.1 – 72.2	501	98.2 ± 0.58	13.2	91.0 ± 0.15	3.7	100.0 ±0.02	0.5
72.3 – 78.4	1345	100.1 ± 0.05	2.0	100.4 ± 0.08	2.8	100.0 ±0.01	0.4
78,5 – 84.6	300	99.5 ± 0.16	2.7	109.5 ± 0.16	2.5	99.9 ± 0.03	0.6
84.7 – 90.8	85	99.3 ± 0.31	2.9	109.5 ± 1.75	14.7	99.9 ± 0.07	0.6
90.9 – 97.0	227	100.4 ± 0.18	2.6	91.9 ± 0.51	8.3	100.0 ±0.03	0.5
97.1 – 103.2	341	100.3 ± 0.10	1.8	100.8 ± 0.16	2.9	99.9 ± 0.03	0.5
103.3–109.4	172	100.2 ± 0.12	1.6	109.9 ± 0.23	2.7	100.0 ±0.04	0.6
109.5 <	48	100.1 ± 0.12	0.9	119.3 ± 0.43	2.5	100.0 ±0.07	0.5

It has been established that as the indices increase, the level of dairy productivity also increases, with the exception of the range of 90.9 - 97.0, when there is a decline in milk yields, which is quite explicable, since in this gradation the lowest dairy productivity index (91.9±0.51), i.e. now, in Kazakhstan, there is the most reliable quantitative trait of selection.

On the basis of complex investigations, groups of the desired type were formed by annual selection of the highly productive black-and-motley Holstein cows (table 10).

Table 10 – Productivity of the black-and-motley Holstein cows of the desired type of experimental farms

Name of the farm	n	Milk yield for 305 days of lactation, kg		Fat, %		Protein, %		Live weight, kg	
		$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v	$X \pm m_x$	C_v
Pervomaisky LLP	9	5817±62	3.2	3.67±0.04	2.9	3.31±0.05	4.9	496±5.7	3.4
Ice LLP	99	10116±80	7.9	3.69±0.01	3.5	3.30±0.01	3.1	679±5.3	7.9
Aidarbayev E.S. Farm	15	8048±214	10.3	3.83±0.02	2.3	3.22±0.01	1.3	595±8.9	5.8
Total/on average	123	9549±95	7.8	3.70±0.01	3.3	3.27±0.01	3.0	656±5.7	7.3

As can be seen from the data in table 10, in three experimental farms of different regions of Kazakhstan, out of 2,800 heads of total livestock, 123 heads of highly productive cows were formed by carrying out a complex of modern biotechnological, biochemical and molecular genetic studies. Their average dairy productivity was 9549±95 kg of milk, with a fat content of 3.70±0.01%, protein content of 3.27±0.01%. The breeding effect of using the offspring of these cows will be 96 kg of milk per year from each head, taking into account that the heritability coefficient for daily productivity is not more than 0.2 and the generation interval is 5 years, and the economic efficiency from the additional production will be more than 7500 tenges per 1 head of cattle.

Conclusion. In cows of the Alatau breed, the type parameters and parameters of the limbs correspond to the optimal indicators, but the parameters of the udder differ sharply. The same trend is observed in cows of the black-and-motley breed, which determines the direction of further selection work with the domestic breed of cows: it is necessary to conduct a corrective selection of servicing bulls, taking into account these shortcomings.

A methodology for assessing the physique of the Holstein cows and the algorithm for calculating the indices of the estimated breeding value of the Holstein cows in the content of somatic cells in milk, providing a logarithmic scale for estimating the number of somatic cells, were unified.

Approaches have been developed to determine the index of the duration of economic use and to determine the index of the reproductive ability of the Holstein cows in accordance with modern international requirements.

It was found that the average index of the total estimated breeding value (EBV) for all breeds was 81.4. Among all breeds, the highest EBV level was identified in the Holstein cows (84.3) of imported selection. The EBV level of cows of other breeds does not have a significant difference. When studying the EBV, previously divided into classes, it was found that with an increase in indices, the level of dairy productivity also increases, with the exception of the interval of 90.9 - 97.0, when there is a decline in milk yields, which is quite understandable, since in this gradation it is the lowest dairy productivity index (91.9 ± 0.51).

123 heads of the black-and-motley Holstein cows were formed. Their average dairy production was 9549±95 kg of milk, with a fat content of 3.70±0.01%, protein content of 3.27±0.01%. The breeding effect of using the offspring of these cows will amount to 96 kg of milk per year from each head, taking into account that the heritability estimate in dairy productivity is not more than 0.2 and the generation interval is 5 years, and the economic efficiency from the additional production will be more than 7500 tenges per head.

The research was carried out within the framework of the target scientific and technical program of the Ministry of Agriculture of the Republic of Kazakhstan in the Kazakh Scientific Research Institute of Animal Breeding and Fodder Production LLP in the period 2016-2018.

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ҚАЗАҚСТАН РЕСПУБЛИКАСЫНЫҢ СҮТТІ ІРІ ҚАРА МАЛДЫ ӨСІРЕТІН ТЕКТІК ҚОРЫНЫҢ АСЫЛТҰҚЫМДЫҚ ҚҰНДЫЛЫҒЫНЫҢ ИНДЕКСІ МЕН СҮТІНІҢ ӨНІМДІЛІГІ

Аннотация. Бірінші тума сиырларының дене пішімін сызықтық бағалауда, отандық тұқым сиырларын оңтайлы баллы сыртқы түрлердің көрсеткіштері мен аяқтың көрсеткіштеріне сәйкес келетіндігі анықталды, бірақ желіннің параметрлері күрт ерекшеленеді. Өнімділік пен сыртқы пішінінің көрсеткіштері бойынша барлық деректер ақпараттық-талдау жүйесі (АТЖ) бағдарламасына енгізіледі және сиырдың асыл тұқымды құнының индексі автоматты түрде есептелініп анықталады. Асыл тұқымдық құндылықтарының орташа көрсеткіші (АТҚИ) 81,4 болды. Импорттық асылдандыруда голштин сиырларының асыл тұқымдық құндылықтарының индексінің (84,3) деңгейі барлық тұқымдардың арасында ең жоғарысы.

Табындағы бір сиырдың орташа сүт өнімділігі 5300 ± 130 кг сүтті құрады, майдың массалық үлесі 3,74 ± 0,02%, ақуыздың массалық үлесі 3,16 ± 0,01%, құрамында 324,7 ± 23,8 мың соматикалық клеткалар бар. Ең көп өнімді голштин тұқымды сиырлар болды, олардың өнімділігі алатау сиырынан 694 кг (P> 0.99), қара ала сиырынан - 1446 кг (P> 0.999), Симментал сиырынан - 1982 кг (P> 0.999), қырдың қызыл сиырынан - 2038 кг (P> 0.999) жоғары, сиыр майының және ақуыздың құрамы бойынша айтарлықтай айырмашылықтар жоқ. Соматикалық клеткалар қалыпты деңгейде. Сүт өнімділігінің динамикасын лактация бойынша зерттегенде, алатау тұқымының сүт өнімділігінің өсуі (4844 ... 5679 ... 5458 кг) екінші немесе үшінші лактация кезеңінде жоғарлап және бірте-бірте (4716 ... 4017 кг) бесіншіге лактация кезеңіне қарай төмендегені анықталды. Осы тұқымды сиырлардың барлық лактация кезеңінде, орташа алғанда, 5123 ± 275,4 кг-ға дейін жеткізілді. Гольштиндік сиырдың сүт өнімділігі бесінші лактацияға дейін құлдыраусыз өседі. Орташа алғанда, қара ала сиырлары барлық лактацияда 4671 ± 190 кг сүт өнімі құрады. Симментал тұқымының сүт өнімділігінің динамикасы бірінші лактациядан екінші лактацияда (3917 ... 4035 кг) артып, үшінші лактациялық кезеңде (4035 ... 3334 кг) төмендеп, төртінші лактациядан алтыншы лактациялық кезең бойынша дәйектілік артады.

Түйін сөздер: асылдандыру,сиырларды іріктеу, сұрыптау, сиырдың асыл тұқымдық құндылығы, сыртқы пішінін сызықты бағалау, сүт өнімділігі, сүт құрамы.

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ПРОДУКТИВНОСТЬ И ИНДЕКС ПЛЕМЕННОЙ ЦЕННОСТИ РАЗВОДИМОГО ГЕНОФОНДА МОЛОЧНОГО СКОТА В РЕСПУБЛИКЕ КАЗАХСТАН

Аннотация. При линейной оценке телосложения коров-первотелок установлено, что у коров отечественных пород оптимальным баллам соответствуют параметры вида и показатели конечностей, но резко отличаются параметры вымени. Все данные по продуктивным и экстерьерным показателям были занесены в программу информационно-аналитической системы (ИАС), где автоматически был рассчитан индекс племенной ценности изученных коров. Средний индекс племенной ценности (ИПЦ) по всем породам составил 81,4. Среди всех пород наивысший уровень ИПЦ определен у коров голштинской породы (84,3) импортной селекции.

Средний удой изученных стад на 1 корову составил 5300±130 кг молока, с массовой долей жира 3,74±0,02%, массовой долей белка 3,16±0,01%, с содержанием 324,7±23,8 тысяч соматических клеток. Наиболее продуктивными оказались коровы голштинской породы, превышение их продуктивности над

алатауской составило 694 кг (P>0,99), над черно-пестрой – 1446 кг (P>0,999), над симментальской – 1982 кг (P>0,999), над красной степной – 2038 кг (P>0,999), по содержанию жира и белка коровы достоверной разницы не обнаружено. Соматические клетки в пределах нормы. При изучении динамики удоев по лактациям установлено, что, молочная продуктивность алатауской породы характеризуется ростом (4844…5679…5458 кг) до второй-третьей лактациям и постепенным снижением (4716…4017 кг) к пятой. В среднем за все лактации коровы этой породы надоили 5123±275,4 кг. Молочная продуктивность коров голштинской породы увеличивается до пятой лактации, без спадов. В среднем у коров черно-пестрой породы за все лактации удой составил 4671±190 кг. Динамика удоев симментальской породы возрастает с первой ко второй лактации (3917…4035 кг), в третьей происходит ее снижение (4035…3334 кг), с четвертой по шестую лактации последовательность увеличивается.

Ключевые слова: селекция, отбор, подбор, племенная ценность коров, линейная оценка экстерьера, удой, состав молока.

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THE ROLE EI IN PROFESSIONAL DEVELOPMENT OF PSYCHOLOGIST

Abstract. The personal, professional success, undoubtedly, depends on knowledge, skills, erudition, and ability to think in general. However, in most cases, the high level of the general intelligence (IQ) appears insufficiently. The professional efficiency of the young psychologist in "B2B" sector rely on his ability to understand the emotions and to distinguish feelings of other people as show D. Goleman's researches; professional and vital success could be a result of the high level of emotional intelligence. The concept of emotional intelligence (EI) which arose in the early nineties reflects the idea of the unity of affective and intellectual processes. It refers to Emotional Awareness, Self-Motivation, Empathy and ability to understand and manage moods and emotions in the self and others. The existence of two types of EI models – mixed and models of abilities – leads to different approaches to its measurement, and these approaches yield the results which are not coordinated with each other. Four major aspects of emotional intelligence, the appraisal, and expression of emotion, the use of emotion to enhance cognitive processes and decision making, knowledge about feelings, and management of emotions, are described.

Keywords: emotional intelligence, professional activity, future teacher, anxiety, emotion.

Introduction. The changes of modern society requires in professional education of future psychologists. The Soviet scholars considered that emotions only accompany cognitive processes of the person. The recent studies proved the fact that emotional reactions often proceed rational. The emotionality is a critical factor of achievement of success the personality, more essential, than mental abilities.

We understand phenomenon the culture of psychologist emotions as the complete dynamic personal system having own structure. This system includes psychologist's knowledge of emotional development, abilities, and analysis of emotions, management of them, rendering emotional support to the people who asked for the help; psychologist's emotional openness and empathy.

The emotional component carries out not only informative but also unique function in the structure of motivation. The emotion arising as a part of motivation plays a vital role in the determination of behavior (Vygotsky, Izard, Leontyev, Lengle). The emotion in the form of direct experience reflects not the objective phenomena, but the personal relation to them.

The display of emotions is not always desirable as at the redundancy they can disorganize activity or can embarrass the person. On the other hand, delight, good mood helps people in their behavior and communication. The emotional control succeeds in career, and private life as the successful solution of widespread problems depends on the understanding of emotions and control over them. The majority of emotional situations contains circumstances which have to be estimated by common sense.

Control and management of emotions are especially important ability of psychologists cause their work assumes continuous contact with a large number of people. For the psychologist it is critical to be able to understand and explain the nature of the emotions, it is also essential to understand feelings of others correctly and work with them.

Problem Statement. The understanding of a role and the extraordinary importance of emotions caused emergence in psychological science of such concepts as "emotional ability," "emotional competence" (R. Bak), "emotional intelligence" (G. Gardner, P. Salovey).

Emotional Intelligence (EI) is currently a flourishing area in positive psychology and research has shown it is associated with academic achievement (Banchard in press, Bracket, Mayer & Warner, in press, Lam & Kirby, 2002), a decreased likelihood of aggressive behavior (Bracket & Mayer, 2003) and positively relating to others (Cote, Lopes, Salovey & Bears, 2003).

Additionally EI has potential use in education (Sel, Elias, Hunter & Kness, 2001, Payton et al., 2000) human resource management including teamwork and building positive relationships with others (Cote, Lopes & Salovey, 2003), and in politics including the effect of emotion on decision making and behavior (Marcus, Neuman, & Mackuen, 2000) and family dynamics (Elias, Tobias, & Friedlander, 1999). Thus EI is an important subject to examine with many useful applications.

The professional success of the person based on knowledge, skills, erudition, and ability to thinking. However, in most cases, the high level of the general intelligence appears insufficiently. The efficiency of professional activity of the young specialist occupied in the sphere "the subject - subject» where relations caused by the ability to understand the emotions and to recognize feelings of other people. According to D. Goleman professional and vital success of the personality is promoted in many respects by the high level of emotional intelligence. The phenomenon of EI, its structure, and prerequisites of development was considered as foreign scientists (J. Mathews, R.D. Roberts, S. J. Steyni other), and domestic (I.N. Andreyeva, D.V. Lyusin, M.A. Manoylova, M.A. Spasskaya, etc.).

The concept of the emotional intelligence (EI) which arose in the early nineties reflects the idea of unity of affective and intellectual processes. EI refers person abilities to the identification, understanding of emotions and further management of it (his own and others).

First of all, it concerns the definition of the concept EI. The existence of two types of the EI models – mixed and models of abilities – leads to different approaches of its measurement, and these approaches influence on the results aren't matching with each other. The scholars didn't clear on what cognitive processes EI based and what EI role was in the person adaptation to the world around.

One of the first models of EI was model of abilities (Mayer, Salovey, 1997). They understand EI as a set of hierarchically organized abilities connected with processing of information which unites in four "components" see the figure 1.

Figure 1 – Salovey and Mayer's EI model

The hierarchical structure of EI based on the following principles. The ability to distinguish and express emotions (first "component") is a necessary basis for the generation of emotions for the solution of specific objectives (second "component"). These two abilities have procedural character. They are a basis for the understanding of the events preceding emotions and following them (third "component"). All these abilities are necessary for internal emotional regulation and management of own and others emotions (fourth "component").

According to Goleman (1995) EI model based on Salovey and Mayer's early studies (Salovey, Mayer, 1990), but he added some more components: enthusiasm, persistence and social skills.

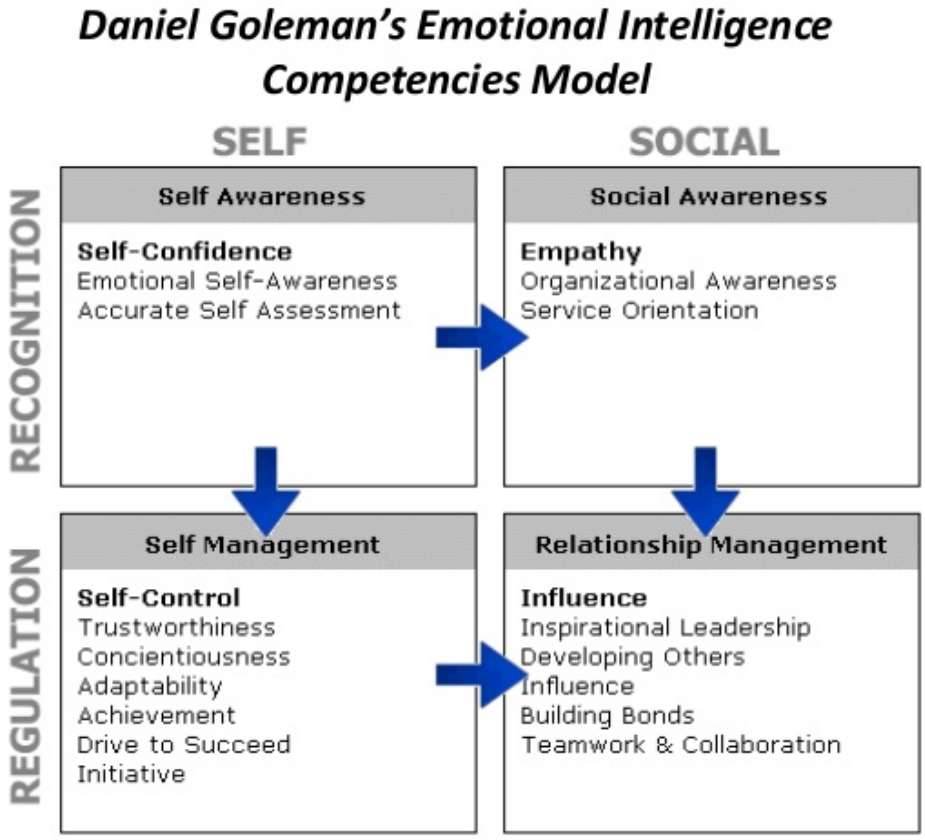

Figure 2 – D. Goleman's EI model

According to Lyusin, EI includes the ability to understand personal and others' emotions and ability to manage personal and others' emotions. Lyusin treats the emotional intelligence as cognitive ability. The author insists that it is not necessary to include personal lines which can promote the best or worst understanding emotions in a structure of this phenomenon, but at the same time are not components of emotional intelligence.

In the structure of emotional intelligence two "measurements" are allocated:

1. Ability – to understanding or management. The ability to understanding of emotions assumes that the person can distinguish existence of feeling, to identify and call it and also to understand its reasons and to expect the possible investigations. The ability to the management of emotions means that the person can control an intensity of feelings and their outer expression randomly, cause necessary excitement.

2. Orientation – on own or others emotions. The intrapersonal emotional intelligence (IPEI), and on others – interpersonal (MEI) is directed to own emotions.

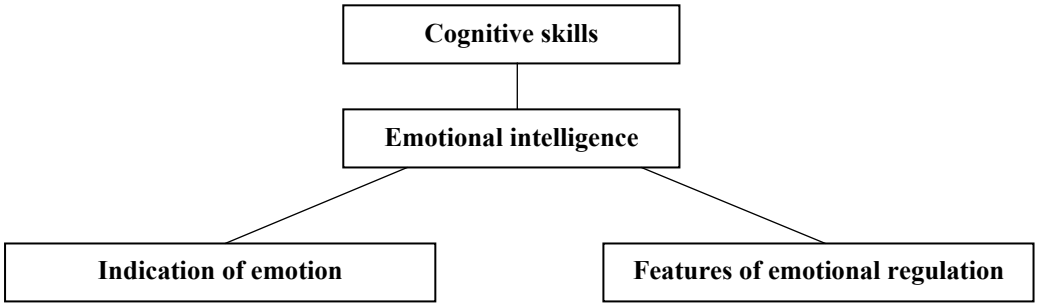

Figure 3 – Lusin's EI model

The results of conducted studies show that EI rely on students' cognitive activity. The high level of EI correlates with Emotional Resilience. In modern High Education system traditionally orientated on IQ development and academic success the development of Emotional Resilience is a new area of studies.

Research Methods. In our study we use:

1. Lyusin's test of EI
2. Holl's test of EI
3. Spielberg and Hanin Personal and Situational levels of anxiety

The participants were students of psychology and pedagogy department of K.Zhubanov ARSU, females (N=40), Me age=18.5.

Findings. The results showed that more than 67% of participants had high level of anxiety. The 30% of students of psychology department tend to cope well with stress (figure 4).

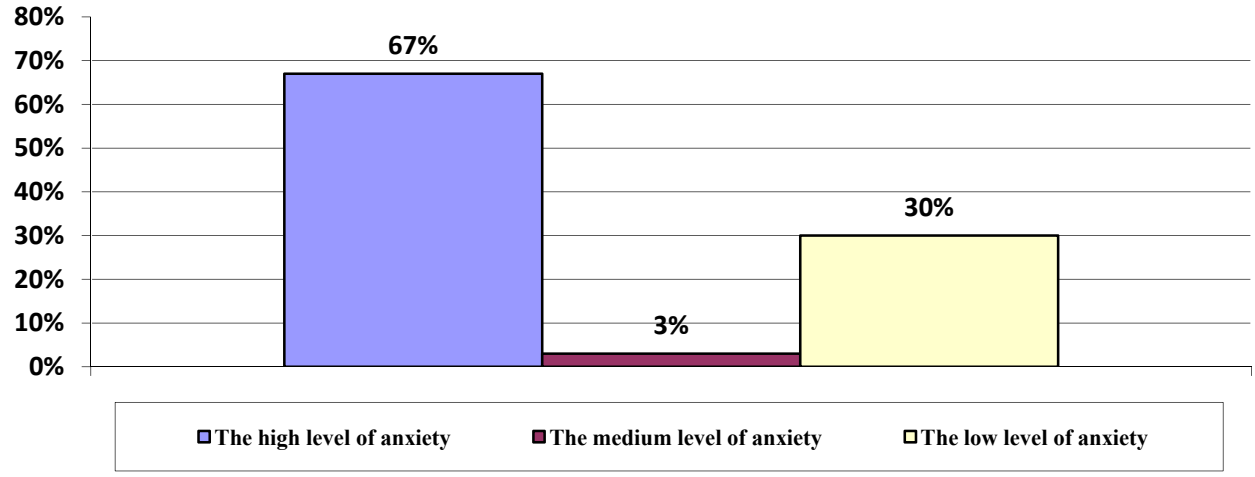

Figure 4 – The results of Spielberg and Hanin situational and personal anxiety test

The Holl's test of EI consists of 6 factors: Emotional Awareness, Emotional Flexibility, Self-Motivation, Empathy and Ability to Influence on Others Emotional State. The methodological base of Holl's test is Goldman theory of EI.

The results showed that the majority of future psychologists have Low or Medium level of Emotional Awareness (77%). The 89% of participants tend to have problems with Management of their emotions. The students didn't have enough information about Emotions as a psychological process, they have difficulties in recognition of own and others emotional states. The participants received a traditional Kazakh Nurture were two dominants of behavior "shame on you" and "neglecting".

But participants showed high results on a scale "Self-Motivation", and "Ability to influence on others". The empathy is complicated area of research, where scholars couldn't make one definition. As we saw in our study students had some difficulties in Emotional Awareness, and Self-Regulation but tend to show good results in "Self-Motivation", and high interests in controlling others emotions.

According to Yerokhina (2011), the "youth female EI" is characterized the empathy expressed by ability that causes in others desire to find emotional support and the calming influence in the face of this person. However reduced indicators on other EI components cause in general its average integrative values.

As we see in figure 5, there is no evidence of high Emotional Intelligence in student sample group. Those results make us feel doubt in professional readiness of students to their job as psychologists. The psychological work as a counselor request high level of Resilience.

The test of the emotional intelligence estimation by D. V. Lyusin - "EmIn Questionnaire", based on the author's concept of the emotional intelligence has been used during the research for the quantitative measurement of the emotional intelligence and its dynamics in the participants of both experimental and control groups in the beginning and in the end of the experiment. D. V. Lyusin defines emotional as an ability to understand own and others' emotions and their management (Lyusin, 2009). The emotional

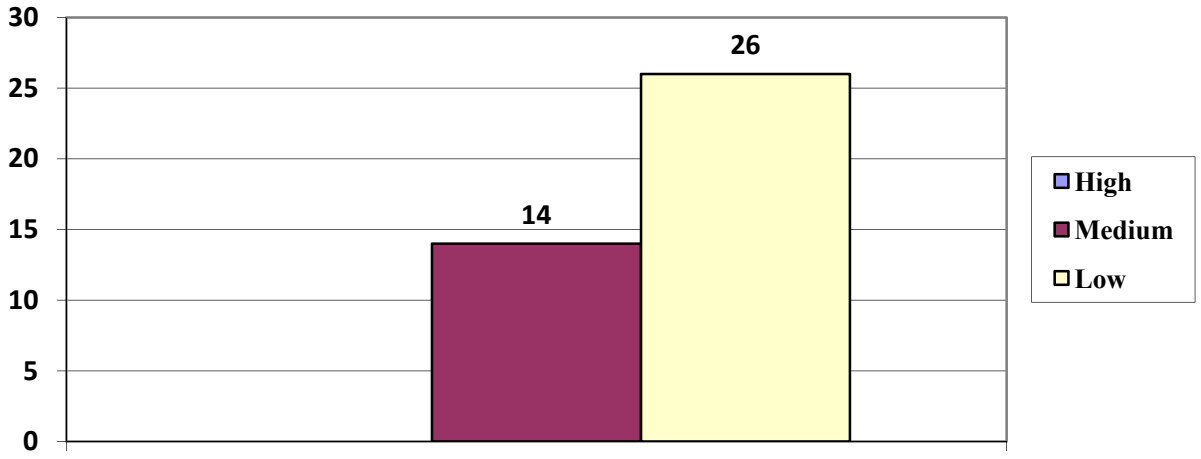

Figure 5 – The results of Holl's EI Test

intelligence as an ability to understand and to manage emotions according to Lyusin can be directed both at own and other people's emotions. Thus, the author actually differentiates concepts of intrapersonal and interpersonal emotional intelligence by actualization of different cognitive processes and skills connected with each other (Sergienko and Vetrova, 2009).

The respondents, who took part in the study, demonstrate medium level of emotional intelligence both for the general factor and for its separate components. The most expressed abilities they have are to recognize own emotional states, make themselves overcome negative feelings and continue to solve the task. Management of own emotions is at the low level, which means that despite the above mentioned ability to move their negative feelings aside it is very difficult for the respondents to keep an equal mind. We may assume that their feelings are displaced to sphere of the unconscious and are not analyzed in full scope. The more detailed picture can be created using components that are included into Lusin's EmIn

Table 1 – The Descriptive Statistics

	Mean	Std. Deviation
Situational Anxiety	41.4815	8.88547
Personal Anxiety	47.2963	9.14757
Emotional knowledge	6.2593	3.82896
Management of own emotions	4.5556	2.29269
Self-motivation	6.3704	3.34144
Empathy	8.1852	3.43105
Management of others' emotions	8.6667	3.98072
Holl's EI	34.0741	9.40919
Understanding of others' emotions	26.9630	10.05554
Management of others' emotions	22.5926	8.99256
Understanding of own emotions	23.2963	11.04472
Management of own emotions	16.2963	8.25467
Control of expression	14.1852	7.98092
Interpersonal emotional intelligence	49.5556	18.74799
Intrapersonal emotional intelligence	54.3333	27.54577
Understanding of emotions	50.6296	21.25875
Management of emotions	53.1852	24.44623
EmIn EI	102.5926	45.28819

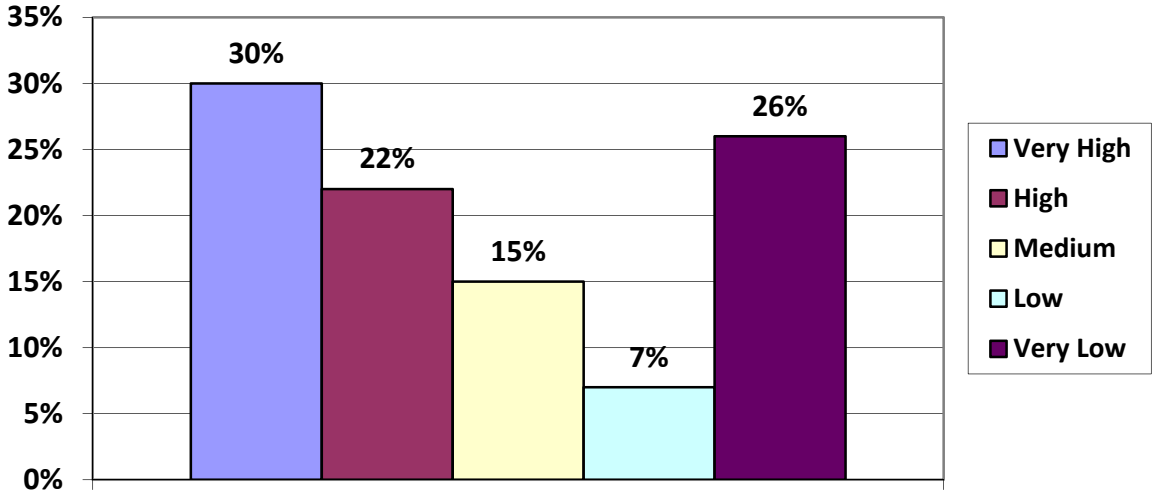

Figure 6 – The results of EmIn Test

procedure. The respondents have slightly more expressed intrapersonal emotional intelligence as opposed to the interpersonal one. At the same time it is hard to speak about significant differences as the average values are only slightly different. These procedures confirm that the respondents have difficulties with management of their own emotions, especially in the part of their expression control.

The analysis of EmIn showed that only 29% of students have a high level of development of EI. The number of examinees with the average level of development of emotional intelligence is 47% of selection. The examinees that showed low data on the level of development of emotional intelligence made 34% of range.

So, the average level of development of interpersonal emotional intelligence was revealed at 63% of examinees, intrapersonal emotional intelligence – at 67%, ability to the management of personal and others' emotions – at 46%, and ability to understanding of personal and others' emotions – at 64%. Low level of interpersonal emotional intelligence was diagnosed for 27% of respondents, intrapersonal emotional intelligence – for 33%, ability to the management of personal and others' emotions – for 34%, and ability to understanding of personal and others' emotions – for 36% of respondents.

Table 2 – The Correlations between Anxiety level and EI (Holls's test)

		Situational Anxiety	Personal Anxiety	Management of own emotions	Management of others' emotions
Situational Anxiety	Pearson Correlation	1	.719(**)		
	Sig. (1-tailed)		.000		
Personal Anxiety	Pearson Correlation	.719(**)	1		
	Sig. (1-tailed)	.000			
Emotional knowledge	Pearson Correlation			-.350(*)	
	Sig. (1-tailed)				
Empathy	Pearson Correlation				.354(*)
	Sig. (1-tailed)				.035
Management of others' emotions	Pearson Correlation				1
	Sig. (1-tailed)				
Holl's EI	Pearson Correlation				.778(**)
	Sig. (1-tailed)				.000

** Correlation is significant at the 0.01 level (1-tailed).
* Correlation is significant at the 0.05 level (1-tailed).

Personal endurance is a characteristic in psychology is defined as the ability of the personality to be highly active every day, to exercise control of life situations and to react flexibly to different changes. Practically all authors note that the endurance is closely connected with all three components of burning out. People with a high degree of this characteristic have low values of emotional exhaustion and depersonalization and high values on a scale of professional achievements.

During the correlation analysis of the EmIn Emotional Intelligence and its components, we found that emotional intelligence is moderately strongly positively interconnected with resistance to stress (r=0.404).

Table 3 – The Correlations between EmIn and Holls's test

		Management of own emotions	Empathy	Control of expression	Interpersonal emotional intelligence	Intrapersonal emotional intelligence
Emotional knowledge	Pearson Correlation	-.350(*)		.395(*)	.358(*)	.425(*)
	Sig. (1-tailed)	.037		.021	.033	.014
Management of others' emotions	Pearson Correlation		.354(*)			
	Sig. (1-tailed)		.035			
Self-motivation	Pearson Correlation		.329(*)			
	Sig. (1-tailed)		.047			
Control of expression	Pearson Correlation	-.496(**)	.353(*)		.955(**)	.979(**)
	Sig. (1-tailed)	.004	.036		.000	.000
Interpersonal emotional intelligence	Pearson Correlation	-.413(*)	.359(*)	.955(**)	1	.924(**)
	Sig. (1-tailed)	.016	.033	.000		.000
Intrapersonal emotional intelligence	Pearson Correlation	-.500(**)	.383(*)	.979(**)	.924(**)	1
	Sig. (1-tailed)	.004	.024	.000	.000	
Understanding of emotions	Pearson Correlation	-.437(*)	.357(*)	.972(**)	.994(**)	.949(**)
	Sig. (1-tailed)	.011	.034	.000	.000	.000
Management of emotions	Pearson Correlation	-.462(**)	.328(*)	.989(**)	.972(**)	.975(**)
	Sig. (1-tailed)	.008	.047	.000	.000	.000

* Correlation is significant at the 0.05 level (1-tailed).
** Correlation is significant at the 0.01 level (1-tailed).

The positive correlation between EI and Resilience could explain the differences in results of Holl's and EmIn test. According to Luisin, EI based on psychological and psychophysiological features of the brain. Instead of Luisin's view, Holl paid his attention on a concept of Emotional awareness. Development of emotional intelligence of students is one of the conditions of formation of the harmonious expert of the psychologist-teacher psychologically ready to the professional activity sated with stress.

Conclusions. Constructive interaction of intellectual and emotional processes, on the contrary, promotes emotional self-control, in particular, to decrease in the intensity of negative emotional experiences.

The problem of understanding of emotions of people around is concluded generally in difficulties of their verbalization – messages to the partner about the feelings and experiences in the form of verbal messages.

The problem of development of emotional competence of teachers, especially psychology teachers, is connected, in our opinion, not only with professional need – to listen and understand pupils, to create a positive emotional background at a lesson, but also with satisfaction from own competence, with experience of personal and professional growth. The person who endured such moments when the partner willingly met halfway as soon as felt heard and understood that gets used to take seriously into account a position and feelings of other person and to show it.

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БОЛАШАҚ ПЕДАГОГ-ПСИХОЛОГ МАМАННЫҢ ЭМОЦИОНАЛЫҚ ИНТЕЛЛЕКТ

Аннотация. Жеке басының кәсіби жетістігі, сөзсіз, білімі мен білік дағдылары, эрудиция және жалпы ойлау қабілетімен байланысты. Дегенмен, көптеген жағдайларда жоғары деңгейдегі жалпы интеллект жеткіліксіз болуы мүмкін. «Пәндік-тақырыптық» қатынастар саласында жұмыс жасайтын жас маманның кәсіби қызметінің тиімділігі негізінен өз эмоцияларын түсіну және басқа адамдардың эмоцияларын тану қабілетімен анықталады. Д.Гоумманның зерттеуі бойынша, эмоционалды интеллекттің жоғары деңгейі адамның кәсіби және өмірлік табысқа жетуіне ықпал етеді. 1990 жылдардың басында пайда болған эмоционалды интеллект (ЭИ) ұғымы аффективтік және интеллектуалдық процестердің бірлігін бейнелейді. Эмоционалды интеллект кең мағынада өз қабілетін танып, түсінуге және оларды басқаруға нұсқайды; яғни субъектінің өз сезімдерін және басқа адамдардың эмоцияларын білдіреді. Соңғы жылдары эмоциялық интеллекттің ғылыми негіздерін қалыптастыруда кейбір прогреске қол жеткізілді, алайда көптеген елеулі қиындықтар бар. Ең алдымен, бұл эмоционалды интеллект тұжырымдамасын анықтауға қатысты. Эмоциялық интеллект моделдерінің екі түрі бар - аралас және қабілеттілік модельдері - оның өлшеулеріне әртүрлі көзқарастар айтылған және бұл тәсілдер бір-бірімен келіспейтін нәтижелер береді. Қандай танымдық процестерге эмоционалдық интеллект негізделетіні және адамның қоршаған әлемге бейімделуінде қандай рөл атқаратыны түсініксіз болып отыр.

Түйін сөздер: эмоционалды зияты (интеллект), кәсіби қызмет, болашақ мұғалім, алаңдаушылық, эмоция.

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ЭМОЦИОНАЛЬНЫЙ ИНТЕЛЛЕКТ БУДУЩЕГО СПЕЦИАЛИСТА ПЕДАГОГА-ПСИХОЛОГА

Аннотация. Профессиональная успешность личности, несомненно, связана со знаниями, умениями и навыками, эрудицией и способностью к мышлению в целом. Однако в большинстве случаев высокого уровня общего интеллекта оказывается недостаточно. Эффективность профессиональной деятельности молодого специалиста, занятого в сфере «субъект-субъектных» отношений во многом обуславливается умением понимать свои эмоции и распознавать эмоции других людей. Как показывают исследования Д. Гоулмана, профессиональному и жизненному успеху личности во многом способствует высокий уровень эмоционального интеллекта. Концепция эмоционального интеллекта (ЭИ), возникшая в начале 1990-х гг., отражает идею единства аффективных и интеллектуальных процессов. В широком смысле к ЭИ относят способности к опознанию, пониманию эмоций и управлению ими; имеются в виду, как собственные эмоции субъекта, так и эмоции других людей. В последние годы наметился некоторый прогресс в формировании научных основ ЭИ, но остается много серьезных трудностей. Прежде всего, это касается определения самого понятия ЭИ. Существование двух типов моделей ЭИ – смешанных и моделей способностей – приводит к разным подходам к его измерению, причем эти подходы дают результаты, не согласующиеся друг с другом. Остается неясным, на каких когнитивных процессах основывается ЭИ и какую роль он играет в адаптации человека к окружающему миру.

Ключевые слова: эмоциональный интеллект, профессиональная деятельность, будущий педагог, тревожность, эмоция.

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REAL ESTATE MARKET RESEARCH AT THE INTERNATIONAL LEVEL

Abstract. The importance of the Kazakhstan real estate market as sectors of economy is confirmed by its high share in gross national product, high level of the income arriving in the budget from primary sale, leasing of the state and municipal real estate (including lands), receipt of charges in the budget of taxes from the real estate and transactions with it.

Economic recovery of Kazakhstan, and alsoaspiration of the most part of the population to improvement of the housing conditions caused relevance of housing construction in the republic.

Real estate objects, it is more, than other goods, are subject to the state impact that increases risk of loss of investments in these objects. The real estate - expensive goods, and for its acquisition the difficult financial schemes including pledge or offset of cost of a former real estate object (different types of mortgages), etc. are often used. Special characteristics of real estate objects as goods along with its special place in market economy cause need of rather wide range of social and economic information for positioning of these goods in the market. The real estate market is intended for rendering certain services and in the social and economic nature is close to the market of services. However it is impossible to claim that the real estate market is a component of the single market of services. Having a number of differences from financial assets, the real estate can be considered as a part of a total investment portfolio, allowing to reduce general risk and as an independent asset.

Thus, purchase and sale of real estate objects is a movement of cost, revenue-producing. At the same time the real estate can be purchased as in production, and for personal reasons.

Key words: real estate market, market economy, construction industry, primary market, secondary market.

1. Introduction. Today in our republic the real estate market is actively formed. At the same time the increasing importance is gained by the question of registration of the acquired and available property in the centers for the real estate.However the current law doesn't provide a binding character of this procedure that generates an array of problems. There was a paradoxical situation: the objects having the real owner don't participate in civil circulation because the rights for him aren't registered or aren't issued properly. Respectively taxes aren't paid. It leads to increase in the "shadow" sector of economy and losses of the state budget. For this reason there was a need to legalize movable and immovable property [1].

Economic recovery of Kazakhstan and alsoaspiration of the most part of the population to improvement of the living conditions conditioned the relevance of housing construction in the republic. In recent years the structure of the houses put into operation has changed on forms of ownership and sources of financing.The state has stopped being the main participant in housing construction, and now private and individual builders began to play the main role.

For enterprises in this period of time, it is necessary to study the characteristics of the market; all activities aimed at the production and marketing of their products in order to maximize profits for the long term. For a number of organizations, depending on what they pursue and what strategies they implement, marketing is a key function that ensures their successful functioning. Moreover, from the transition to the management philosophy, according to which the firm in its activity is fully oriented to the demands of the market, rather than trying to produce "convenient" products for it, which is then sold to the client, marketing becomes something more than a separate function of management. Marketing increasingly becomes the substance of a stock exchange that permeates all areas of the firm's activities [2].

2. Methods of research. To solve this problem, we used methods of logical and comparative analysis, methods of theoretical and research and also methods of the analysis of data[3].

3. Mainpart. Extent of development of the real estate market of various countries and his certain spheres is characterized by the developed specific conditions depending on force major situations, political and other situation in each country and also the main directions of determination of the price and cost of square meter of this or that type of a real estate object.

Across the Russian Federation the following price of 1sq.m of housing will

be established (on average 8850 rubles):

- on the Northwest region - 6860 rubles;
- in the Leningrad Region - 7 thousand rubles;
- in the Moscow region - 11 thousand rubles;
- in St. Petersburg 10 300 rubles;
- in Moscow - 16 thousand rubles.

The research of the average price of supply of housing in any region, district, etc., is advisable to produce a specific example, since the cost of one square meter of housing depends on two main factors: the location of the object and the type of building.

If you take St. Petersburg as an object of research, you can trace the following recent trends:

1. The leaders in terms of supply are Kalininsky, Primorsky and Krasnogvardeisky districts (in terms of decrease).

2. The average price of the leaders of the offer is $ 500-550.

3. In the Admiralteysky District, standard housing is cheaper due to low prestige of the area and a difficult transport connection.

In the Moscow region, it is advisable to research the change in the price per square meter of housing in cities that are part of it, since in the territory of each city there is an integral economic situation in the market of residential real estate which it is not possible to explore by districts.

In general, the price range of $ 400-500 per 1sq.m accounts for 60% of the current aggregate supply, which is 153 objects out of 257.

Analysis of the sector of commercial real estate at the beginning of 2014 showed that the greatest demand for the purchase is used by commercial and office premises, most of which are located in areas of high business activity, in connection with which they set a high level of prices.

In St. Petersburg, such areas include the Central, Vasileostrovsky, Moscow and Petrograd. In the center of the city are 56 and 77% of the proposed respectively trade and office space. Probably, in the near future, the stable position in this sector of the real estate market will occupy the VyborgskayaEmbankment with developing and newly opening business centers there.

Real estate objects in Spain develop either territorially, or territorial functionally, and is in the same way carried out their certain costs and the prices. The first sign is shown available in Spain four conditional areas: The Costa Brava (Barcelona), Costa-Blanca (Alicante), Costa del Sol (Malaga), the Canary Islands (island of Tenerife), the second - in existence of lines of remoteness from the sea.At the same time the most expensive inhabited real estate objects are objects of the second and third lines, but not the first as it is considered to be, in view of adversity of weather. Although the most expensive land is located near the sea, as buildings, as a rule, isn't planned (inhabited or commercial real estate objects), and is carried out proceeding from real investments in the long term.

It is also necessary to note that abroad in connection with the settled features of the real estate markets and regularities of their development of the price of real estate objects are often formed with detachment from all other external factors, taking into account only their private internal signs (for example, a house family tree, the price goodwill of a commercial real estate object). Often so occurs in Germany, Greece, Cyprus, Estonia, the Southern Montenegro.

Housing stock of Turkey can be classified as part of their legal status, prices and rental levels. Locally, the country's housing stock is divided into 4 types at a cost: super-expensive, expensive, medium and cheap. Gecekondu (read as "hegedkondu" (Turkish.) - ghetto, doss house) can be classified as the fifth type. For these types is also produced development of separate real estate objects that are characterized by a certain set of characteristics.

The earthquake of 1999 has resulted in need of confirmation of quality of activity of the construction organizations and agencies of development of real estate objects that, in turn, contributed to the intensive development of institute of assessment of real estate objects taking into account their protection from earthquakes.

In the housing market in France there was a unique situation. The large crisis which has burst at a boundary of the 1980-1990th caused decline of the prices of houses and apartments on average by 35-40%, Now, after acceptance of a number of the laws encouraging purchase of new housing all prerequisites for increase in demand for real estate objects and increase in prices for them are created.

To date, the most profitable are investments in housing under construction with a possibility of his subsequent delivery for rent. New housing has a number of advantages in relation to secondary housing. First, notarial expenses on acquisition of new housing make about 3% of its cost whereas the same expenses on a real estate object which is more than 3 years old make from 10,5 to 13%.Secondly, new residential buildings are exempted by the decision of municipal authorities from land tax within the first 2 years of operation.

Conditionally Paris is divided into 20 districts. The first is on the lakeSita, and everyone else is located around it. Districts are a little similar at each other even if they built up in at one time. From here such wide spacing of the prices (1 sq.m in Paris costs from $3 thousand to $9 thousand). The most inexpensive district the 19th traditionally is considered.

The prices steadily grow in Paris and region. This growth is explained first of all by an acute shortage of the apartments leased and also passivity of private investors.

In general, the market of inhabited real estate objects in France can be divided into the following groups of development conditionally:

1. Private houses and villas.

2. Elite apartments in Paris in prestigious districts (14th, 15th, 16th and 17th) are apartments of the improved planning, with qualitative European-quality repair, with existence of an underground garage in the house.

3. Apartments in usual multi-storey buildings in the usual districts of Paris or its vicinities.

The real estate in Great Britain can be owned on the basis of leasehold or freehold. Freehold means that in possession there are not only an earth, but also any construction constructions located on it. Leasehold - a situation when the earth is in possession someone else with the long-term rent granting to the new owner the right for property. Houses are got in property on the basis/geu / w / d ?, apartments - usually on leasing. The small sizes of the territory of Great Britain create continuous increase in prices for real estate objects. According to experts, increase in prices for the real estate in England is caused by the economic conditions which have developed recently, in particular uncharacteristically high employment rate and low interest rates on the credit.

Upon purchase the main criterion is the location. The prices go down in process of removal from the center.

In England, the system of housing provision (temporary) for students has long been developed, that's why in large and small towns there is a wide choice of inexpensive and comfortable places of residence, such as: family accommodation, hostel; campus (summer camps); student's apartment; guest-house (hotel), apartments, hotels.

The real estate market in Italy today is very liquid, promising and actively developing. Prices are rising steadily, a significant role in this is played by foreigners, primarily Germans, French, Americans.

The following objects of the market enjoy the greatest popularity:

- inhabited - country houses, villetta, apartments - the new or restored, located in respectable and prestigious areas, for example, Brescia,
- Desenzano, Sirmione, Franciacorta, Madonna di Campiglio, Trentino Alto Adige;
- commercial - the small hotels, residences, shops, bars located in resort regions of the North of Italy near the lakes Garda, Iseo, Idro, Sato, offices in again constructed up-to-date international business centers - skyscrapers like "Christal Palace", "Palazzo Mercurio".

Today the prices of the Italian real estate market it is unambiguous below, than in comparison with Italy on development and quality of life the countries, somehow Germany, France, Switzerland, Austria, England.

The reasons of it are in relative low cost of construction: Italians have all necessary construction materials at home and import nothing from other countries and also that earlier the Italian real estate market was rather closed for foreigners.

Distinctive feature of the Finnish real estate objects is obligatory existence of a sauna. The sauna is in each house including apartment. In Finland services of care of the house or the apartment in the absence of their owners are widely developed.

Approach to pricing of a real estate object abroad sometimes cardinally differs from the Russian techniques of calculation of cost (or the prices) real estate objects. For example, in Bulgaria so-called ideal parts are considered. The cost of square meter of an access ladder can be their example. Besides, cost, for example, of an inhabited real estate object joins costs of balconies and loggias. As a result of it housing of the raised comfort degree in Bulgaria is estimated on average $600 for sq.m.

In the Russianrecalculation total area is required to be reduced by 15-30%, having respectively increased the price of square meter of actual total area.

Conclusions. The analysis of a situation in primary and secondary international real estate markets allows to draw an unambiguous conclusion that, as a rule, the cost of one square meter of a real estate object in the secondary market exceeds its analog on primary.

Thus, the most fundamental concept connected with the characteristic of real estate objects at the international level is the term the price (cost). At the same time approaches to her definition for various real estate objects in the different countries differ. The analysis of the existing approaches to determination of the price of real estate objects learns to use already existed options applied in world practice possible for this or that country for the purpose of development of certain sectors of the real estate market taking into account the available positive experience.

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ЖЫЛЖЫМАЙТЫН МҮЛІК НАРЫҒЫН ХАЛЫҚАРАЛЫҚ ДЕҢГЕЙДЕ ЗЕРТТЕУ

Аннотация. Қазақстандық жылжымайтын мүлік нарығының маңызды мәні экономика секторы ретінде жалпы ұлттық өнімде оның үлесінің жоғары деңгейінде, бастапқы сатылуынан бюджетке түсетін кірістердің жоғары деңгейімен, мемлекеттік және коммуналдық жылжымайтын мүлікті (оның ішінде жерлер) жалға беруден түсетін кірістердімен, жылжымайтын мүліктің салықтардың алымдарын бюджетке түсуімен және олармен жасалатын мәмілелерімен расталады. Қазақстан экономикасының өсуі, сондай-ақ халықтың көп бөлігінің өз тұрғын үй жағдайларын жақсаруына тырысуы, республикада тұрғын үй құрылысын өзектілігіне себепші болды.

Жылжымайтын мүліктердің объектілері басқа да тауарлардан артық мемлекеттік басымдылыққа ұшырайды, бұл осы объектілерге салымдардың ысырап қалу қатерін жоғарлатады. Жылжымайтын мүлік - қымбатты тауар, және оны сатып алу үшін жиі күрделі қаржы схемалары пайдаланылады, мұнда кепіл немесе жылжымайтын мүлік бұрынғы объектісінің құнын есепке жатқызу (әр түрлі ипотекалар түрлері) және т.б. қамтиды. Жылжымайтын мүлік объектілерін тауар ретінде ерекше сипаттамалары оның нарықтық экономикада ерекше орнымен қатар осы тауарды нарықта орналастыру үшін әлеуметтік-экономикалық ақпараттың жеткілікті кең спектрінін қажеттілігі себепші болады. Жылжымайтын мүлік нарығы нарыққа қарай белгілі бір қызмет көрсетуге арналған және өз әлеуметтік-экономикалық табиғаты бойынша қызмет нарығына жақын. Алайда, бұл жылжымайтын мүлік нарығы - бұл бірыңғай қызметтер нарығының құрамдас элементі деуге болмайды. Қаржы активтердің бір қатар айрықшаға ие бола отырып, жылжымайтын мүлік инвестициялық портфельдің бір бөлігі ретінде қарастырыла алады да, және де дербес актив ретінде жалпы тәуекелді төмендетуге мүмкіндік береді.

Осылайша, жылжымайтын мүлік объектілерін сатып алу-сату құны - бұл табыс әкелетін құннын қозғалысы. Сонымен қатар жылжымайтын мүлік өндірістік ретінде, сол сияқты жеке мақсатта сатып алынуы мүмкін.

Түйін сөздер: жылжымайтын мүлік нарығы, нарықтық экономика, құрылыс индустриясы, бастапқы нарық, қайталама нарық.

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ИССЛЕДОВАНИЕ РЫНКА НЕДВИЖИМОСТИ НА МЕЖДУНАРОДНОМ УРОВНЕ

Аннотация. Важное значение Казахстанского рынка недвижимости как сектора экономики подтверждается его высокой долей в валовом национальном продукте, высоким уровнем доходов, поступающих в бюджет от первичной продажи, сдачи в аренду государственной и коммунальной недвижимости (в том числе земли), поступлением сборов в бюджет налогов от недвижимости и сделок с ней.

Подъем экономики Казахстана, а также стремление большей части населения к улучшению своих жилищных условий обусловили актуальность жилищного строительства в республике.

Объекты недвижимости больше, чем другие товары, подвержены государственному воздействию, что увеличивает риск потери вложений в данные объекты. Недвижимость - дорогой товар, и для его приобретения часто используются сложные финансовые схемы, включающие залог или зачет стоимости прежнего объекта недвижимости (различные виды ипотек) и др. Особые характеристики объектов недвижимости как товара наряду с ее особым местом в рыночной экономике обусловливают необходимость достаточно широкого спектра социально-экономической информации для позиционирования данного товара на рынке. Рынок недвижимости предназначен для оказания определенных услуг и по своей социально-экономической природе близок к рынку услуг. Однако нельзя утверждать, что рынок недвижимости - это составной элемент единого рынка услуг. Обладая рядом отличий от финансовых активов, недвижимость может рассматриваться как часть общего инвестиционного портфеля, позволяя снизить общий риск, и как самостоятельный актив.

Таким образом, купля-продажа объектов недвижимости - это движение стоимости, приносящей доход. В то же время недвижимость может приобретаться как в производственных, так и в личных целях.

Ключевые слова: рынок недвижимости, рыночная экономика, строительная индустрия, первичный рынок, вторичный рынок.

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MAJOR IDEAS AND MAIN VALUES OF THE UNIVERSAL UN DECLARATION ON HUMAN RIGHTS: THE 70-YEARS EXPERIENCE

Abstract. Annually, Human Rights Day is celebrated on December 10, the date, when, in 1948, the Universal Declaration of Human Rights, was translated into the largest number of languages and became the most influential in the world, was adopted by the United Nations Organization General Assembly. The Universal Declaration improved the daily lives of millions of people, indescribable suffering, and conrains the foundations of a more equitable in the world.The Universal Declaration promises already political safety for the people, eternal values of equality, justice and human dignity. This year, December 10, 2018, we have celebrated the 70-th anniversary of the Universal Declaration of Human Rights. The Universal Declaration constituted a world wounded by war as a means, prescribed by the states.It was compiled by the representatives and endorsed by the leaders of the countries from all continents, which not only provides for civil and political rights, but also social, economic and cultural rights.

Keywords: human rights, universal declaration, social justice, universal character, eternal values, human dignity, political decisions, legal foundations, elimination of discrimination, rule of law.

Adopted and proclaimed by General Assembly resolution 217 A (III) of 10 December 1948, 1948 the General Assembly of the United Nations adopted and proclaimed the Universal Declaration of Human Rights. Following this historic act the Assembly called upon all Member countries to publicize the text of the Declaration and "to cause it to be disseminated, displayed, read and expounded principally in schools and other educational institutions, without distinction, based on the political status of countries or territories.

Whereas recognition of the inherent dignity and of the equal and inalienable rights of 4 all members of the human family is the foundation of freedom, justice and peace in the world, disregard and contempt for human rights have resulted in barbarous acts 5, which have outraged the conscience of mankind, and the advent of a world, in which human beings shall enjoy freedom of speech and freedom from fear, has been proclaimed as the highest aspiration of the common people. Whereas it is essential, if man is not to be compelled to have recourse, as a last resort, to rebellion against tyranny and oppression, that human rights should be protected by the rule of law.It is essential to promote the development of friendly relations between the nations.The people of the United Nations, have in the Charter, reaffirmed their faith in fundamental human rights, in the dignity and worth of the human person and in the equal rights of men and women and have determined to promote social progress and better standards of life in larger freedom. Member States have pledged themselves to achieve, in cooperation with the United Nations, the promotion of universal respect for and observance of human rights and fundamental freedoms. Common understanding of these rights and freedoms means the greatest importance for the full realization of this pledge.

Universal Declaration of Human Rights as a common standard of achievement for all people and all nations, means that every individual and every organ of the society, shall promote the respect for these rights and freedoms by progressive measures, national and international, to secure their universal and

effective recognition and observance, both among the peoples of Member States by themselves and among the peoples of territories, under their jurisdiction.

As we wrote before, the Universal Declaration was adopted by the General Assembly of the United Nations on 10 December, 1948. The Universal Declaration became the agreement between the countries, agreed on comprehensive statement of inalienable human rights.The traumatic events of the Second World War showed that human rights are not always universally respected. After the war, the governments worldwide made a concerted effort to foster international peace and prevent conflict. In 1948, representatives from the 50 member states of the United Nations came together under the guidance of Eleanor Roosevelt (First Lady of the United States) to devise a list of all the human rights [1].

On 10 December 1948, the General Assembly of the United Nations announced the Universal Declaration of Human Rights – 30 articles – rights and freedoms, that belong to all of us. Seven decades on and the rights they included continue to form the basis for all international human rights law.The Universal Declaration begins by recognising that 'the inherent dignity of all members of the human family is the foundation of freedom, justice and peace in the world'.It declares that human rights are universal – to be enjoyed by all people, no matter who they are or where they live.The Universal Declaration includes civil and political rights, like the right to life, liberty, free speech and privacy. It also includes economic, social and cultural rights, like the right to social security, health and education.

The Universal Declaration is not a treaty, so it does not directly create legal obligations for the countries.However, it is an expression of the fundamental values, which are shared by all members of the international community. And it has had a profound influence on the development of international human rights law. Some argue that because countries have consistently invoked the Declaration for more than seventy years, it has become binding as a part of customary international law.Further, the Universal Declaration has given rise to a range of other international agreements, which are legally binding on the countries, which ratify them.

The Universal Declaration marked an important shift by daring to say that all human beings are free and equal, regardless of colour, creed or religion. For the first time, a global agreement put human beings, not power politics, at the heart of its agenda.The 30 rights and freedoms set out in the Universal Declaration; include the right to asylum, the right to freedom from torture, the right to free speech and the right to education. It includes civil and political rights, like the right to life, liberty, free speech and privacy. It also includes economic, social and cultural rights, like the right to social security, health and education.

A summary of the 30 articles of the Universal Declaration of Human Rights:

Article 1: We are all born free. We all have our own thoughts and ideas and we should all be treated the same way.

Article 2: The rights in the Universal Declaration of Human Rights belong to everyone, no matter who we are, where we're from, or whatever we believe.

Article 3: We all have the right to life, and to live in freedom and safety.

Article 4: No one should be held as a slave, and no one has the right to treat anyone else as their slave.

Article 5: No one has the right to inflict torture, or to subject anyone else to cruel or inhuman treatment.

Article 6: We should all have the same level of legal protection whoever we are, and wherever in the world we are.

Article 7: The law is the same for everyone, and must treat us all equally.

Article 8: We should all have the right to legal support if we are treated unfairly.

Article 9: Nobody should be arrested, put in prison, or sent away from our country unless there is good reason to do so.

Article 10: Everyone accused of a crime has the right to a fair and public trial, and those that try us should be independent and not influenced by others.

Article 11: Everyone accused of a crime has the right to be considered innocent until they have fairly been proven to be guilty.

Article 12: Nobody has the right to enter our home, open our mail, or intrude on our families without good reason. We also have the right to be protected if someone tries to unfairly damage our reputation.

Article 13: We all have the right to move freely within our country, and to visit and leave other countries when we wish.

Article 14: If we are at risk of harm we have the right to go to another country to seek protection.

Article 15: We all have the right to be a citizen of a country and nobody should prevent us, without good reason, from being a citizen of another country if we wish.

Article 16: We should have the right to marry and have a family as soon as we're legally old enough. Our ethnicity, nationality and religion should not stop us from being able to do this. Men and women have the same rights when they are married and also when they're separated. We should never be forced to marry. The government has a responsibility to protect us and our family.

Article 17: Everyone has the right to own property, and no one has the right to take this away from us without a fair reason.

Article 18: Everyone has the freedom to think or believe what they want, including the right to religious belief. We have the right to change our beliefs or religion at any time, and the right to publicly or privately practise our chosen religion, alone or with others.

Article 19: Everyone has the right to their own opinions, and to be able to express them freely. We should have the right to share our ideas with who we want, and in whichever way we choose.

Article 20: We should all have the right to form groups and organise peaceful meetings. Nobody should be forced to belong to a group if they don't want to.

Article 21: We all have the right to take part in our country's political affairs either by freely choosing politicians to represent us, or by belonging to the government ourselves. Governments should be voted for by the public on a regular basis, and every person's individual vote should be secret. Every individual vote should be worth the same.

Article 22: The society we live in should help every person develop to their best ability through access to work, involvement in cultural activity, and the right to social welfare. Every person in society should have the freedom to develop their personality with the support of the resources available in that country.

Article 23: We all have the right to employment, to be free to choose our work, and to be paid a fair salary that allows us to live and support our family. Everyone who does the same work should have the right to equal pay, without discrimination. We have the right to come together and form trade union groups to defend our interests as workers.

Article 24: Everyone has the right to rest and leisure time. There should be limits on working hours, and people should be able to take holidays with pay.

Article 25: We all have the right to enough food, clothing, housing and healthcare for ourselves and our families. We should have access to support if we are out of work, ill, elderly, disabled, widowed, or can't earn a living for reasons outside of our control. An expectant mother and her baby should both receive extra care and support. All children should have the same rights when they are born.

Article 26: Everyone has the right to education. Primary schooling should be free. We should all be able to continue our studies as far as we wish. At school we should be helped to develop our talents, and be taught an understanding and respect for everyone's human rights. We should also be taught to get on with others whatever their ethnicity, religion, or country they come from. Our parents have the right to choose what kind of school we go to.

Article 27: We all have the right to get involved in our community's arts, music, literature and sciences, and the benefits they bring. If we are an artist, a musician, a writer or a scientist, our works should be protected and we should be able to benefit from them.

Article 28: We all have the right to live in a peaceful and orderly society so that these rights and freedoms can be protected, and these rights can be enjoyed in all other countries around the world.

Article 29: We have duties to the community we live in that should allow us to develop as fully as possible. The law should guarantee human rights and should allow everyone to enjoy the same mutual respect.

Article 30: No government, group or individual should act in a way that would destroy the rights and freedoms of the Universal Declaration of Human Rights.

All peoples have the right of self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.All peoples may, for

their own ends, freely dispose of their natural wealth and resources without prejudice to any obligations arising out of international economic co-operation, based upon the principle of mutual benefit, and international law. In no case may a people be deprived of its own means of subsistence [2].

The States Parties to the present Covenant, including those having responsibility for the administration of Non-Self-Governing and Trust Territories, shall promote the realization of the right of self-determination, and shall respect that right, in conformity with the provisions of the Charter of the United Nations.

Each State Party to the present Covenant undertakes to respect and to ensure to all individuals within its territory and subject to its jurisdiction the rights recognized in the present Covenant, without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. Where not already provided for by existing legislative or other measures, each State Party to the present Covenant undertakes to take the necessary steps, in accordance with its constitutional processes and with the provisions of the present Covenant, to adopt such laws or other measures as may be necessary to give effect to the rights recognized in the present Covenant.

In time of public emergency which threatens the life of the nation and the existence of which is officially proclaimed, the States Parties to the present Covenant may take measures derogating from their obligations under the present Covenant to the extent strictly required by the exigencies of the situation, provided that such measures are not inconsistent with their other obligations under international law and do not involve discrimination solely on the ground of race, colour, sex, language, religion or social origin.

Later a string of Soviet amendments was rejected. The first would have replaced the article of the draft stating that the rights outlined applied equally to all inhabitants of trust and non-self-governing territories by one stating that every people and every nation has the right to self-determination, and specifically laying down that “national minorities shall be guaranteed the right to use their native language and to possess their own national schools libraries, museums, and other cultural and educational institutions” and saying that the rights set out “shall be extended to the population of non-self-governing territories, including colonies” [3].

Every human being has the inherent right to life. This right shall be protected by law. No one shall be arbitrarily deprived of his life.In countries which have not abolished the death penalty, sentence of death may be imposed only for the most serious crimes, in accordance with the law, in force at the time of the commission of the crime and not contrary to the provisions of the present Covenant and to the Convention on the Prevention and Punishment of the Crime of Genocide. This penalty can only be carried out pursuant to a final judgement rendered by a competent court.

For the Universal Declaration of Human Rights, it is “a common standard of achievement … Every individual and every organ of society” must see to it, “by progressive measures,” that the rights, which it lays down are put into effect, and there is later to be an international covenant, which will commit the member states even more.

All human beings are born free and equal in dignity and rights. This simple yet radical idea is enshrined in the Universal Declaration of Human Rights.The Universal Declaration begins by recognising that ‘the inherent dignity of all members of the human family is the foundation of freedom, justice and peace in the world’.It declares that human rights are universal – to be enjoyed by all people, no matter who they are or where they live. We would like to stress again, that the Universal Declaration includes civil and political rights, like the right to life, liberty, free speech and privacy. It also includes economic, social and cultural rights, like the right to social security, health and education [4].

Let us remind that the Universal Declaration is not a treaty, so it does not directly create legal obligations for countries.However, it is an expression of the fundamental values which are shared by all members of the international community. And it has had a profound influence on the development of international human rights law.Human rights are at the heart of the Sustainable Development Goals, as in the absence of human dignity we cannot drive sustainable development. A human right is clean water and food, it is health and the opportunity to lead a peaceful life; It is life on land and walking the Earth among its many beings. Human Rights are driven by progress on allSustainable Development Goals, and they are driven by advancements on human rights.December 2018 marks the 70-th anniversary of the Declaration. Over the next year, we’re exploring how this seminal document has impacted history and changed lives around the globe. The human rights movement has made great strides in the past seven decades, but

abuses still occur with saddening regularity. The anniversary of the Declaration is an opportunity to celebrate successes and recommit ourselves to the principles outlined in the Declaration's 30 Articles.As stated in the preamble, "recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world." The Declaration empowers all of us to stand up for our own human rights and those of others.

So, we present the Declaration here as a living document, universal in scope and fiercely relevant to each individual.December 10 is Human Rights Day, a day commemorating the United Nations General Assembly's adoption of the Universal Declaration of Human Rights and the importance of securing human rights for all people.

When deprivation of life constitutes the crime of genocide, it is understood that nothing in this article shall authorize any State Party to the present Covenant to derogate in any way from any obligation assumed under the provisions of the Convention on the Prevention and Punishment of the Crime of Genocide.Anyone sentenced to death shall have the right to seek pardon or commutation of the sentence. Amnesty, pardon or commutation of the sentence of death may be granted in all cases.Sentence of death shall not be imposed for crimes committed by persons below eighteen years of age and shall not be carried out on pregnant women.Nothing in this article shall be invoked to delay or to prevent the abolition of capital punishment by any State Party to the present Covenant.

Everyone has the right to liberty and security of person [5, p. 276]. No one shall be subjected to arbitrary arrest or detention. No one shall be deprived of his liberty except on such grounds and in accordance with such procedure as are established by law.Anyone who is arrested shall be informed, at the time of arrest, of the reasons for his arrest and shall be promptly informed of any charges against him.Anyone arrested or detained on a criminal charge shall be brought promptly before a judge or other officer authorized by law to exercise judicial power and shall be entitled to trial within a reasonable time or to release. It shall not be the general rule that persons awaiting trial shall be detained in custody, but release may be subject to guarantees to appear for trial, at any other stage of the judicial proceedings, and, should occasion arise, for execution of the judgement.Anyone who is deprived of his liberty by arrest or detention shall be entitled to take proceedings before a court, in order that that court may decide without delay on the lawfulness of his detention and order his release if the detention is not lawful. Anyone who has been the victim of unlawful arrest or detention shall have an enforceable right to compensation.The penitentiary system shall comprise treatment of prisoners the essential aim of which shall be their reformation and social rehabilitation. Juvenile offenders shall be segregated from adults and be accorded treatment appropriate to their age and legal status.

An alien lawfully in the territory of a State Party to the present Covenant may be expelled therefrom only in pursuance of a decision reached in accordance with law and shall, except where compelling reasons of national security otherwise require, be allowed to submit the reasons against his expulsion and to have his case reviewed by, and be represented for the purpose before, the competent authority or a person or persons especially designated by the competent authority [6, p. 149].

All persons shall be equal before the courts and tribunals. In the determination of any criminal charge against him, or of his rights and obligations in a suit at law, everyone shall be entitled to a fair and public hearing by a competent, independent and impartial tribunal established by law. The press and the public may be excluded from all or part of a trial for reasons of morals, public order (ordre public) or national security in a democratic society, or when the interest of the private lives of the parties so requires, or to the extent strictly necessary in the opinion of the court in special circumstances where publicity would prejudice the interests of justice; but any judgement rendered in a criminal case or in a suit at law shall be made public except where the interest of juvenile persons otherwise requires or the proceedings concern matrimonial disputes or the guardianship of children.Everyone charged with a criminal offence shall have the right to be presumed innocent until proved guilty according to law.

All human rights are indivisible, whether they are civil and political rights, such as the right to life, equality before the law and freedom of expression; economic, social and cultural rights, such as the rights to work, social security and education, or collective rights, such as the rights to development and self-determination, are indivisible, interrelated and interdependent [7, p. 74].The improvement of one right facilitates advancement of the others. Likewise, the deprivation of one right adversely affects the others.

Non-discrimination is a cross-cutting principle in international human rights law. The principle is present in all the major human rights treaties and provides the central theme of some of international human rights conventions such as the International Convention on the Elimination of All Forms of Racial Discrimination and the Convention on the Elimination of All Forms of Discrimination against Women. The principle applies to everyone in relation to all human rights and freedoms and it prohibits discrimination on the basis of a list of non-exhaustive categories such as sex, race, colour and so on. The principle of non-discrimination is complemented by the principle of equality, as stated in Article 1 of the Universal Declaration of Human Rights: "All human beings are born free and equal in dignity and rights".

Human rights entail both rights and obligations. States assume obligations and duties under international law to respect, to protect and to fulfil human rights. The obligation to respect means that States must refrain from interfering with or curtailing the enjoyment of human rights[8, P.104].The obligation to protect requires States to protect individuals and groups against human rights abuses. The obligation to fulfil means that States must take positive action to facilitate the enjoyment of basic human rights. At the individual level, while we are entitled our human rights, we should also respect the human rights of others.

In the conclusion, we emphasize that the provisionsof the Universal Declaration of Human Rights-shall apply Human rights inherent to all human beings, whatever our nationality, place of residence, sex, national or ethnic origin, colour, religion, language, or any other status. We are all equally entitled to our human rights without discrimination. These rights are all interrelated, interdependent and indivisible. Universal human rights are often expressed and guaranteed by law, in the forms of treaties, customary international law, general principles and other sources of international law. International human rights law lays down obligations of Governments to act in certain ways or to refrain from certain acts, in order to promote and protect human rights and fundamental freedoms of individuals or groups.

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АДАМ ҚҰҚЫҚТАРЫ ЖӨНІНДЕГІ БҰҰ-НЫҢ ЖАЛПЫ ДЕКЛАРАЦИЯСЫНЫҢ НЕГІЗГІ ИДЕЯЛАРЫ МЕН БАСТЫ ҚҰНДЫЛЫҚТАРЫ: 70 ЖЫЛ ТӘЖІРИБЕСІ

Аннотация. Әр жылда 10-желтоқсанда адам құқықтары күні аталып өтіледі. Яғни 1948 жылы адамдардың жалпы құқығы туралықұжатының декларациясы жайындағы үндеуі әлемдегі ең басымдыққа ие тілдеріне аударылып, Біріккен Ұлттар Ұйымының Бас Ассамблеясымен қабылданды. Сол қалпында ол құжатүш жыл қолданыстаболды. Осы құжаттың арқасында миллиондаған адамдардың өмір сүру жағдайлары жақсарды. Адамдар мен адамдар арасындағы әділетсіздік жойылып, жаңаша әділетті өмірдің негізі қаланды. Осы құжаттағы көптеген алға қойған мақсаттар жүзеге асып болғанымен, оның қабылдану тарихы мен одан кейінгі өмір тәжірибесі уақыт талабына жауап беріп онда қойылған құндылықтардың универсалды екендегін теңдік пен әділеттілікті және адам құқықтарын сақтауды жүзеге асыратындығын дәлелдеді. Биыл біз осы құжаттың қабылданғандығының 70-жылдығын атап өтудеміз. Адам құқығының жалпы декларациясын қабылдағанда әлем жаңа ғана біткен соғыстан жаралы болатын, сондықтан да әлем халықтары басынан кешкен қателіктерді, табиғи инстинкттерді жоя отырып, осы құжатты қабылдады. Оны қабылдауға барлық континеттер мен мемлекеттердің басшылары қатысып, тек қана азаматтық емес сонымен қатар, саяси құқықтарды, әлеуметтік, экономикалық және мәдени құқықтарды да қарастырды.

Түйін сөздер: адам құқығы, жалпы декларация, әлеуметтік әділеттілік, универсалды сипат, мәңгі құндылықтар, адамның толыққандылығы, саяси шешімдер, заңнамалық негіздер, дискриминацияны жою, құқықтың басымдылығы.

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ОСНОВНЫЕ ИДЕИ И ГЛАВНЫЕ ЦЕННОСТИ ВСЕОБЩЕЙ ДЕКЛАРАЦИИ ООН ПО ПРАВАМ ЧЕЛОВЕКА: ОПЫТ 70-ЛЕТ

Аннотация. Ежегодно День прав человека отмечается 10 декабря, в день, когда в 1948 году Всеобщая декларация прав человека, документ, переведенный на наибольшее число языков и, возможно, наиболее влиятельный в мире, была принята Генеральной Ассамблеей Организации Объединенных Наций, которая сама просуществовала к тому времени всего три года. Благодаря Всеобщей декларации улучшилась повседневная жизнь миллионов людей, были предотвращены невыразимые страдания и заложены основы более справедливого мира. И хотя ее обещания уже, в основном, выполнены, сам факт того, что она прошла проверку временем, является свидетельством универсального характера ее вечных ценностей равенства, справедливости и человеческого достоинства. В этом году - 10 декабря 2018 года - мы отпраздновали 70-летие принятия Всеобщей декларации прав человека.Всеобщую декларацию составил мир, израненный войной, в качестве средства, предписанного государствами для того, чтобы оградить население от их собственных худших инстинктов и ошибок. Она была составлена представителями и одобрена лидерами стран всех континентов, в которойпредусмотрены не только гражданские и политические права, но также социальные, экономические и культурные права.

Ключевые слова: права человека, всеобщая декларация, социальная справедливость, универсальный характер, вечные ценности, человеческое достоинство, политические решения, юридические основы, ликвидация дискриминации,верховенство права.

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STYDY OF VALUE SYSTEM AND ETHNIC CONSCIOUSNESS OF KAZAKH ORPHANAGE CHILDREN

Abstract. The aims of research is to investigate value system and ethnic consciousness of orphan children in modern Kazakhstan. So we found that of ethnic consciousness still develop and it's in low level in Kazakh orphanage children and there is significant difference in value system between Kazakh orphanage children and children who have a family.

Key words: value system, ethnic consciousness, orphanage children.

Introduction. Researching the connection between orientation to assets and ethnic consciousness of orphanage pupils is important from psychological-pedagogical point of view. Orphan children are permanent socio-psychological problem of the society. The political-economical-social processes which are taking place in our country makes come changes in the mental development of the orphanage pupils who are living in the time of "psychological subdeprivation".

Problems of ontogenetic development of consciousness are considered in works of B. G. Ananyev, S. L. Rubenstein, L. S. Vygotsky [4, 3, 1]. In psychological science the consciousness is investigated in several directions. Features of consciousness are considered at teenage age in such aspects as: complication of an inner world, expansion of processes of self-knowledge, etc. The ethnic aspect is important in research of consciousness of orphan teenagers of Kazakhstan. The folklore, national traditions and customs as national culture express ethnic consciousness of the people, its valuable orientations. Y. Bromley [7] are devoted to the ethnic party of consciousness.

In works of V. Vundt, G. Werner, L.S. Vygotsky are reflected the important components of national eposes influencing development of the personality [8, 9, 1]. Pedagogical and psychological aspects of folklore influence on development of the personality, in particular on development of its valuable orientations are so defined.

Thus, development of valuable system of the personality is mediated by cultural wealth of ethnos which are expressed in turn through folklore (national eposes). In works of V. Vundt, L.S. Vygotsky, K. Yung are considered features of influence of national eposes on development of ethnic consciousness of the identity of teenagers [8,1,10].

Methods.

A. Subjects. 240 probationers participated in this research: N=100-experimental group – orphan children – Group A; N=100 – testing group-those who brought up in the family-group B; N=20-upbringer, N=20-oparents of those who are bringing up in the family). There were made diagnostic research on 2 groups: group 1 – experimental group of orphanage children. (N=100), group 2 – testing group, who have families ((N=140 including N=20-upbringer, N=20-oparents of those who are bringing up in the family).

B. Task. In a main study 240 participants completed such questionnaires as folklore, author's questionnaire defining the concepts about national traditions, the scale of defining the level of anxiety by Ch. Spilberger, D. Hanin, scale of self-evaluation by Dembo-Rubinstein, emotional sense test by V.P. Morozov, "who am I" test by M. Coon, Mackpartland, scale of value orientation by M. Rokich, "Thinking about life meaning" by H. Niemi and "We and they" (scales of Bogardus), biographical method. All the questionnaires were in Kazakh language. There were made 3 diagnostic researches.

Results of research.

1. The 1st diagnostic research. The system of values of the group A were examined in the interrelation with emotional spheres. According to the results of the research: the perception of emotional state among the probationers is in average 20,5 %, among the adults it is 8,1%. The level of perception of emotional excitement and states among the educators and group A is very low than the scientifically accepted norm. The norm of adequate perception of someone else's emotional state by his voice is 65% or higher. Only 3 of the adult probationers and 2 of the younger ones could correctly recognize the emotional state in this diagnostic research, their indexes are: 33% and 8%. We can see that in the adult group could give 3 correct variants of emotional states from given 5 (sorrow, happiness, fear, anger and neutral emo-tion), other groups probationers could recognize only 2.

Self-perception of foster-children in families is high, but it doesn't rich the definite level which describes positively the personal development (the difference is in 0.001), in comparison with them self-perception of the group A is in the criticalsituation. Comparing the average numbers of the self-perception f the group A is lower than among another probationers (difference is in 0.05).

Analyzing the content, results after biographical and "retelling the history" methods: group A were always in bad emotional state, they think a lot about their parents, others got deep deflection, and because of that they are needed a serious help from psychologist; they feel indifferent because they don't see any sign of activeness from parents; the good imagination about parents was noticed among the adolescents in the orphanage.

2. The 2nd diagnostic research, first cycle. The results of group A in "understanding of life" test is lower (65%) than in group B (88%). The level of understanding of the meaning of the life is low in the first group (55%) and high in the second (74%). The index of having vital goals and plans in the group A is very low (48%) and high in the group B (71%). In general the degree of understanding of life varies in to groups, in the first group in average 58%, and in the second 83%.

By the results of the tests there were found statistical differences in the establishing levels of orientating to the assets in both groups. The results of group A (42%) is much lower than in the group B (62%). The level of establishing to the assets in group B is 63%, 21% not established, and 16% is in process. And in the group A 27%, 49% and 24% perspectively.

The hierarchal structure of final assets of both groups showed that: in the testing group B their terminal assets oriented on the personal, accurate and interindividual assets, and this hierarchal structure wasn't established in the group A. Even though there were no assets oriented system but we can distinguish main meaningful assets of this group, they are oriented on professional and esthetic assets. There is a similarity between two groups in that they put family and children to the 2 and 3 places, and also material assets are there. There is a definite corelational connection between the indexes of orientation to assets and level of understanding of life in two groups. The corelational analysis is calculated by Spearmen's coefficient of corelational ranging. Note: 1-the importance of the problem. 2-analyzing with teacher.3-analyzing with parents (upbringer).4-analyzing with friends.

2 diagnostic research, 2 cycle

By the end of having conversations and observations, we reached psychological closeness, and have written composition (about "folklore and national traditions") and orientation to the assets and comprehension of life was analyzed. The statistic significance was defined by the student's t criteria (P>0,001 significantly t=2,5statistic difference was found).

The methods used in mathematical processing of the answers was created with the help of the given questions, everything was evaluated by the 5 point scale: giving right names of characters of Kazakh epos, knowledge of stories, recognizing of the cultural personalities, having a foreign friend, his relation to the culture of his nation, his relation to the another nation's culture, knowledge of traditions, knowledge of

national games, knowledge of epos, knowledge of aitys, national music, proverbs, national holidays and national songs.

The answers gave us the following indexes: national traditions (25%), folklore (38%), language (70%), national literature and art 16%, relation to the another nation's culture 24%. As we can see group A is showing lower level of ethnic consciousness.

In the group B this indexes is higher for 38%. The difference between two groups according to the student's t criteria is correct with about 0,001.

3. 3-diagnostic research. Defining the level of the development of group A's ethnic consciousness. With the

Bogardus's scale called "we and they" we have researched ethnic tolerance. 5 ethnic-psychological indexes were taken.

In the "I am Kazakh" test probationers from the group A expressed their opinions, index of ethnics is among (1-4): 11,2%, that is 9 probationers from 80; some answered with more interest; 81.2% that is 65 from 80 did not answer to the given 20 questions. 6 out of 20 showed 7.5% interest to this question. In the "I am Kazakh" test probationers from the group B expressed their opinions, index of ethnics is among (1-4): 17,5%, that is 14 probationers from 80; some answered with more interest; 68.7% that is 55 from 80 did not answer to the given 20 questions. 11 out of 20 showed 13.7% interest to this question. Critics' ave-rage number of perception of emotional state is 20,5%, among adult critics 8.1%. The level of perception of emotional excitement and states among the educators and group A is lower than the scientifically accepted norm. The norm of adequate perception of someone else's emotional state by his voice is 65% or higher. By the criteria t of the student: the average level of anxiety of one person among adult critics (experts) is 42,5 (6.1), among the group A 42,1 (7,2) and the correlation between the two levels (one personal and situational) was high.

Among the group B the self perception is high but it doesn't rich the positive characteristics of personal development (the number is correct with difference in 0,001), the self perception of group A is in a critical situation. The self perception of group a is lower than in the group B (the number is correct with difference in 0,05).In the "I am Kazakh" test probationers from the group A expressed their opinions, index of ethnics is among (1-4): 11,2%, that is 9 probationers from 80; some answered with more interest; 81.2% that is 65 from 80 did not answer to the given 20 questions. 6 out of 20 showed 7.5% interest to this question.

"Folklore", orientation to the assets was examined. $P>0,001$, $t=2,5$ were found statistically important differences. Answers: national traditions (25%), folklore (38%), language (70%), national literature and art (16%), relation to the other nations culture (24%). Group A showed the lowest level of ethnical consciousness. The result in group B is higher by 38%. The difference between indexes of two groups is correct with difference for 0.001.In the "I am Kazakh" test probationers from the group B expressed their opinions, index of ethnics is among (1-4): 17,5%, that is 14 probationers from 80; some answered with more interest; 68.7% that is 55 from 80 did not answer to the given 20 questions. 11 out of 20 showed 13.7% interest to this question.

Significant in value hierarchic structure difference between 2 groups for the testing group 2 is oriented to the intellectual ($p<0,05$), individual ($p<0,05$) values, while for the experimental group 1 it is important to be oriented to the professional perceptions ($p<0,05$). The testing group 2 is calling the professional ($p<0,05$) and other perceptions less important; 3/ there is significant difference in national values (0,001) between 2 groups; 4/ also difference between of ethnic consciousness development degree. The ethnic parameter "I am Kazakh" was chosen on first place by 11.2 % participants in group 1 and by 17.5 % participants in group 2.

The answers gave us the following indexes: national traditions (25%), folklore (38%), language (70%), national literature and art 16%, relation to the another nation's culture 24%. As we can see group A is showing lower level of ethnic consciousness. In the group B this indexes is higher for 38%. The significant difference between two groups (0,001). Despite of studying such subjects as national folklore at school group A couldn't answer to the questions about it. In average the percentage of those who had knowledge about folklore is 38%. Answers to the questions about traditions also gave low results (25%).

Anyway the process of understanding and assimilating of the national folklore and culture cannot be oriented to assets urgently, for this reason special psychological-pedagogical conditions are needed.

Conclusions. First diagnostic research - its not surprising that adult probationers less chosen the emotion of sorrow (65%), it is known that there are some peculiarities in working with orphan children. The fact that probationers from group A were tend to choose neutral emotions and emotions of fear, it needs more detailed investigation.

Index of self-perception in this group is different, while those who live in the family demonstrated more uniformity. It is clear that it is connected with facing different situations among probationers. The connection with parents in the group A breaks temporarily or for good. This kind of children will lose the familiar emotional and social connections, their development will change, and the state of deprivation will increase.

Analyzing the answers of the probationers we can see the following results: group A is unsatisfied with their present life but they are looking forward to their future. For example, here are some of their answers: "I think I was born for a reason, and my bright future is waiting for me". "I don't regret about anything in my life, bad things had happened and they are in the past". "I will tear off those pages of my life in the past, because I don't want to think about it and it is not important for me anymore". "I don't think about the past, I want to start a new life".

Second diagnostic research. Hierarchal structure of group A is in the stage of developing, for probationers of group B are oriented to the intellectual, individual assets, group A is oriented to professional and accepting values. Testing group thinks that professional vales are less important. Comparing levels of establishing assets in these two groups we found out that the level depends on their understanding of life. The main difference between two groups is in the knowing and using national traditions. The high level of it in the testing group is because of being brought up in the family. Deep knowledge of national folklore and traditions gives opportunities to improve the orientation to the assets. Group A rarely thinks about the meaning of the life, while the testing group thinks a lot more.

Second diagnostic research, 2nd cycle. Despite of studying such subjects as national folklore at school group A couldn't answer to the questions about it. In average the percentage of those who had knowledge about folklore is 38%. Answers to the questions about traditions also gave low results (25%). This case makes us think, and connect the restriction of social status and social environment to their position. Even the group B succeeded in the experiment, they are needed to be investigated, because of specific peculiarities of teenagers.

Anyway the process of understanding and assimilating of the national folklore and culture cannot be oriented to assets urgently, for this reason special psychological-pedagogical conditions are needed. The system of orientation to the assets of orphanage children closely connected with meaningful relations to the adults, good knowledge about national folklore establishes orientation to assets and ethnic consciousness and creates positive psychological conditions.

The influence of ethnic factors is the basis of establishing orientation to the assets among teenagers. Knowing the national culture and folklore improves the process of socialization among orphanage children, improves personal qualities, national consciousness, generates the system of orientation to the national culture assets.

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ИССЛЕДОВАНИЕ ЦЕННОСТНЫХ ОРИЕНТАЦИЙ И ЭТНИЧЕСКОГО СОЗНАНИЯ ВОСПИТАННИКОВ ДЕТСКИХ ДОМОВ

Аннотация. Исследование взаимосвязи ценностных ориентаций и этнического сознания воспитанников детских домов является важной педагогико-психологической проблемой. Дети-сироты всегда являются социально-психологической проблемой общества. Происходящие в нашей стране политико-экономико-

социальные процессы вносят различные изменения в психическое развитие детей, проживающих в детских домах в ситуации «психической субдепривации».

Ключевые слова: ценностная система, этническое самосознание, дети-сироты.

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БАЛАЛАР ҮЙІНДЕ ТӘРБИЕЛЕНУШІЛЕРДІҢ ҚҰНДЫЛЫҚТАРҒА БАҒДАРЛАНУЫ МЕН ЭТНОСТЫҚ САНАСЫН ЗЕРТТЕУ

Аннотация. Балалар үйінде тәрбиеленушілердің құндылықтарға бағдарлануы мен этностық санасының өзара байланысын зерттеу маңызды педагогикалық-психологиялық мәселе болып табылады. Жетім-балалар қоғамның әрдайым әлеуметтік-психологиялық мәселесіне айнала береді. Біздің елімізде өтіп жатқан саяси-экономикалық-әлеуметтік процесстер «психикалық субдепривация» жағдайында балалар үйінде өмір сүріп жатқан балалардың психикалық дамуына әртүрлі өзгерістер әкеледі.

Түйін сөздер: құндылықтарға бағдарлану, этностық сана, жетім-балалар.

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COMMERCIALIZATION OF INTELLECTUAL DEVELOPMENT OF KAZAKHSTAN

Abstract. The article is devoted to the legal and organizational mechanisms for ensuring the commercialization of intellectual property in the Republic of Kazakhstan. Authors analyzed the factors, infrastructure and institutions of commercialization, assessed the activities of subjects of commercialization. The activity of enterprises in obtaining security documents for intellectual property was analyzed. The types of intellectual property that occupy the greatest share in the structure of issued security documents are identified. An assessment of the licensing activities dynamics related to innovation is given. The analysis of innovative activity of enterprises in Kazakhstan was carried out and the main trends of its dynamics were identified. Authors proposed measures to stimulate the commercialization of the intellectual development of Kazakhstan based on the studied foreign experience. The authors suggest that the greatest potential for stimulating the commercialization of intellectual property results is the development of venture capital financing. The most effective way is the adoption and implementation of the state program for the development of venture capital investment, because the state will be able to act as a guarantor of reliability. In addition, the authors proposed the use of venture financing methods tested in international practice, in which investments are made in stages to reduce risks.

Keywords: commercialization, intellectual activity, technopark, design office, start-up company, business incubator, intellectual cluster.

Introduction. Commercialization of intellectual activity results became integral to innovative development in the modern world. Namely this allows distributing the results among a wide variety of customers providing the income of means necessary for the next round of intellectual processes circulation in human society. The commercialization notion is differentiated and transformed with changing of its scale. Its following levels and typical features can be noted.

In Kazakhstan, the Law "On Commercialization" determines clearly the division of ownership rights on the results of intellectual activity. According to it the "intellectual property right obtained by the subjects of scientific and (or) scientific and technological activity as a result of scientific and (or) scientific and technological activity conducted under the budget funds belongs to research organization, unless otherwise provided for by the contract between them and an author (authors) of the intellectual property object [1].

The exclusive rights on the results of scientific and scientific and technological activity created within the implementation of scientific-research and development works by the subjects of scientific activity together with subjects of private entrepreneurship and quasi-public sector belong to them jointly. If the Agreement provides that the exclusive rights on the results of such activity belong to the subject of scientific activity, then the subject of private entrepreneurship and quasi-public sector reserves a right on the unpaid nonexclusive license to use these results in its own manufacture process.

In addition, higher education establishments and research organizations may themselves dispose of property rights on the results of intellectual activity, and of the income received as a result of the created start-up companies' activity, and together with subjects of private entrepreneurship and quasi-public sector. And the subjects of private entrepreneurship and quasi-public sector have a right to book pro se the intellectual property right basing on a Contract concluded with another participant of scientific activity results commercialization. And the authors of the results of scientific and scientific and technical activity are paid a reward, and a right holder may dispose of property himself without agreeing with an authorized body [2].

The precision of a property right holder on a product of intellectual labor is an obligatory condition of its further commercialization. At the present time, the world countries do not have a common approach to this issue. Many European countries – Austria, Belgium, Denmark, France, Ireland, Germany, Portugal, Spain, and Great Britain – have rendered the rights declared as intellectual property rights to the organization-employer. At the same time, Finland, Sweden, Italy, and Greece have a mixed form of property or exclusive right of property rendered to a researcher. Interesting is the fact that a researcher-owner in these countries does not in a hurry to commercialize his product, but an organization as an owner manages this issue more effectively.

According to the legislation [3], in Kazakhstan, the State organizations, state higher education establishment are approved to create, even together with others, organizations which activity is directed on practical application (commercialization) of results of scientific and scientific and technological activity. As a contribution to the equity capital these can enter the intellectual property rights only, and dispose of the ownership rights on intellectual property without agreeing with an authorized national body – owner of their property.

The revenues received from the participation shares management of the equity capital of start-up companies the founders and participants of which are the state higher education establishments, state research organizations, and a part of start-up companies income received by these organizations enter its individual disposition.

The earnings received from start-up companies' activity can be directed on legal protection of intellectual property, reward payment to the author and persons assisted in commercializing the results of scientific and scientific and technological activity. At the same time, the share of authors should be not less than thirty percent of the start-up company income share received by higher education establishments, research organizations. If the start-up company is liquidated the exclusive rights on the results of scientific and scientific and technological activity contributed into the equity capital are returned to the owners, and the license on the application rights of the scientific activity results is terminated.

Results and discussion. Kazakhstan conducts the stimulating policy in the field of commercialization of intellectual activity results. This policy is based on the following principles [4]:

– Transparency at interaction of all participants of the process;

– Guarantee of rights and interests of persons involved in receiving the results of scientific and scientific and technological activity, income generation;

– Economic stimulation of commercialization of scientific and scientific and technological results in domineering sectors of economics;

– Integration of education, science, manufacture, and institutes of innovative development.

Commercialization mechanisms include:

– Conclusion of a license contract and exclusive rights assignment agreement on the results of scientific and scientific and technological activity;

– Establishment of a start-up company;

– Introduction (application) of results of scientific and scientific and technological activity in the own manufacture.

By data of the National Institute of Intellectual Property for 2016, 304 assignment agreements for the intellectual property objects were submitted for registration, as well as 289 license contracts including sublicense contracts and additional agreements to the registered license contracts, 27 contracts on joint entrepreneurship license containing the conditions on rendering a right for application of intellectual property objects. 611 contracts on exclusive rights disposition for the intellectual property objects were registered.

In 2012–2017 the number of the registered assignment agreements for protection documents reduced from 1400 to 1011, or by 27%.

The number of the issued patents by all types in 2016 diminished. The tendency of activation of the national inventors for patents receiving is observed (table 1). In the structure of the issued documents its share has increased from 11.07% in 2012 to 32.7% in 2016.

Table 1 – The dynamics of distribution of the copyright protection assignment agreements registered in Kazakhstan

Document type	2012	2013	2014	2015	2016	2017	2017 to 2012
Total number issued, including	1400	1500	1504	1504	1011	869	-531
National patent applicants							
Provisional patents	3	–	–	–	–	–	-3
Patents	155	199	203	250	331	638	483
%	11,07	13,2	13,49	16,62	32,7	73,4	62,33
Innovation patents	1090	1120	1091	1084	476	12	-1078
%	77,85	74,6	72,73	72,07	47,08	1,38	-76,47
Foreign patent applicants							
Provisional patents	–	–	–	–	–	–	0
Patents	139	179	208	158	202	219	80
%	9,92	11,93	13,8	10,50	19,98	25,2	15,28
Innovation patents	13	2	2	12	2	0	-13
%	0,92	0,13	0,13	0,79	0,19	0	-0,92

Source. Annual report of the Institute of Intellectual Property // http://kazpatent.kz/sites/default/files//booklet_go_rus_legkiy_ll.pdf

From 2012 the activity of the economy subjects on innovation patents receiving decreases; in 2017 the decrease was about 98% in comparison to 2012. Its share in the structure of the issued documents also decreases, from 77.85 % in 2012 to 1.38 in 2017. The same situation is with the foreign patent applicants whose activity regarding the innovation patents almost stopped. All this occurs despite the activation of the government efforts on ensuring the access and attractiveness of innovation patents.

Among the registered copyright protection assignment agreements the most part of submitted and registered applications were for the exclusive rights on trademarks. In 2017 the relative share of the indicator “Exclusive rights on trademarks in total amount of the registered copyright protection assignment agreements” was 94.74% (table 2).

Table 2 – Dynamics of distribution of the copyright protection assignment agreements registered in Kazakhstan

	2012	2013	2014	2015	2016	2017	2017 to 2012
A	1	2	3	4	5	6	
Protection documents for inventions	6	21	19	21	19	7	1
%	5,17	7,08	7,50	7,60	6,69	2,46	-2,71
Protection documents for useful models	2	7	7	3	9	6	4
%	0,17	2,06	2,76	1,08	3,16	2,11	1,93
Protection documents for industrial samples	7	12	4	5	4	2	-5
%	6,03	4,46	1,58	1,81	1,40	0,7	-5,32
Exclusive rights for trademarks	101	229	223	247	249+3(D)	270	169
%	87,0	85,1	88,14	89,49	88,73	94,74	7,73
Total	116	269	253	276	284	285	169

Source. Annual report of RIIP // http:// kazpatent.kz/sites/default/files//booklet_go_rus_legkiy_ll.pdf

In 2017 comparing to 2012 the structure of the registered contracts shows positive dynamics in issuing the protection documents for inventions by 16.6%, protection documents for useful models – by two times, and exclusive rights for trademarks – by 1.67. The share of the protection documents for industrial samples in the structure of the issued documents remains quite small and has a tendency to quantitative decrease. Thus, if in 2012 there were 7 units, in 2017 there were only 2 units. This shows low interest of the real sector in the national developments at its significant capital intensity. In whole, the positive dynamics of the number of the registered copyright protection assignment agreements may testify the existence of this market and activation of innovations owners on its commercialization.

The commercialization results are expressed in issuing the licenses on application of the intellectual activity objects. In 2016 there was small increase of such licenses issue in Kazakhstan. However, the national economy subjects prefer pay money for utilization of the trademarks and franchise of foreign companies for which there is most part of applications, and licenses given (table 3).

Table 3 – Distribution of the registered license agreements for utilization of industrial property objects in Kazakhstan

	2012	2013	2014	2015	2016	2017	2017 to 2012
Inventions	2	14	17	14	18	11	9
%	1,96	6,08	6,13	4,6	5,50	5,42	3,45
Useful models	1	5	5	5	2	5	4
%	0,98	2,17	1,80	1,64	0,61	2,46	1,48
Industrial samples	–	3	2	3	2	–	0
%	–	1,30	0,72	0,98	0,61	–	0
Trademarks and service marks	54+34(D)	193	236	260	258	169	81
%	87,2	83,91	85,19	85,5	78,89	83,25	–3,94
Successful breeds	8	11	4	–	14	18	10
%	7,84	4,78	1,44	–	4,28	8,87	1,03
Franchise agreement	2	2	7	19	27	–	0
%	1,96	0,86	2,52	6,25	8,25	–	0
Security and pledge agreement	1	2	6	3	3+3(D)	–	0
%	0,98	0,86	2,16	0,98	1,83	–	0
Total	102	230	277	304	327	203	101

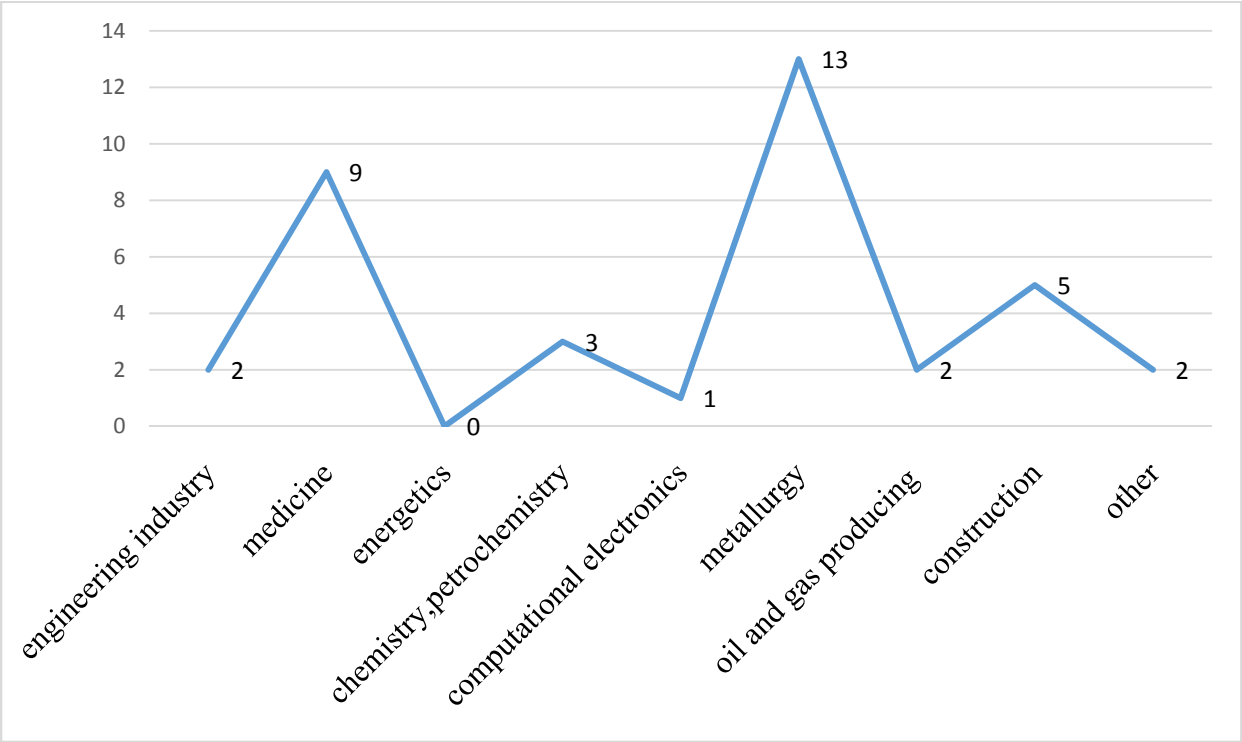
Source. Annual report of RIIP //http://kazpatent.kz/sites/default/files/godovoi2016.pdf

Thus, in 2017 the share of license agreements on the trademarks and service marks was 83.25% of all registered agreements that is by 81 units more than in 2012. The similar situation is with franchise agreements – in 2016 its share was 8.25%, in numerical terms for the past 5 years its growth was 25 units. Data for 2017 are not shown in the report. The ratio of the number of license agreements for inventions and successful breeds in 2017 changed, if in 2016 the shares were almost equal, in 2017 these were 5.42% and 8.87%, respectively, and positive dynamics is observed in this field. These data show the high interest of the national economic subjects to already trusted and steadily operating foreign technologies and goods.

In the industrial section, most of the invention patents are forwarded for the utilization in metallurgy, medicine, chemistry, construction, and engineering fields (figure 1).

This is supported by the priorities of the policy on industrially innovative development of the country. The indicators in the field of energy and electrical technologies, electronics and computational technologies fall behind significantly, although the products of these fields are much-in-demand today.

The world experience shows that the effective instrument of innovation activity development and commercialization of its results is clustering. The intellectual cluster is able to join the interested and interdependent organizations to achieve a common goal. In Kazakhstan the intellectual clusters should be developed on the base of the leading universities of the country, for example, K. Satpayev KazNRTU,



Source. Annual report of RIIP //http://kazpatent.kz/sites/default/files/godovoi2016.pdf

Figure 1 – Registered agreements on a right for application of invention patents (by technological fields), 2016

Al-Farabi KazNU, and L. Gumilyov ENU. The intellectual cluster that creates, distributes, and applies knowledge as a resource, and as a product [5]. This cluster satisfies the society demands in producing of individual types of values at optimal and rational usage of resources.

For the effective work of the intellectual cluster on the base of a university, it is necessary to reconsider the system of university management, strengthen its independence and interest in results of the innovative activity. The model of future intellectual cluster is shown in figure 2.

This model provides the interrelation of the research and educational structural divisions of a university with commercialization organizations, and with potential customers and consumers of the intellectual product. The base of the intellectual cluster is education as a platform favoring the formation of competent intellectual employees. The central core of the cluster is the developed scientific sphere that provides the most part of innovations in all fields, favors the increase of fundamental science role, interdisciplinary and transdisciplinary knowledge generating in its turn new ideas and knowledge. Quite often the education and science form the integral whole and can serve as a university subdivision generating the ideas and forming the base of future intellectual product or innovative project. Other structures are related to supporting infrastructure that includes:

– Innovation sector – venture funds, technological parks, business incubators, design bureau, commercialization offices and Centre for transfer and commercialization of technologies, science Fund;

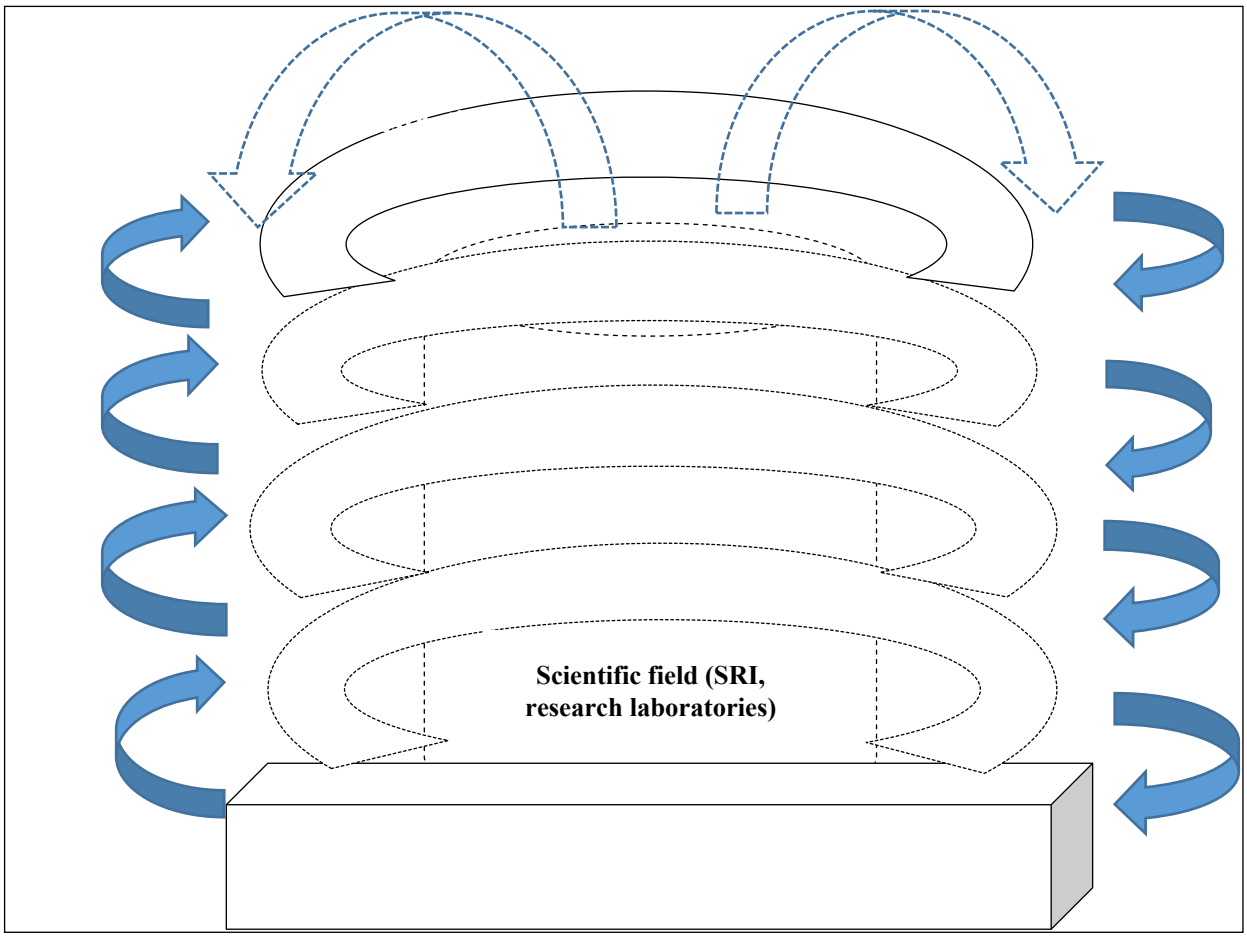
– Financial sector – lending financial institutions, investment funds, insurance companies;

– Service sector – consulting companies, engineering companies, broker office, students business incubator, Centre on entrepreneurship development, “Damu” Fund;

– Administrative sector – government authorities, administrative bodies of a city, region.

Activation of supporting infrastructure participation depends of the stage and phase of an intellectual project life cycle.

Functioning of the intellectual cluster allows using effectively the advantages of such methods of economic system coordination as in-company hierarchy and market mechanism favoring quick and effective distribution of new knowledge, ideas, and products.



Note. Compiled by the authors.

Figure 2 – The model of the intellectual cluster on the base of a university in Kazakhstan

The intellectual cluster must have the following features [6]:

– Vertical that includes related stages of manufacture process from the idea to the end product and its commercialization.

– Lateral that joins different sectors providing the economy due to scale effect and creating new combinations of cooperation;

– Focus that provides concentration around one center – science and education.

The activity of the intellectual cluster subjects should be based on the following principles [4]:

– Competitive-cooperative, that means the competition of the subjects inside the cluster on the one hand, and their mutual help to each other on another;

– Infrastructural unity, means relying of the cluster subjects on one social-economic infrastructure localized in the space of these subjects interaction;

– Functional unity – joint participation of the cluster subjects in logistics operations, financial and investment projects, information resources exchange, intellectual and innovative interaction;

– Strategic unity – application of a common strategy or related strategies of social and economic development by the cluster subjects;

– Spatial-structural unity – belonging of the cluster subjects to the same space or related spaces;

– Innovation – means integration of the available scientific and innovative potential of the cluster subjects.

The advantage of the intellectual cluster is in effective partnership that ensures the transfer of fundamental knowledge gained at academic universities to applied knowledge, industrial technologies of

manufacture, and commercialization of results. The creation of such interaction allow joining the science (as a resource of new knowledge, generation of new business ideas, research and technical developments), education (as a base for training of necessary highly qualified specialists), manufacture (as a base of a new product manufacture and technological solutions), and business (as a source of the result commercialization). The platform for the effective interaction under the cluster conditions will be high integrity, interdisciplinarity, and circulation of different types of knowledge [7].

The represented model provides the interconnection of scientific and educational structure divisions of universities with commercialization organizations and with potential customers and consumers of the innovative product at each stage of the innovative product development. The intellectual cluster as a mobile integrated network infrastructure [8] generating the inventions and promoting the technological innovations is an effective instrument of the knowledge economy development.

The instruments supporting the commercialization of intellectual activity results in Kazakhstan are:

1. Competitions in different categories.
2. Issuing of innovative grants for priority fields.

The indicator of Kazakhstan reality is that the subjects of real sector of economics are not interested in the results of R&D of SRI and universities. The main reason is that the investors need a complete view on an innovation demand in the market, on expenses for adoption and future profits. Most of researchers do not have skills and knowledge to estimate such indicators. In addition, the existing institutes and subjects of commercialization infrastructure start to provide these services for already final innovative products, and this explains the low efficiency of their activity [9].

For instance, the Science Fund has created a Register of technological tasks of enterprises and available developments on the part of science trying to join the interests of science and business. If an enterprise and a scientist have a common interest, the Fund arranges their meeting to discuss the prospects of cooperation, and simultaneously consults on opportunities to apply for a grant to commercialize the results of research or research and technological activity. In addition, the Fund concludes Memorandums with service organizations, technological parks, and design bureau able to render different types of services on further implementation of the project.

The existing gap between the manufacture and research laboratories has led to impossibility to conduct semi-industrial tests to receive pilot lot of products as a necessary condition for R&D adoption. In this regard, the problem can be solved by joint work only. It is necessary to attract the industrial enterprises to conduct R&D by engagement in financing. This engagement can constitute from 20 to 50% of the total cost of a project. In this case, it is not necessary for the State to control strictly the process of priorities ranking for the applied research and control designated use of funds. The priorities will be determined by the project participants themselves. The project should reflect the interests of three parts – the State as one of the investors of SRI or research laboratory, as the owner of intellectual property and industrial enterprise, as the investor, the consumer, and the seller of manufactured products [10].

To attract the funds it is necessary to apply the whole range of methods of indirect effect. For instance, in the field of technical sciences, metallurgy, and subsurface management there are large private companies that have ecological liabilities, and realization of functions on decrease of negative ecological consequences of its activity should be implemented by financing of researches in this field. Today, the foreign companies apply western technologies that can have low results in Kazakhstan conditions. The national researchers are focused, first of all, on the peculiarities of Kazakhstan nature and climate, and technical and technological conditions. As a stimulating means in this cooperation should be an opportunity to transfer the results of intellectual activity created under its financing from RSI and universities to a private investor. It is necessary to develop the rules of technologies transfer considering the interests and rights of the joint work participants.

The significant problem is lack of reliable information on real innovative activity of the national economic subjects and results of its activity. In Kazakhstan, the national registering of R&D and STP and its informational and analytical guidance is conducted by “NCSTI” JSC. The Law of RK “On Science” states that the STP and R&D implemented at the expense of the national budget are obligatory for the state registration. At the same time, the projects implemented by own funds of the organizations-executors are registered on a voluntary basis. Taking into account the specifics of the registration procedure and financial expenses, hardly these executors will register their reports.

In addition, the criteria of innovativeness estimation are more of a formal character. For example, to analyze the effectiveness of the implemented programs the NCSTI JSC applies such indicators as: volume of financing, number of specialists of high education, number of received protection documents, research publications, and adopted developments. The comparative analysis of different STP is conducted by such indicators as: expenses for 1 specialist, patent activity and number of adopted developments per 1 organization, publication activity per 1 specialist [11].

The shown indicators of effectiveness reflect mainly the volume of means expensed on implementation of this STP, and patent and publication activity. The only indicator of effectiveness in view of commercialization potential is adoption process. However, most often, it does not contain the information of economic effect received by an enterprise after adoption.

In this regard, it is necessary to correct the requirements to the statistical reporting of companies conducting innovative researches and adopting the innovations, and foresee the tax benefits to stimulate such activity. For example, the remarkable is the experience of Norway that obliges the foreign corporations operating in the local market make localization by placing orders for the developments of this or that technologies in this country. This refers to an order for practical developments by local scientific-research institutes. The investors who follow this rule receive significant tax benefits and preferences from Norway. The State decreases the tax deductions by 18-20% (depending on the number of company employees) at the same amount of expenses on R&D. The Norway government has developed the rules on transfer of technologies created by universities to industrial enterprises. As a result, the research institutes received an opportunity to master their inventions, the cycle from an idea appearance to its commercial application in new products, technologies, and manufacture processes became shorter. At the same time, Norway continues to increase the national financing of R&D – the industrial enterprises are able to create new methods and breakthrough technologies only in the case of long-term obligations of the State in the field of researches [12].

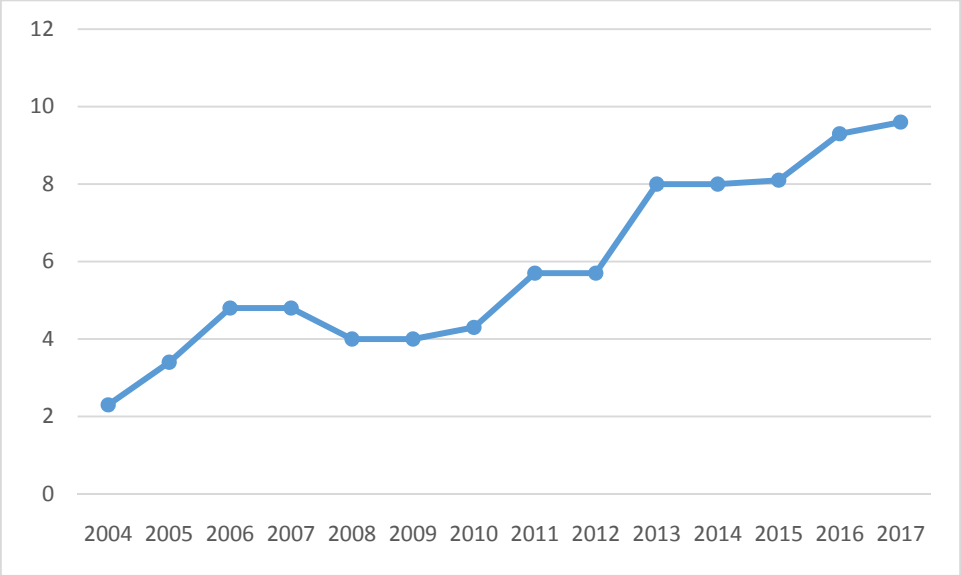
In Kazakhstan, the Law "On commercialization of results of scientific and (or) scientific-technical activity" initially had an issue on 5-years tax benefits for new companies, but after discussions it was excluded from the document. As a stimulating measure the start-up companies were given an opportunity to participate in a competition for grant financing of scientific and technological activity results where they compete with already successful national and "quasi-public" scientific and educational structures. In this situation, these companies are not already aimed at the search of a private investor, and they are not interesting for investors. For example, in 2015 the private enterprise "National Laboratory Astana" under Nazarbayev University conducted research and development works on 107 research projects, among them [13]:

- 63 projects within the program designated financing of CS MES RK for 2014–2018 under the budget program 055 "Scientific and (or) scientific and technological activity".
- 38 projects within grant financing of research investigations of CS MES RK;
- 6 projects within different outside sources of financing (NSTH JSC).

The world practice shows that tax benefits are efficient instrument on the way of establishment and development of new innovative companies. For example, the Great Britain deduces from the taxes the expenditures on R&D for more than 2 years for start-up companies, and a part of these expenditures is reimbursed by the State. The similar scheme is in Ireland. In Singapore, the innovators are exempted from taxes for the first $150-300 thousands of profit, and in Chili, in addition to the tax benefits the foreign start-up companies receive $40 thousands from the State and are given an office for the period of 6 months [14].

In whole, Kazakhstan experiences active process of forming of legal constituent and infrastructure of the intellectual activity results commercialization allowing creating an invisible strong connection between the education, science, manufacture, and end user of the created product. The effective functioning of these infrastructure elements allows decreasing significantly the expenses and risks of activity, and increase the profit and returns. The commercialization provides more advantageous disposal of property right on the results of intellectual activity and opportunity to receive profit by every participant of this process. However, the results on commercialization activity in Kazakhstan for the past 5 years do not show large growth of commercialized products.

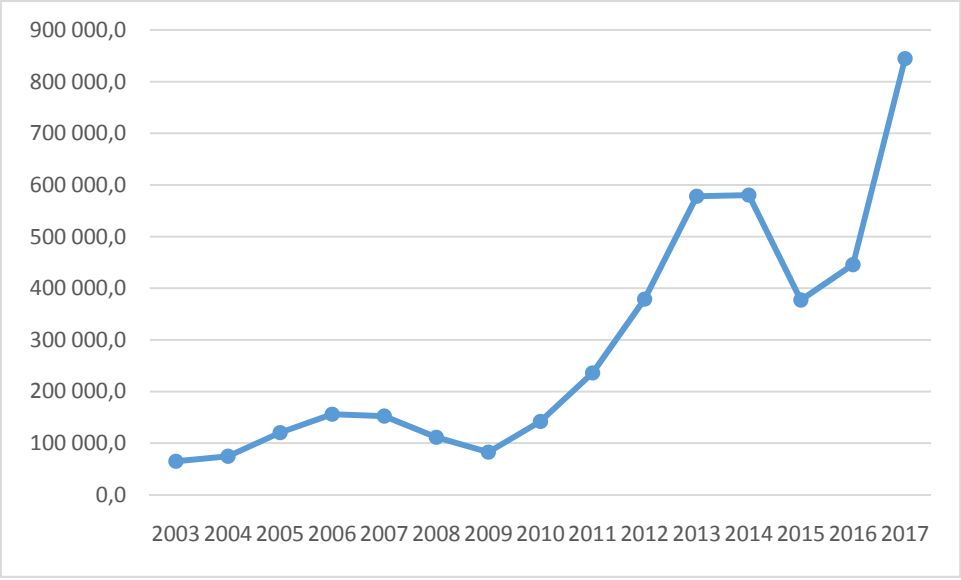
By data of the Committee on Statistics, the innovation activity in Kazakhstan increases (figure 3).



Source. http://stat.gov.kz/getImg?id=ESTAT098608

Figure 3 – The level of innovative activity of enterprises and organizations by all types of innovations

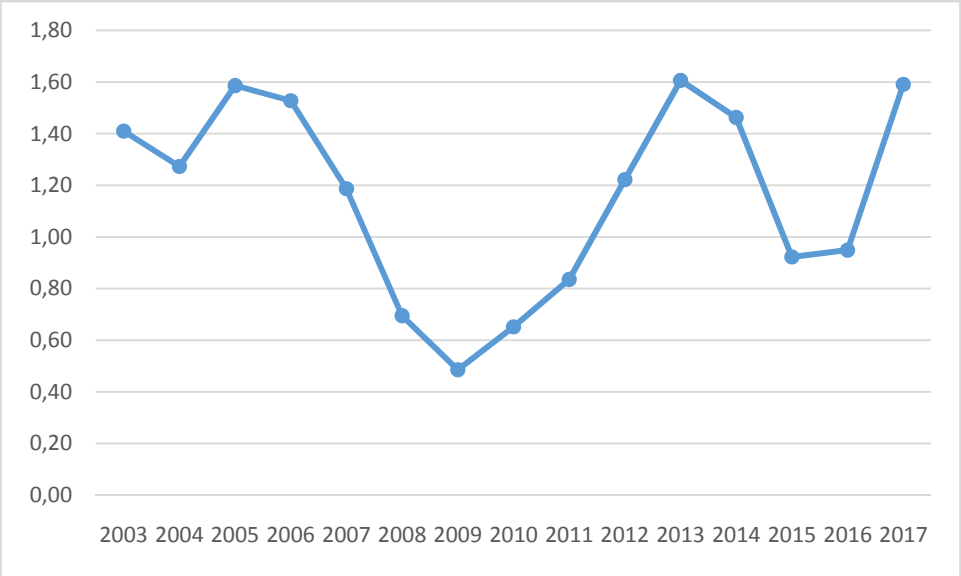
In 2017, its level in comparison to 2004 increased by more than 4 times. Small stagnation was observed from 2013 to 2015 due to elaboration and adoption of key programs on the innovative development of the country in this period. The growth during almost the whole considered period testifies the progressive and correct course of the innovative development of the country. The improvement of legislation and application of a wide range of instruments on innovative activity stimulation already shows its results in the form of intermittent growth for the recent year (figure 4). Despite the decrease of the produced innovative products volume by 2 times in 2016 comparing to 2013 (figure 4), this indicator increased almost twice by 2017 in comparison to 2016. Probably, the innovative field in RK is in its transition period, it is necessary to make analysis for 2018 and further.



Source. http://stat.gov.kz/getImg?id=ESTAT098609

Figure 4 – Volume of produced innovative products

In the GDP structure, the volume of the manufactured innovation products shows volatility – from 2005 to 2009 its share decreased significantly, from 2009 to 2013 there was growth to maximum value for the observation period, from 2013 to 2015 the indicator fell. In 2017 it increased again and was about 1.59% (figure 5). The definite interconnection between the GDP change and volumes of the manufactured innovative activity testifies strong dependence of the national innovatively-active manufacturers on the situation in the world markets.



Note. calculated basing on sources: http://stat.gov.kz/getImg?id=ESTAT104924 http://stat.gov.kz/getImg?id=ESTAT098609

Figure 5 – The share of the manufactures innovative products in GDP, %

Venture funds search and attract projects in prospect sectors having export potential. Its activity is aimed at developing the innovative projects having high potential for further growth and probable production of cost-efficient and popular products by investing of own and attracted funds to these projects at different stages of its development. The joint venture funds provide an opportunity to access the advanced western technologies for further transfer, opportunity to work with the leading technological companies of the world.

From the moment of its establishment, the "National Agency on Technological Development" JSC from 2004 to 2012 financed 13 venture funds to the total amount of 12.2 billion tenge; among them 5 are foreign venture funds, and 8 – national venture funds. As of January 1, 2017 there was exit and investment return from 7 venture funds to the total amount of 2.395 billion tenge. The total investment revenue from the venture funds exit was 145.5 million tenge. By the current funds' portfolio consisting of 3 national and 3 foreign venture funds with Agency contribution 4.869 billion tenge, the total return of investments by January 1, 2017 was 1.624 billion tenge. [15].

About 42 investment funds are registered in Kazakhstan; among them are open-end, interval, closed-end, and closed-end risk investment funds. One of the famous investment financial Company in Kazakhstan is "RESMI" that has been operating in the field of professional broker services in securities trading market for more than 20 years. The distinguished type of the fund activity is investing into real estate properties and other assets approved by the legislation. The fund assets include different types of commercial real estate properties producing the investment profit in the form of leasing flows, and land properties; the corresponding equipment and financial instruments of "RESMI" enter the leaders list of the stock market owing to the innovative management, effective system of trust management, active trading operations, and investment banking.

The "RESMI" IF manages professionally the assets of the real estate investment Fund "Velikaya stena". This investment Fund is an annuity fund of commercial real estate property. As of today, the fund assets include three business-centers: "Kyurmangazy", "Ozturk", and "Innova Tower" that are currently filled with tenants and are able to ensure the funds flow to future investors accessible in the form of dividends from the rent starting from the first day of investments. The shareholders of "Velikaya stena" IF receive additional advantages if the form exemption from income tax, quarter payment of dividends, and opportunity to sell its shares at KASE stock market.

By data of Investfunds.kz the total volume of Kazakhstan public UIT as of July 30, 2016 was about 3.5 billion tenge, or 0.008% of GDP of 2015 [16]. For example, in the USA, the total size of UIT assets and ETF is comparable with the GDP size and is about $17 trillion. In Russia, the total volume of public UIT as of April 1, 2016 was 119 billion rubles, or 0.15% of the GDP in 2015 [17].

In whole, the market of venture capital in Kazakhstan is on the stage of forming and is of low capacity. And the main problems of the venture market are imperfect legislation and unformed culture of investment.

Venture funds are an integral part of the infrastructure on the intellectual activity results commercialization, and without its effective work the realization of innovative and industrial development targets in Kazakhstan is impossible. Due to objective reasons at the present stage of the country development the forming of venture funds and arrangement of their work is possible on the principles of the public-private partnership with attraction of foreign investors. It is necessary to foresee an opportunity of attraction of the pension fund means as a share of the State participation in such funds. The pension fund cannot find the profitable niches in capitals market as it is strictly constrained by a scheme of investment to highly reliable securities. And those, as known, have low return. As a result, the pension fund has quite low effectiveness of activity. Low effectiveness of the fund activity is not only the topical economic problem, but social too. It touches directly the interests of the whole population stratum – pensioners. It is reasonable to assign the Pension Savings Fund a status of non-bank financial intermediary and remove the legislative restrictions on capital investment into the venture structures. The same examples exist also in the western practice. For example, the boom of venture financing in the USA in eighties of the past century was owing to removing of restrictions from the pension funds on participating in it [18].

Availability of liquid stock market allows venture investors and entrepreneurs creating a highly technological company to decrease the transaction expenses due to conclusion of implicit contract regarding the distribution of control functions: "Potential opportunity of initial public offering in the stock market provides to an entrepreneur a chance to return (at least partially) the management over the innovation company. Therefore, hardly his behavior will be opportunistic regarding a venture capitalist as he is much interested in venture funds attracting" [19]. The motivation of a venture investor to own the innovative structures is growth of assets allowing selling his share at high cost. The time period during which the innovative structure should achieve high economic and financial results allowing the venture investor to return the invested funds with growth is, by some estimation, 5–7 years. Within this period the innovative structure experiences five consequent stages of the life cycle [20]:

1) Elaboration of the investment project,
2) Attraction of venture capital,
3) Development until the start of new science-intensive products manufacture,
4) Broadening and sustainable functioning on the base of successful selling of the issued products,
5) Selling of the company and return of the invested funds and revenue payment to the investor.

The selling types of the innovation structure to return the invested funds to the investor and revenue payment can be the take-over, purchase by other participants, management.

The world experience on venture financing shows the huge potential and its opportunities in developing the innovative business allowing changing the trajectory of the country development. The quality of the economic growth of Finland, India was changed owing to venture business development. In whole, the world market of venture capital exceeds $100 billion.

It is necessary to adopt and implement the national program on venture investment development that will foresee the opportunity for the private investor to purchase a share of the State in the created venture

funds, and elaborate a clear mechanism of risk division among the participants. To decrease the investment risk the funds should apply the work arrangement methods approved by the world practice, for example, the experience of American Company "Alfa Partners". Its financing scheme of innovative companies is based on separation of investment to five parts and its step-wise submission in exchange of a property share. The American Company "Alfa Partners" follows three principles:

- First, every other part of investment is given if the previous was managed successfully.
- Second, increases the volume of the delivered investments gradually.
- Third, gradually decreases the demand on the receiving property share.

For the innovative companies the financing scheme of American Company "Alfa Partners" is efficient as the costs, in the form of transferred property share to receive the investment, decrease at every stage.

Conclusion. In the current situation it is necessary to strengthen the work on forming the culture and psychology of commercialization along with legislative and financial methods of development. In Kazakhstan its forming can be implemented by training of entrepreneur competences at students in all levels of education: school – college – university – post-graduate education. Today, the entrepreneur education is mainly provided by "Damu" Fund, partially by training courses at business-incubators and start-up zones for the limited number of trainees. The introduction of entrepreneur education the constituent component of which is commercialization will allow broadening the opportunities on realization of the trainees' potential aimed at creating and issuing of innovative products.

Thus, in Kazakhstan the field of intellectual activity results commercialization has just started its forming. The main prerequisites for its development on the part of the State were created: the legislation base for commercialization was formed, and the stimulating policy for commercialization is implemented. However, the effective realization of commercialization is impeded by the lack of qualitative mechanisms and instruments of commercialization forming and running of which is the next important stage on the way to realization of intellectual interests of Kazakhstan.

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ҚАЗАҚСТАННЫҢ ИНТЕЛЛЕКТУАЛДЫҚ ДАМУЫН КОММЕРЦИАЛАНДЫРУ

Аннотация. Мақала Қазақстан Республикасындағы интеллектуалдық қызмет нәтижелерін қамтамасыз етудің құқықтық және ұйымдық тетіктеріне арналған. Мақалада қолданыстағы коммерциаландыру факторларына, коммерциаландыру инфрақұрылымы мен институттарына толық талдау жүргізіліп, коммерциаландыру субъектілеріне баға берілген. Интеллектуалдық меншікті қорғау құжаттарын алудағы кәсіпорындардың белсенділігі талданған. Берілген қорғау құжаттарының құрылымындағы үлесі анағұрлым көп болатын интеллектуалдық меншік түрлері көрсетілген. Инновациялармен байланысы бар лицензиялық қызмет серпініне баға берілген. Қазақстандағы кәсіпорындардың инновациялық белсенділігіне талдау жасалып, оның серпінінің негізгі үрдістері айқындалған. Зерттелген шет елдік тәжірибе негізінде Қазақстанның интеллектуалдық дамуын коммерциаландыруды ынталандыру бойынша шаралар ұсынылған. Авторлардың пайымдауынша, интеллектуалдық қызмет нәтижелерін коммерциаландыруды ынталандыру үшін анағұрлым жоғары әлеует венчурлық қаржыландыруды дамыту болып табылады. Венчурлық инвестициялауды дамытудың мемлекеттік бағдарламаларын қабылдау және жүзеге асыру жоғары тиімділікке ие, өйткені мемлекет сенімділік кепілгері ретінде бола алады. Одан басқа, авторлар дүниежүзілік тәжірибеде қолданысын тапқан венчурлық қаржыландыру әдістерін пайдалануды ұсынады, бұл әдістерді қолдану барысында тәуекелдерді төмендету үшін инвестициялар кезең-кезеңмен салынады.

Түйін сөздер: коммерциализация, интеллектуалдық қызмет, технопарк, конструкторлық бюро, стартап компаниясы, бизнес инкубатор, интеллектуалдық кластер.

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КОММЕРЦИАЛИЗАЦИЯ ИНТЕЛЛЕКТУАЛЬНОГО РАЗВИТИЯ КАЗАХСТАНА

Аннотация. Статья посвящена правовому и организационному механизму обеспечения коммерциализации результатов интеллектуальной деятельности в Республике Казахстан. Проведен подробный анализ наличия факторов коммерциализации, развития инфраструктуры и институтов коммерциализации, оценка деятельности субъектов коммерциализации. Была проанализирована активность предприятий в получении охранных документов на интеллектуальную собственность. Выявлены виды интеллектуальной собственности, занимающие наибольший вес в структуре выданных охранных документов. Дана оценка динамике лицензионной деятельности, связанной с инновациями. Проведен анализ инновационной активности предприятий в Казахстане и выявлены основные тенденции ее динамики. На основе изученного зарубежного опыта предложены меры по стимулированию коммерциализации интеллектуального развития Казахстана. Авторы предполагают, что наибольшим потенциалом для стимулирования коммерциализации результатов интеллектуальной деятельности является развитие венчурного финансирования. Наибольшую эффективность зарекомендует принятие и реализация государственной программы развития венчурного инвестирования, так как государство сможет выступать в качестве гаранта надежности. Кроме того, авторы предложили применение опробованных в мировой практике методов венчурного финансирования, при которой для снижения рисков инвестиции вкладываются поэтапно.

Ключевые слова: коммерциализация, интеллектуальная деятельность, технопарк, конструкторское бюро, стартап компания, бизнес инкубатор, интеллектуальный кластер.

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IMPLEMENTING THE CULTURAL DIMENSIONS PROPOSED BY GERARD HOFSTEDE FOR INTERCULTURAL MULTILUNGIAL COMMUNICATION

Abstract. These days given with the enlargement of international tourism, business enterprise and global work mobility, intercultural communication has become a comprehensive part of daily lifetime of most individuals. This study is devoted to efficient intercultural communication, obstacles and strategies to increase the efficiency of intercultural multilingual communication. We describe the means by which we can become efficient in intercultural communication, thereby to be intercultural competent, how an individual can obtain understanding of a culture, corresponding communication competence and relation without which realization of different culture is not possible. The objective of this research is to investigate basic aspects the theory of five cultural dimensions created by Gerard Hendrik Hofstede with regard to its efficiency in multilingual Kazakhstani society. His well-known theory of Five Cultural Dimensions covers a framework of behavior, prospect and valuation tendencies that are related with 50 cultures around these structures, moreover, each ingrained in a key issue with which all communities have to manage. These days, Hofstede's theory of Cultural Dimensions is a precise analysis of current world companies and corporations, universities and different cross-cultural facilities to reach greater comprehension of members in universal context. We also characterized various types and kinds of culture such as power distance, collectivism and individualism, femininity and masculinity, uncertainty avoidance, long-term and short-term orientation and finally indulgence and restraint. The knowledge regarding the aspects of intercultural interaction and its efficiency included in this paper can be useful for all the humankind who work in international organizations where they are forced to interact with various nationality people, they supposed to solve issues which is impracticable without efficient interaction. Nonetheless, the study exploring proves that the problem of intercultural communication is discussed across-the-board. We strongly believe that the question of efficient intercultural multilingual communication must be included in business trainings as well as master-classes in international organizations.

Key words: Intercultural Communication, Theory of cultural Dimensions, Multilingualism.

Introduction. We live in a world settled by six billion people in 195 countries: all these people sense and operate differently and conduct everyday issues in a specific state or surroundings but because of technical progress, expansion of international communication, external trade, motility of workforce and international issues such as pollution, warfare etc., we all compelled to collaborate with varied nationalities. It remains unclear what is substantial for interaction? Efficient communication and realizing the viewpoint of the interlocutor. Once we perceive and distinguish how people of different groups or nationality act our understanding of detecting a constructional decision grows. Unfamiliarity of contrast in thinking of the interlocutor might cause fiasco finding an appropriate resolution.

Intercultural communication appeared away back when culturally different people cooperated for the first time [1]. Nevertheless, throughout the last century's intercommunions between culturally completely

different people enlarged due to growing number of the planet population and progress of transportation and intercourse technologies [2]. In order to grasp resemblance and distinctions in communication above cultures and hence expand our intercultural competency, it is essential to understand how cultures differentiate [3]. There are dimensions where cultures might be totally dissimilar or similar and the perception of the dimensions can definitely promote to better comprehension the context and in a positive way affect communication among several culturally various individuals.

Methods of research. Everybody carries among themselves patterns of feeling, thinking, and possible action that were learned during the period. Most of them were obtained in early childhood, as it is commonly believed that at that time person is most receptive to acquire knowledge [4].We have a tendency to suppose cultural and social data within the overwhelming majority of experience and interactions. “Human beings are drawn close to one another by their common nature, but habits and customs keep them apart” (Confucius). Nevertheless, the more efficiently we familiarize with a person’s mental programming and the situation, the more obvious our prediction might be. The origins of one’s mental programs lie inside the social environment in which case one grew up and gathered one’s life experiences. The programming begins in the family; it continues inside the neighbourhood, at school, in youth teams, at the workplace, and within the living community [5].

The outstanding Dutch social psychologist, Gerard Hendrik Hofstede has created the theory of Five Cultural Dimensions that permits us to create overall comparisons of cultures in society, what is more, realizing these dimensions in Kazakhstani multilingual environment, we might comprehend the values and standards of a society and why there exist distinctions the way people behave themselves. The Five Cultural Dimensions of Hofstede are illustrated in detailed analysis of 50 countries of the contemporary world transnational companies and organizations.

Results. The first of the dimensions revealed by Hofstede is named *power distance*. The fundamental issue concerned, which various societies handle variously, is human inequality. Inequality can appear in areas like status, wealth, and power; varied societies put different weights on standing consistency among these areas. Within organizations, inequality in power is unavoidable and functional. This inequality is mostly formalized in boss-subordinate interactions. Power distance characterizes also the extension where employees accept that the superiors acquire more power that they actually possess personally.

The definition *power distance* is taken from the Dutch social psychologist Mulder, who in the 1960s conducted experiments to explore relationships and communication between people power dynamics [6]. In cultures where the *low power distance* prevails, individuals consider one another as equal and they attempt to reduce possible distinctions to minimum. Almost every member of society has equal right. In low power distance cultures in some extent, there is correlation among less and more powerful people. Chiefs/bosses in these cultures do not emphasis their power and their subordinates do not depend on them, they do not think that their superiors are unique individuals. It is not exceptional that a superior advises a decision with an employee and conversely, a subordinate easily argues and disagrees with his boss. This behavior functions in almost all social groups; in family, at educational institutions, at work, etc. Parents address their children as equal; children consider parents as equal, teachers and students are somewhat partners than indifferent individuals, and so on.

Low power distance countries supposed to have larger welfare that is broadly distributed and therefore the middle class is the most common layer of society. Regarding the political system, government is generally stable and political system may be changed by consistent modification of rules. Only legal use of power is acceptable and the use of violence in domestic power is very rare. In *high power distance* cultures, person realizes power as a basic truth of life in society. Inequalities among people are both assumed and acceptable. Less powerful persons are dependent on more ones that are authoritative. Practically, less powerful people are polarized among dependence or counter-dependence. In this type of culture, there is a huge gap between employer and employees.

Superiors know about their exclusive status and subordinates willingly agree with their inferior position. Within families, older people teach their children obedience and in return their young people esteem their authority. The same is seen in education as students implicitly respect their teachers. At work, superiors have special rights and advantages, which is expected and well known. Employers give directions about what to do and the employees perform the task without asking any questions. The ideal leader for this society is a kind autocrat or a good father.

Many high power distance countries were occupied or inhabited historically. The welfare and the power within these countries were therefore divided among small, defined elites. In these cultures, there is also a complete distinction between the rich and the poor. Democracies, in contrast, are managed by parties and do not emphasize equality. In Kazakhstan, the quality of life of the population is an integral characteristic that gives an idea of the life activity of a person and society, therefore the improvement of the quality of life is the main task and criteria of the authorities. According to the report of the Global Competitiveness Index of the World Economic Forum (GCI WEF) for 2015-2016, Kazakhstan ranked 42nd amongst 140 countries, rising eight places in comparison with results from the previous year [7].

If we do not know a great deal about a specific country, we can only predict the degree of power distance from the size of a population and welfare. Power distance is larger in countries with huge populations. In addition, the more unevenly wealth is distributed, the higher a culture's power distance.

Graphically, G.H. Hofstede proposed a scheme of key differences between low and high power distance cultures (Table 1) [8].

Table 1 – Key Differences between Low and High Power Distance Cultures

Low Power Distance	High Power Distance
Major Characteristics	
Individuals viewed as equals	Individuals viewed as unequal
Emphasis on legitimate power	Emphasis on coercive/referent power
Superiors and subordinates are interdependent	Subordinates are dependent on superiors
Individual level	
High egalitarianism	Low egalitarianism
Example Cultures	
Australia	Egypt
Canada	Ethiopia
Denmark	Ghana
Germany	India
Ireland	Malaysia
Israel	Nigeria
New Zealand	Panama
Sweden	Saudi Arabia
United States	Venezuela

Awareness of this cultural aspect can be helpful in intercultural communication. If someone from a low power distance culture operates in high power distance country, there is a high possibility that he or she could interpret a boss telling her or him what to do as personal aversion. As the awareness of varieties in communication behavior between low and high power distances, if one person realizes that the employer's act has nothing to do with her/his individuality, then this becomes a common symptom of high power distance.

The second dimension of national culture is termed *individualism*, as opposed to *collectivism*. This concept describes the link between both the individual and the collectively that predominate in a given society. This reflex in the way people live together, for example, in small families, extended families, or clans, and it has several implications for values and behaviour [6].

Hofstede determines collectivism and individualism as follows: *Individualism pertains to societies in which the ties between individuals are loose: everyone is expected to look after himself or herself and his or her immediate family. Collectivism as its opposite pertains to societies in which people from birth*

onwards are integrated into strong, cohesive in groups, which throughout people's lifetime continue to protect them in exchange for unquestioning loyalty [5].

According to Hofstede, individualist societies accentuate "I" self-consciousness, autonomy, emotional freedom, individual initiative, right to secrecy, pleasure seeking, financial safeness, a need for concrete friendship, and universalism. Collectivist societies, on the contrary, emphasize "we" consciousness, collective identity, emotional dependency, group solidarity, sharing, obligations, a need for stability and predefined friendship, group solution, and particularism.

Collectivism and Individualism exist in all cultures, but one tends to dominate.

There are several in-groups within individualistic cultures including the family, work society, religion, and clubs, as examples. Apparently, the most significant in-group of individualistic culture is thus referred to as a "nuclear family", which means a family comprising just two parents (or one parent) and children. In these cases, other relatives like grandparents, cousins, and uncles live elsewhere and are rarely seen. Children born into these "nuclear families" are from babyhood taught to be self-reliant and are inspired to develop their own opinions. They absolutely develop their "I" identity. Once a child becomes independent, it is expected to go away from the parental home and they usually decrease contacts with their parents to the minimum. Since there are several in-groups in individualistic cultures, their result on individual's behaviour is comparatively small and the sphere of the influence is extremely specific.

The most vital in-group of collectivistic culture is a so-called "extended family". This family comprises a huge number of people living together; this contains parents, children, cousins, aunts, uncles, grandparents, and others. Members of the in-group are dependent not only emotionally and socially, but also financially. In collectivistic cultures, there are only some general in-groups (family, work group, university, as an example) and have huge influence on individual's behavior.

To conclude the discourse on collectivism and individualism, we make a short comparison between these two cultural dimensions. Regarding overall characteristics, individualistic cultures are interested in the goals of people such that the "I" identity is accented while collectivistic cultures concentrate on group goals and emphasize the "we" identity. At the individual layer, autonomous and idiocentric people prevail in individual cultures and most of these people in collectivistic cultures are all centric and dependent individuals. Members of individualistic cultures choose to communicate indirectly, while indirect communication is acceptable for collectivistic people. Nonetheless, there can be, for sure, all centric people in individualistic cultures and idiocentric personalities in collectivistic cultures.

The third dimension in which cultures differ consistently has been referred to as *masculinity*, with its opposite pole *femininity*. Surveys on the significance of work goals reveal that almost universally, women attach a great deal of importance to social aims including relationship, service to others, and the physical environment, while men attach more value to ego related goals like careers and money [6].

Table 2 includes a summary of the features of individualistic and collectivistic cultures, as well as samples of cultures in which each dominates [9].

The cultural dimension referred to as masculinity-femininity belongs to gender roles in community, not physical appearance. Geert Hofstede gives the exact definition of feminine and masculine culture: *"Masculinity pertains to societies in which social gender roles are clearly distinct (e.g. men are supposed to be assertive, tough, and focused on material success whereas women are supposed to be more modest, tender, and concerned with the quality of life); femininity pertains to societies in which social gender roles overlap (e.g. both men and women are supposed to be modest, tender, and concerned with the quality of life)"* [5].

In masculine cultures the conventional gender roles differences are strictly maintained. Members of masculine cultures underlines differentiated gender roles, performance, ambitiousness, and independence, whereas members of feminine countries appreciate fluid sex roles, common cooperation, quality of life, service and correlation. People in masculine cultures think that one should "live in order to work" whereas philosophy of representatives of feminine cultures is more probably "to work in order to live". Masculinity and femininity as well concerns cultural distinctions and resemblance in opposite and same gender relationships and communication. For example, individuals from highly masculine cultures are not used to interact with the opposite gender throughout the childhood. In some communities, interaction with the stranger of the opposite gender is considered unsuitable and indecent. When interacting with strangers one should know this cultural aspect.

Table 2 – Individualistic and Collectivistic Cultures

Individualism	Collectivism
Major Characteristics	
Focus on individual's goals "I" Identity emphasized Universalistic Many in-groups	Focus on group's goals "We" identity emphasized Particularistic Few in-groups
Individual Level	
Idiocentrism Values stimulation, hedonism, power, self-direction Independent self-construal	Allocentrism Values traditions, conformity, benevolence Interdependent self-construal
Communication	
Low-context messages: direct, precise. clear	High-context messages: indirect, ambiguous, implicit
Example Cultures	
Australia England Belgium Canada Denmark France Germany Ireland Italy New Zealand Sweden United States	Argentina Brazil China Egypt Ethiopia Greece Guatemala India Japan Korea Mexico Saudi Arabia

Ignorance with masculine and feminine dimension of culture may possibly lead to miscomprehension and misinterpretations. As an example over several years, Geert taught U.S. students in a semester-long course of European studies at a Dutch university. He provided the assignment to some of the American people to interview Dutch students about their purposes in life. The Americans were stricken by the fact that the Dutch looked less interested with marks than they expected. Passing was elaborate enough; success was not an obvious goal.

Below in the table 3 we can see the main differences between masculine and feminine cultures.

Gert Jan's experiments with students around the globe resemble this result because students from masculine countries can inquire to take an exam once again after passing with an unsatisfactory grade – Dutch students never act like this. Such experiences in teaching at home place and across the border, as well as discussions with teachers from various countries have led us to come to conclusion that in the more feminine cultures the average scholar is considered the norm, whilst in countries that are more masculine the superior students are the norm. Parents in these communities look forward to try their children to be the best. The "best girl/boy in the class" in the Netherlands is in some extend ridiculous condition [5].

Table 3 – Masculine and Feminine Cultures

Masculine	Feminine
Major Characteristics	
Differentiated gender – roles Values power, assertiveness, performance	Overlapping gender – roles Values quality of life, service, nurturance
Individual - Level	
Masculine/feminine sex-roles	Androgyny
Example Cultures	
Arab cultures Austria Germany Italy Jamaica Japan Mexico New Zealand Switzerland Venezuela	Chile Costa Rica Denmark East African cultures Finland Netherlands Norway Portugal Sweden Thailand

The fourth dimension of culture found in research has been named *uncertainty avoidance.* Uncertainty avoidance should not be mixed within the risk avoidance. The terminology uncertainty avoidance has been taken from American institution sociology, particularly from the work of James G. March [5]. March and his colleagues admitted it in American foundations. Methods of handling uncertainty, nevertheless, are part of any human establishment in any country. All people have to face the fact that unfortunately we do not realize what will happen tomorrow: the coming is uncertain, but we have to live with it in any case. Uncertainty avoidance can hence be determined as the degree to which the members of a culture feel threatened by uncertain or unknown situations. This feeling is, among other factors, are shown through nervous stresses and in a need for foreseen: a necessity for written and unwritten rules. Considering Great Britain as an example of uncertainty, many tourists are stricken by the public discipline shown by the British in making neat queues for bus stops and in stores. There is no law in Britain leading queuing behavior; it is based on a public behavior continuously strengthen by social norms. The paradox is that though regulations in countries with low uncertainty avoidance are less spiritual, they are often better followed [5].

What about workplace the anxiety element of uncertainty avoidance leads to perceptible differences among strong and weak uncertainty avoidance communities. In high uncertainty avoidance societies, people prefer to labor hard or at least to be always busy. Life is in rush, and time is money.

Following table 4 summarizes the key differences between weak and strong uncertainty avoidance societies [9].

In low uncertainty avoidance societies, people work continuously if there is a necessity for it, but they are not guided by an inner motivation toward constant activity. They like to rest. Time is a framework to orientate oneself in, but not something, one is permanently watching. Countries with low uncertainty avoidance tendencies establish a lower feeling of urgency, expressed, as an example, in lower speed limits. In such states, not only familiar, but also unfamiliar risks are recognized, such as changing works and beginning activities for which there are no regulations. The statement of xenophobia can summarize the high uncertainty avoidance aspect: “What is different respectively is dangerous.” The low uncertainty avoidance statement, on the conversely, is: “What is different is unusual [5].”

Table 4 – Low and High Uncertainty Avoidance Cultures

Low Uncertainty Avoidance	High Uncertainty Avoidance
Major Characteristics	
Low stress and anxiety	High stress and anxiety
Dissent accepted	Strong desire for consensus
High level of risk taking	Low levels of risk taking
Few rituals	Many rituals
What is different is curious	What is different is dangerous
Individual level	
Uncertainty orientation	Certainty orientation
Example Cultures	
Canada	Egypt
Denmark	Argentina
England	Belgium
Hong Kong	Chile
India	France
Jamaica	Greece
Sweden	Japan
United States	Mexico

This section adds a fifth dimension of culture: *long-term and short-term orientation*. This dimension was detected in the answers of student examples from 23 countries in 1985 on the base of Chinese Value Survey (CVS), and the tool developed by Michael Harris Bond in Hong Kong from value proposed by Chinese scientists. Actually, the long-/short-term orientation dimension seems to be based on items remindful of the teachings of Confucius, on both of its sides. It contrasts long-term to short-term aspects of Confucian train of thought: perseverance and thrift to personal steadiness and esteem for tradition [6].

As an example, we mention two other samples – from cultures, which are as cultivated, if not as industrialized as Kazakhstan. If nowadays appointments are treated rather disdainfully, the past in Iran acquire a very great meaning, as the example is suitable to this dimension. For instance, businessmen have been famous to invest millions of dollars in factories of different sorts without creating the slightest business plan as to how to use them. The second example of the totally finished woolen mill, which was bought and shipped to Tehran until the buyer, had raised sufficiently money to construct it, to buy supplies, or even to train work staff. When American teams of specialists came to help Iran's economy they permanently had to manage with what seemed to them an almost complete lack of planning [10].

The long and short-term cultural dimension would be a circumstance in a draft for a South Korean corporation working in Latin America. South Korea is a long-term orientation society, meaning their main goal in business is not short-term earnings but long term financial sustainability. The developing Latin American people generally have rather low ratings on the long and short-term dimension and created their business practices on what has functioned before with very little understanding with respect to the long term. While the Latin American countries allocate great value on customs, there is very little pressure to save something for the future or prepare for the future generation. This cultural feature could be seen as shortsighted by the South Korean corporation and could induce conflicts [12].

Table 5 summarizes the key aspects of the long-versus short-term orientation norm as it differs between countries [11].

Table 5 – Short and Long Term Orientation

Key Differences Between Short – and Long –Term Orientation Societies: General Norm	
Short-term orientation	**Long-term orientation**
Efforts should produce quick results	Perseverance, sustained efforts toward slow results
Social pressure toward spending	Thrift, being sparing with resources
Respect for traditions	Respect for circumstances
Concern with personal stability	Concern with personal adaptiveness
Concern with social and status obligations	Willingness to subordinate oneself for a purpose
Concern with "face"	Having a sense of shame
Priority given to abstract rationality	Priority given to common sense
If A is true, its opposite B must be false	If A is true, its opposite B can also be true

We should notice that the concepts of long–term and short-term orientation appeal the various ways of culture view time and the significance of the past, present and the future. Cultures associated with a short-term orientation will be more engaged with the past and present and will concentrate their efforts and convictions on problems connected to the short-term, while cultures related to a long-term time orientation will be more disquieted with the future and concentrate their attempts on future-orientated goals [13].

Conclusion. Everyone sees the world from his or her own cultural backward and everyone proceed to act as if the human from different states have unique on them; however, their own culture is normal. Unfortunately, we will not be able to find standard attitude in cultural questions. Intercultural conflicts present the culmination of the statement of this paper, that if people sense this world differently, think differently, so how we supposed to cope with intercultural interaction together? The statement of this research is that, such a self-consciousness can be educated whereas we should not await to get identical; we might at least seek at becoming more progressive in our way of thinking.

It should be noted that every person has a duty to interact as efficiently as we can with one another. To sum up so that to interact effectively, we should express our message in a very clear way so that the foreigner will know what we mean, and we should interpret communicator's message in a way he/she supposed it to be understood. We do not mean to propose that we should try to interact closely or attempt to create a personal connection with all unknown foreigners we tend to meet. This can be not possible. We can, though, interact as efficiently as possible with people, it does not matter what kind of relation we have with them.

In conclusion, we would like to make an assent that knowing the cultural dimensions of business partner relationships can be built without stress because of a misunderstanding of how your partner conducts business. The authors argue that the familiarization with the ranking of the world's cultures could be useful not only to future professionals, but also for the current business companies, to representatives of industrial enterprises and individual businesspersons.

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МӘДЕНИЕТАРАЛЫҚ КӨПТІЛДІ КОММУНИКАЦИЯНЫ ЖҮЗЕГЕ АСЫРУ ҮШІН ГЕРАРД ХОФСТЕДЕ ҰСЫНҒАН МӘДЕНИ ӨЛШЕУ ТЕОРИЯСЫН ҚОЛДАНУ

Аннотация. Қазіргі әлемде халықаралық туризмге, іскерлік өзара әрекеттесу мен жаһандық қозғалысқа мүмкіндіктері бар, әртүрлі елдерде, әр түрлі ұлттармен қабылданған мәдени аспектілерді білу олармен тиімді ынтымақтастық үшін қажет. Мақаланың авторлары 1960-70 жылдарда Нидерланд әлеуметтанушысы, көрсеткіштер жиынтығын негізін қалаушы Герард Хенрик Хофстеде жүргізген зерттеулер бойынша әртүрлі халықтардың мәдени ерекшеліктерін анықтайтын 50-ге жуық елдерде әзірленген және қолданылған мәдени аспектілердің градациясын ұсынады. Қазіргі уақытта Хофстеденің мәдени өлшеу теориясы жалпыға бірдей контекстте қоғамды кеңінен түсіну үшін қазіргі жаһандық компаниялар мен корпорацияларға, университеттер мен түрлі мәдениет нысандарына нақты талдау жасайды. Осы зерттеу жұмысына авторлар енгізілген мәдениетаралық өзара қарым-қатынас аспектілеріне және олардың тиімділігіне қатысты ақпарат міндетіне әр түрлі ұлт азаматтарымен өзара әрекеттесетін, сондай-ақ тиімді өзара әрекеттесу арқылы ғана мәселелерді шешетін халықаралық ұйымдарда жұмыс істейтін мамандар үшін пайдалы болуы мүмкін. Авторлар тиімді мәдениетаралық көптілділік мәселесі бизнес-тренингтерге, халықаралық ұйымдардағы мастер-кластарға қосылуы керек деп санайды.

Түйін сөздер: мәдениетаралық қарым-қатынас, мәдени аспектілер теориясы, көптілділік.

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ПРИМЕНЕНИЕ ТЕОРИИ КУЛЬТУРНЫХ ИЗМЕРЕНИИ ПРЕДЛОЖЕННЫХ ГЕРАРДОМ ХОФСТЕДЕ ДЛЯ ОСУЩЕСТВЛЕНИЯ МЕЖКУЛЬТУРНОЙ ПОЛИЯЗЫЧНОЙ КОММУНИКАЦИИ

Аннотация. В современном мире с возможностями для международного туризма, делового взаимодействия и глобального передвижения, знание культурных аспектов, принятых в разных странах и разными народами, определенно необходимо для эффективного сотрудничества с ними. Предложенная авторами статьи градация культурных аспектов, разработанная и примененная к 50 странам, нидерландским социологом, создателем совокупности показателей, определяющих культурные характеристики различных народов на основе исследований, проведённых в 1960-е – 70-е годы Герардом Хенрик Хофстедом. В наши дни теория культурных измерений Хофстеде представляет собой точный анализ текущих мировых компаний и корпораций, университетов и различных межкультурных объектов для более широкого понимания членов социума в универсальном контексте. Сведения в отношении аспектов межкультурного взаимодействия и его эффективности, включенные авторами в данное исследование, могут быть полезны для профессионалов, которые работают в международных организациях, в обязанности которых входит взаимодействие с гражданами различных национальностей, а также решение проблем, которые возможны только при эффективном взаимодействии. Авторы твердо убеждены в том, что изучение основ теории Г. Хофстеде должно быть включено в бизнес-тренинги и мастер-классы в международных организациях и компаниях для удачного межкультурного полиязычного общения.

Ключевые слова: межкультурная коммуникация, теория культурных измерений, полиязычие.

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SHRINE SITES KEEPERS IN TRADITIONAL AND MODERN KAZAKHS' CULTURE: ASSUMPTIONS AND PROBLEM DEFINITION

Abstract. Some natural and man-made sites are considered as shrines in Kazakh culture. It became pilgrimage since ancient times and includes *mazars* (mausoleum graves) of the famous people, who are associated with the cult of *aulie*. Nowadays observations show that today a keeper is appointed to look after almost each holy site has its known site-keeper. The person who takes care of a *mazar* is named *shyrakshy*, while the natural sacred site keeper is named *қyzmetshi*.

Although the institute of sacred place keepers in the Kazakh culture is relatively late historical and cultural phenomenon, which associates with the transition from nomadic to settled lifestyle and Islam dissemination, the study shows a genetic continuity of much earlier forms of 'people selected by the holy spirit' in human consciousness. This article aims to review problem definition for this cultural phenomenon and discuss next research steps and prospects.

Key words: keeper, sacred site, *mazars*, natural and man-made holy sites, pilgrimage, Kazakhstan.

Introduction. Nomadic tribes have laid the foundation of the first Eurasian empire in the VI century of Christian era, but also it impacted greatly on the Great Steppe's culture. Traditional nomads' world perception considered a human being as a solid part of the environment. Ancient Turkic beliefs predominated the cult of Tengri (Heaven) and linked to it Zher-Suu (Earth - Water) cult. Tengrism had been the recognized the core of the state ideology of the ancient Turks, initially implemented by Xiongnu, and later on successfully competed with Buddhism, Islam and Christianity. Nomadic culture (some researchers name it steppe culture) culture targeted the settlement and habitation of spacious steppes. Meeting with other confessions and religious cults, tengrism did not reject them, but incorporated meaningful markers for making the environment appropriate for human habitation and development.

The researcher Terletsky N. states that '…Central Asia puts forward quite ample material in the given context context, because the traditional institutes and rituals play an important role in the life of local population of the region up to nowadays, and the *auliya* cult of takes important place in local Islam attributes, which, probably, may not be a case at any other area of the Muslim world'[1, 71]. Some of *Mazars'* features have obvious pre-Islamic traditions attributes. One can mention the images of five fingers (*panjas*), mountain goat and ram (argalis) horn images, which are known to be the most ancient religious symbols of the Aryan tribes. The widespread use of snake, sun and moon symbols reflect universal concepts of confronting between the Lower and Upper Worlds. Obviously, the compositions of altars, snakes, trees and sun images of may refer to the interpretation of mythological subjects [2, 6].

In this case one can speak about homogeneity or unique features of the burial rites, local specificity of the steppe cultures in terms of nomadic social organization, ideology and creative arts. The landmarks and tokens of the nomads' living environment include both natural sites - mountains, groves, prominent trees, and the man-made objects – worship rite places (*obo*), local spirits shrines, and also stone sculptures. There is no rigid boundary between a nomad and a surrounding environment, the ethnos and nature

relationship can be found not 'in just a cultural adaptation to the habitat, but also in value-based orientations related to its protection' [3, 254].

While the variety of publications is concerned with worship of sacred objects and excessive saints pilgrimage throughout vast Central Asian region, the institute of a special category of people engaged in worshiping and performing sacred rites in nomadic societies in the ancient times and the Middle Ages continues to be one of the most complex study issue in research of nomadic perception and its social aspects[1].

Dashkovsky K. is of opinion on reasonable suspect of existence of a specific religious elite group which was dealing with most significant sacred section of the ancient nomads' culture. He also indicates some evidences that medieval Turks had a group of priests to serve the diverse religious activities [4, 70]. Some researchers noted that the Yuan Hagan court established the position of an *ong sakigchi* - keeper of the saint figures of the spirits of ancestors (*ongons*) [5]. But Gumilev L. [6] believed that ancient Turks' priest combined functions of a healer and a *yagdachi* (obeah man). The Xiongnu priests conducted various ritual activities, especially those related to military, contact and healing magics [7, 8]. Small stone altars were found in burials, and researchers considered it to mark graves of nomadic priests in the Scythian era [9-11]. The mutton blades were widely used for divination. It was found at the Ivolginsky ancient settlement in Altai [12].

The concepts concerning the ancient Turks priests are beyond the scope of our study. However, many historians, ethnographers and archaeologists indicate on the fact-based links of the Central Asia cult of Islamic saints and the preceding confessions (Zoroastrianism, Buddhism, Manichaeism), and even more ancient sacral rites ascending to animism. The authors will refer to such evidences of facts sources of the revered places in further discussion. Some aspects of the sacral landscape of Kazakhstan in relation to the funeral rites and Islamic shrines were already discussed by the authors in the other article[2].

Methods. The authors have analyzed the available historical and ethnographic sources in reference to the sacral sites of Kazakhstan. In addition, in 2016-2017 there was a field survey of the shrine keepers in selected areas of Kazakhstan. The survey was conducted in Uzynagash district of Almaty region, Ulytau district of Karaganda district, and also in Baidibek and Kazygurt districts (South-Kazakhstan region). Each keeper considered his service to be a sacred duty, and the choice was predetermined by the holy ancestors' spirits - *aruahs* and area spiritual masters.

Results. Castangne J., in his famous work on the Kazakh steppes' ancestries, underlined the respect demonstrated by the Kazakhs to the ancient graves: 'The Kirghiz - nowadays inhabitants of Turgai region - quite often bury their dead by setting -up graves in the middle or on the edge of the ancient burial mounds. Then this mound would bear the name of the buried Kirghiz: Almurat-oba, Temirbai-oba, Ahmet-oba' [13, 62]. Formozov A. noted in reference to this: 'Local population have an indistinct memory of ancestor worship so far and in some places even performed these rites. During forty centuries the esteem for distant ancestors… have been passing from grandfathers to fathers, from fathers to children and even to aliens' [14, 97]. He echoed the words of Goldtsiier I., the Hungarian researcher of Islam of the beginning of the XX century: 'Local Muslim legends, being associated with a large number of graves, are always misty and vague. ... People can no longer explain the origin of sacred places, which they hold in esteem and reverence to, and they do not know the reasons for them of recognition as saints' [15, 103].

Proven faith in the spiritual power and strength of the deceased persons predicted the special reverence for graves and became the widespread specific feature of nomads of Central Asia. A human is always haunted by fear of an obscurity and death. This launch his/her soul feeling about extreme power of the deceased persons who have accessed the eternal knowledge and can provide demanded assistance and strength to the living persons [16, 328]. In Islam culture of central Asia this engrained perception transformed to the cult practice of *aulie* worshiping. In most cases, people have strong belief that by visiting the *mazar*, conducting in prayer and bringing sacrifice gifts, one can count on getting assistance in

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troubles. In other words, a person could obtain the saint intercession and his mercy for awesome respect and memory of him [15, 46]. Hase K., who considered the issues of veneration of Christian saints, wrote about the believer's desire 'to fill a huge gap between people and their God', assuming that monotheism 'arose on the basis of the old world of gods' [17, 326].

Turkic people applied for the ancestors' assistance in case of livestock diseases; in this case, they used to drive cattle thrice around a burial [18]. Valikhanov Ch. noted that 'the Kirghiz, at the slightest sign of misfortune, would slaughter animal in the name of God ... or in the name of the *Arvakhs,* or they sacrifice victims not at *Obo*, but at their ancestors' graves. They call such victims *qurbandyk* and s*aadaka*, thus, they mitigate the pagan meaning of rites'[19, 34].

It is well known that holy sites of public worship were existed long prior to the Arabs' invasion to Central Asia. Castagne J. in the above-mentioned work [20] devoted the first part for description of numerous funerary monuments of the pre-Islamic period. After adoption of Islam, not all of these sites were abandoned, many sacred places continued to be popular with people. It was gradually transiting into Muslim *mazars* and mausoleums while also included in the list of the most significant canonical Muslim sacraments. In steppes, the holy sites were quickly surrounded by the contemporary burials, even in remoted pastorals. Such cemeteries 'usually emerged around the saint grave, because in a folk opinion, a saint should assist those buried nearby to reach heaven' [21, 81]. 'There was no worship to saints' tombs and relics in early Islam. Such a cult, which existed in other religions (for example, in Christianity), has been established in Islam later'. Petrushevsky I. considered this fact to be encouraged by the later edict to 'believers to visit the graves of faithful Muslims, especially tombs of saints' [22, 87]. It is necessary to note the significant impact of Sufism had on the Muslims' ritual practice, moreover, in some frontiers of the Muslim world Islam penetrated and appeared only in its 'Sufi' format. Following trade routes, political conquests, overseas trainings and pilgrimage, Sufi brotherhoods spread widely throughout the Muslim East, especially where relatively favorable conditions for free cultural and demographic exchange were observed. This spread had made the Sufi orders the key factor in the Islamization of new lands [23].

Terletsky N.S. quoted Tazkira-yi Khwaja Muhammad Sharif: 'Hazrat The Great Khoja spent in Yarkend remaining years of his life. He went out daily and walked throughout the surroundings. The saint burials were found everywhere, but no one knew about it. In such places Hazrat the Great Khoja stuck *tug* (flag) into the ground, established a *mazar*, appointing a shaykh, a sweeper, an imam and a muezzin, and then continued his way on' [24, 235]. It should be noted that in the Tajik vocabulary the term *jorubkash* (sweeper) can be used for a *mazar* keeper [25], along with the terms *shaykh* (keeper, guardian) or *mutavalli* (trustee over the property donated by a charity institution). Yakubov Yu. estimated (based on folk history) that throughout the existence of the Saint Burkh holy site there were 35 shrine site keepers following each other. The estimates indicated the service duration in 1050 years total (at the rate of 30 years for each keeper) [26].

Rezvan M.E. provided a description of two holy caves under the same name *Konyr Aulieu*, which were located close to the ancient caravan routes - just off Bayan-aul and on Sergiopolsky tract [27]. Each cave has been used by people since ancient times. In close location there were a lot of ancient petroglyphs, Andronovo burial grounds of the Bronze Age, the Saka burial mound, apparently of the late I millenium B.C.E., ancient Turkic mounds, which the Kazakhs called 'the graves of the *Kalmaks*' or 'houses of *mughas*'(fire-worshippers), and tombstones. In former times both caves were the sites for Buddhist ceremonies. The caves were also associated with the name of *Konyr*, the mythological person who was also saved by the Lord during the flood, irrespective of Nukha (Noah). These natural sites remain a place Muslims pilgrimage for centuries. The ethnographic record made in the first quarter of the 20th century from the Kazakh shaman (*baksy*) appeal to the spirits, included the words: "From the great Chingiz holy Mountains, // From the top of the Red Mountains // Holy Virgin, // From the top of Bayanaul // Holy Konyr" [29].

The 'Kirghiz Kray' newspaper published in 1903, that '…Aulie-Tas is a cave of ten *sazhen* long, which has a large stone with a hollow in its middle nearby the western wall. The whole was accumulating cool and clean water drained from the cave walls and ceiling. In the view of the Kirghiz this water possesses a healing features. The Kirghiz visitors drink this water, wash with it the sick parts of their bodies and use it for the ablutions prescribed for the Muslims. The Kirghiz's legend associated the cave with the saint person inhabitant long time ago. Many visitors were observed, and most of them were female, as the

Kirghiz believe in the specific fertile feature of the holy water from the cave‘ [27, 261]. At present, the cave is still a place of lively pilgrimage[3]. There is a house in close location, where pilgrims can stay for overnight, the wooden staircase has been constructed for easy cave access and a ‘gangway’ leading to the hole with water inside the cave. The keeper of the holu place, who has the knowledge of praying and rites, takes care of pilgrims [27].

Apparently this is can be one of first record mentioning a keeper of holy site in Kazakhstan. Castagne J., who provided a lot of ethnographic details, cited only one brief example: ‘Sometimes it happens that some hermit, ‘*chirakchi*’ who would like to encourage faithful offerings and tribute to the saint person after passing away, will inhabit close to the monument of certain ‘*aulie*’ (saint person), even in the mausoleum. Heart touching compassion and blessings of nomads always support the life of such a descendant” [13, 66-67].

As per our consideration, the Kazakh term shyrakshy may originate from the Iranian-Persian term chirog (shirak), which means a lamp/candle. Ogudin V.L. associated the tradition of burning a hanging vigil light on graves to follow the ancient Mazdaistic tradition. In this regard, the researcher wrote: ‘The oil lamps chirogs or special candles pilik (with oil-proofed cotton wool wound around sticks) were burned in a special niches chiroghona, which were made within graves’ [30]. One can undoubtedly link the custom of lighting fires on tombs and performing sacrifices on sites to the pre-Islamic traditions [18], since the custom of burning the sacred lamp (candlestick), called *charogdon*, still exists in memorial rites of the Ishmaelites of the Western Pamirs[4] as well. Probably, *shyrakshy* can be regarded as a keeper of the *aulie*’s metaphysical light (the divine light), which refers to the Zoroastrian cult of a sacred fire.

We would like to acknowledge the study of the concept of Muslim saints burial in Siberia, designed by Seleznev A.G. The concept includes the known saint person who belonged to the first Muslim missionaries (*yohshilar*, *ayliyalar, ambiyalar, highbire/sher*) and a special service group of people associated with the functioning of a holy site. First to be mentioned they are the keepers of the tomb (*astana-karulche/karulce, astana-kurayte*), i.e. people who regularly organize *tawap* (rites associated with the tribute to this site) and the *astana-osh* regular rite meals in memoriam of the buried saint person [31, 338].

Most interesting is the tradition of cooking meal for pilgrims at some mazars, because this fact closely links to the food offering gifts. It is beyond the Shariati norms and can be considered in the context of the ancient cult of the kettle, which had been widely spread among the nomads and played its role in magical rites. This cult was incorporated into the solid entire system of traditional attitudes and concepts[5]. Snesarev G.P. suggested that the known prohibition of making fire and cooking food in a deceased's house for three or more days, had been linked to the idea of the rite sewage of a dead body and went back to Zoroastrianism [18].

In the modern Kazakh culture there are two main groups of the sacred places keepers: (1) *shyrakshy* - who are keepers of the saint persons *(auliye*) mazars; and (2) *қysmetshi* - keepers of the sacred natural sites[6]. The common people consider these two categories are identical, so all keepers are called *shyrakshy.*

The term *kyzmetshi* was derived from the modern Kazakh word *kyzmet*, which stands for service, i.e. it defines a person rendering service to a sacral natural site. The latter can include caves, mountains / mountain, rocks / rock, wood / grove, wells and springs, etc. According to the keepers, costs associated with shrine care are defrayed by *sadaka* – pilgrims’ donation.

Mustafina R. who in fact made a valuable contribution in documenting of rites practice in Kazakhstan, identify *shyrakshy* in the list of so-called priests (*hodzhi, duan, sopa*) [32]. In particular, she gave description of the *shyrakshy* kin of Kara-Bura keepers. The kin originated to Appak-hoda, the famous Kashgar saint person. Two brothers, Shakarim and Shakasim, left Kashgariya and moved to the South

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[3] One can observe a lot of graffiti on cave’s walls left by pilgrims. There is a handwriting of Abai Kunanbayev, the distinguished Kazakh enlightener. The dates indicate that the pilgrims visited the cave in the period of Semipalatinsk nuclear test zone (quote from M. E. Rezvan, 2012).

[4] See Lashkariev A.Z. Memorial rites of house purifying and burning the sacred lamp by the Ishmaelites of the Western Pamir // Ethn. Obozr. 2008. N 1. P. 97-109.

[5] Terletsky N.S. noted about the temptation to associate this understanding with a huge bronze kettle, which Amir Timur (736-807 / 1336-1405) ordered to cast and place in the central area of the Khodzha Ahmad Yassavi mausoleum.

[6] Rustembekuly A., the keeper of the Ak-Meshit considered eligible the use of term kyzmetshi in relation to natural sacred sites. However, the keepers of underground mosques - kyluet - (derived from hilvet) falls into a separate category.

Kazakhstan. Shakarim was settled in Turkestan, near the Khodzha Ahmad Yasawi holy site, while Shakasim inhabited at the Kara-Bura shrine. Since that time, all successors of Shakasim served as *shyrakshy* of the Kara-Bura shrine. The elements of the archaic tradition, which goes back to animistic views, could be observed at the natural sacred site *Aulie Bastau* ('The Holy Spring') in Zhambyl region. The keeper of it for many years was residing in Karashal. His son, Azbergen Karashalov, was born in 1923, told that in previous time the water flowed from numerous splits in the rock and it supply was abundantly enough for the whole village. Two big snakes lived In the split of the rock and they never bite anybody. There was a big hole in the rock, a kind of shelter, where people hided in case of mucky weather. They could also cook meals there. In Suzak district (South Kazakhstan) there is a small pond with the holy fish, as the local people say [32, 100-101]. It was close to the Turkestan road passed, and a caravanserai nearby was called Balykshi-saray. The holy place keepers - Eginberdi and Shaykhi - met wayfaring men, and provided food and overnight accommodation to them, and also took care of the animals. They say that these keepers had some extraordinary abilities, for example, they could change streamway of the river.

Also in Suzak, Mustafina R.M. recorded a story from the 88-year-old Pari-Molda. When he was a child (12-13 years old), he saw a very tall man 'neither Uzbek, nor Kazakh - who does not smoke or use *naswar*'. This man built on his own a mosque nearby the Koshkar-ata sacred place and became a *mullah* [32, 102]. Lykoshin N.S. described in 1917 an old half-ruined flagstone construction, which had been recognized as the burial place of the saint patron of sheep husbandry [33]. The Kazakhs, who passed by, always paid a rite tribute to their ancestor; they dismounted a horse and walked to the grave. There was a mullah (sart), who lodged at a small mosque proximate to the grave. He read a *Korani* chapter in honor of Koshkar-ata and got a small reward.

The authors conducted the field expeditions in 2016-2017 within the UNESCO cooperation programs on preservation of intangible cultural heritage/ These field missions allowed to study the institute of modern keepers in some areas of Almaty region ('Bes Ata'[7] and 'Ungurtas' cult sites[8]), Karaganda region ('Aulietau' site[9]), and Southern Kazakhstan region ('Ak-Meshit Aulie' cave and 'Adam-Ata and Jer-Ana' rocks[10]). The results of the field expedition to Ulutau region were discussed in the earlier publication [34].

At the 'Bes Ata' site, every keeper has a house for permanent residence or a small room for temporary stay in direct proximity to the mausoleum. An exception is Zhambyl Zhabaev mausoleum, as it is a part of the Zhambyl state museum. At Sarybai bi mausoleum there is an utility room built for *shyrakshy* (the keeper lives in the village located in direct proximity to the *mazar*). At burying places of Kainazar Ata, Tuktibai Ata and Suyunbay Aronuly the keepers live with their families at the mausoleums and serve to pilgrims throughout the daylight. All the keepers, judging by their stories, were urged by call in their sleep from the Ancestral Spirits to look after the graves. At the same time, the process of "calling" to a sacred place could last a long time. For example, Usen Dairbaev told that his distant ancestor Suyunbai Ata first 'sent an agent' to him with a prophetic revelation. Later Usen began to see him in his sleep dreams until the moment when Usen could fulfill the request of the saint and assume the functions of the mazar keeper. Up to the moment Usen had not been to this holy site before. Over time, the *shyrakshy* found out a poetic power and started to give the saint's blessings and advices to pilgrims in a verse form.

A similar case happened with Bakbergen Ayashev, the keeper of the Aulietau sacred mountain (Ulytau, Karaganda region). After being settled in the proximity of the holy mountain, Bakbergen conducted healing practice and assisting pilgrims in visiting the saints graves on the top. Baksy believes that he is a tool of his ancestor's spirits and the mountain spirits-hosts. And it is with them to conduct the healing and blessing. He merely aims to provide a 'contact' between *Aruah* and a pilgrim. The informant B.Kozhakhmetov indicated that Bakbergen Ayashev has been invocated by local spirits and saints to serve this worship site. Need to say that the common people call the Ulytau surroundings - 'baksy ordasy' (the

[7] The 'Bes Ata' ('Five Fathers') complex includes five mazars located in close proximity to each other, which are named as follows: Sarybay bi (1821-1890), Kainazar Ata (1850-1913), Suyunbai Aronuly (1815-1898), Zhambyl Zhabaev (1846-19945), Tuktibay Ata (1700-1781).

[8] 'Ungurtas' ('Stone-Cave') is a combination of a revered natural complex with a man-made underground mosque (heelvet).

[9] 'Aulietau' ('Sacred Mountain') site combines a sacred natural object and burial places of revered persons.

[10] 'Ak-stirs Aulie' ('Holy White Mosque') cave and the 'Adam-Ata and Jer-Ana' ('Father Adam and Mother Earth') sacred place belong to the revered natural places.

shaman center). Bifatima Dawletova, the keeper of Ungurthas site told that she was called by the sacred Dragon - *Aidahar*. Askar Rustembekuly, *shyrakshy-kyzmetshi* of the A*k-Meshit Aulie* cave informed about seeing prophetical dreams – '*ayan*' since 1992. Over time he settled closer at the cave proximity and committed himself for meeting pilgrims and informing them about the unique character of the sacred place. In our field surveys the procedure of succession of the keeper position was confirmed only in two cases, hence there are other evidences apart [35].

The researchers are aware about the fact of prophetic dreams of the respondents about their intended mission at a sacred place site or about receiving a sacred gift from the saint person. Mustafina R.M. described one case of the urging keeper for his future mission. '.. his was on military service and then in his dream he saw 10-15 camels on the way. After being discharged from military service... he went to the Mamet-Calpe holy site, where he primarily has had his dreams' [32, 53] and settled there. Pilgrims consider the call of keeper through prophetic dreams justifies his/her mediator capability between the world of people and the world of spirits. Stasevich I.V. noted that 'pilgrims believe that *shyrakshy/shayiki*[11] possesses extraordinary capabilities, they can predict the future, heal people, interpret dreams. As a matter of fact, a keeper for sacred place is beings elected by the spirit of the sacred place [36, 112].

The keeper's main responsibilities include: safeguarding and routine care of a sacred site, welcome of pilgrims, sounding praying, and combine this service with introduction of rituals, stories and legends about the saint person, local history and phenomenon of sacral power in this locality, etc. The Siberian Islam studies noted the certain procedure in transferring authoritative responsibilities and sacred text (*sezera/shedzere*) between the keepers [37]. It is fixed in a handwritten text about the buried saint persons. Those interviewed *shyrakshys* do not have the written procedures, but there is a tradition of verbal conveying of information about the sacred place and the saint personality. This procedure coincides with the written *shezhire* (genealogies) of Kazakh *kozha*.

Conclusion, discussion, findings. Literary sources' studies and field survey's findings demonstrate the present changes of the saint personalities' beliefs. During initial decades of the Islam dissemination within the steppes (XVIII-XIX centuries), the saint personalities were acknowledged inside Muslim community - *mullahs, imams, ishans* (Sufi mentors). Most of the saint nominees were the Islam missionaries, and the majority of them had sacrificed their lives to the glory of the God. At the same time, some of shamans-*bakhsy* (traditional healers) declared themselves as *auliea* in their lifetime because of their extraordinary abilities [18, 32, 38].

The authors share the opinion about two concurrent lays of Islam existence during the Soviet era and followed independence period. The first, official lay, include formal Islam procedures - *muftiats, madrassas, hajjs*, etc. The other lay, 'f*olk Islam*' has been hiding among the common population indirectly. It was not associated much with the theological tradition, but fully preserved and translated the ritual practices [39, 109]. There was a social group that one could call righteous men: the group members had a strong belief on God, it observed the universal ethical standards; the members performed religious rituals (*sunnet, azan, janaz*); some of the group members were recognized traditional healers. The community was confident with these righteous personalities, the people applied for their assistance, in case of sickness (especially mental illnesses), the righteous men were considered as advocate for common people in the God presence. They left good memory, and next local generations intensified their merits and dignity only intensified in the community opinion. The burial place quickly acquired a sacral status and became the object of pilgrimage. This attitude normally was translated to the *shyrakshy* (keepers) of the righteous burials. In our view, the concept of folk Islam coincides with the concept of the so-called regional or local cults. It include local holy sites, religious worship places, *mazars*, traditional local sites for paying and sacrifices, etc.

Apparently, it is hard to consider the details of the institute of sacred sites keepers within the scope of the small-scale study. A lot of important research issues were left beyond for next studies: consideration of the Sunni and Shiite holy place keepers in historical and cultural retrospective; comparative analysis of sacred place keepers in bordering areas of Kazakhstan; gender issues of the institute of sacred place

[11]The term shayiki in Kyrgyz culture is equal to shirakshi.

keepers and other. The authors believe that further studies of the ‘steppe historiography’ to be handled with the introduction of the still unknown ethnographic sources will contribute to better understanding of the ways of the Kazakh nomadic perception and mindset. It will also improve the understanding of the *shyrakshy* important role in establishment of the eligious landscapes of Kazakhstan.

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ҚАЗАҚ ХАЛЫҚЫНЫҢ ДӘСТҮРЛІ ЖӘНЕ ЗАМАНАУИ МӘДЕНИЕТІНДЕГІ ӘУЛИЕ ТҰҒЫРЛАРЫН КӨРУШІЛЕРДІҢ ИНСТИТУТЫ: ӨЗЕКТІ МӘСЕЛЕЛЕР ҚОЙЫЛЫМЫ

Аннотация. Кейбір табиғи және жасанды жерлер мен орындардағы яғни атап айтқанда, қазақ мәдениетіндегі әйгілі адамдардың мазарлары ежелгі уақыттан бері белсенді қажылықтың нысанасы ретінде танылып, олар бүгінде қасиетті де, әулие санаттардың қатарына жататыны баршамызға мәлім. Осыған орай, біздің бақылауларымыз көрсеткендей қазіргі уақытта барлық дерлік және әрбір беделді нысананың өз қамқоршысы бар екені аңғаруға болады. Мысалы, мазарды бақылайтын адамды «шырқшы» - деп атаса, ал табиғи нысанды қорғап жүретін бақылаушы күзетшіні «қызметші» - деп атайтын болған.

Қазақ мәдениетіндегі әулие орын тұғырларын бақылаушы мен көрушілердің институты негізінен бұрынғы өмірде исламды нығайтудағы ежелгі тарихи және мәдени құбылыс ретінде танылып болғанымен, халықтық түсініктегі жиналған материалдар олардың танымал мағынадағы «таңдаулы әулие рухтардың» ерте кездердегі формасының генетикалық сабақтастығының тығыз байланысы болғандығын көрсетеді.

Жалпы алғанда мақалада осы мәдени құбылысты зерттеу мәселесін қалыптастыру мен оларды әрмен қарай дамытып зерттеудің көкжиегін анықтауға арналады.

Түйін сөздер: көруші, әулие орындар, мазарлар, табиғи және жасанды нысандар, қажылық, Қазақстан.

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ИНСТИТУТ СМОТРИТЕЛЕЙ СВЯТЫНЬ В ТРАДИЦИОННОЙ И СОВРЕМЕННОЙ КУЛЬТУРЕ КАЗАХОВ: К ПОСТАНОВКЕ ПРОБЛЕМЫ

Аннотация. Некоторые природные и рукотворные места, в том числе и мазары знаменитых людей в казахской культуре относятся к категории святых – аулие, являющиеся объектами активного паломничества с давних времен. Наблюдения показывают, что сейчас практически на каждом почитаемом объекте присутствует смотритель. Человека, следящего за мазаром принято называть шырақшы, а смотрителя природного объекта - қызметші.

Хотя институт смотрителей святынь в казахской культуре является гораздо более поздним историко-культурным феноменом, преимущественно связанный с оседлостью и укреплением ислама, собранные материалы показывают его генетическую преемственность с более ранними формами «избранников духов» в народном понимании. Настоящая статья посвящена постановке проблемы изучения данного культурного феномена и определения дальнейших перспектив его исследования.

Ключевые слова: смотритель, святые места, мазары, природные и рукотворные объекты, паломничество, Казахстан.

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LEGAL REGULATION OF ASSIGNMENT OF CLASS RANKS OF MUNICIPAL EMPLOYEES

Abstract. This study is devoted to the study of legal regulation of municipal service by the subjects of the Russian Federation, such issues as the process of municipal service work and the implementation of the status of municipal employees. The practical significance is due to the conclusions and recommendations that can find practical application in the law-making and law-enforcement activities of public authorities of the Russian Federation, as well as local authorities. The proposed approaches to the problems of forming a strategy for the development of municipal service in the conditions of improving the legislation of the subjects of the Russian Federation on municipal service have scientific novelty.

The article analyzes the legal regulation of the assignment of class ranks of municipal employees at the federal and regional level. The main stages of legal regulation of assignment of class ranks of municipal employees, as well as tendencies of legal regulation are revealed, the reasons of change of the legislation of subjects of the Russian Federation are defined. The author comes to the conclusion that the legal regulation of the order of assignment of class ranks in the subjects of the Russian Federation was not the same. Some entities have not adopted any regulatory legal acts in this area. However, considering the needs of the practice, now there is a change of previously adopted regulations. Regions that have not previously regulated this sphere are now adopting regulatory legal acts.

The author has formulated proposals to improve the legal regulation of the assignment of class ranks by legislators of the Russian Federation.

Key words: municipal employee, qualification exam, class rank, assignment of class rank.

Introduction. The mechanism of regulation of municipal service undergoes essential changes; in this connection, there was a need to consider these processes, to analyze the features of the legislation of the subjects of the Russian Federation. The principles of consistency and interrelation of the state and municipal service do not have sufficient organizational and legal mechanisms for their implementation, so there is a need to clarify and supplement them.

Methods. The comparative legal method is used in the analysis of legal norms in the field of municipal service, legal regulation of relations in the municipal service of various subjects of the Russian Federation, as well as municipal legal acts in the study area. The formal-legal method allows analyzing the existing normative legal acts of the subjects of the Russian Federation of different legal force for the presence of gaps and conflicts in them. Regarding the theoretical and prognostic method, it allows us to consider the issues of improving the legislation in order to resolve them.

Results. The main tasks of the public authorities are to ensure the rights and freedoms of man and citizen. Nevertheless, in order for these tasks to be really realized, a professional executive apparatus is needed, i.e. the apparatus of state and municipal employees. The main principles of public service – professionalism and competence. They are aimed at ensuring that professionals do the implementation of human and civil rights, as well as freedoms. Through the institute of "class ranks" the differentiation of public servants according to their level of qualification goes. Also for the employee, assignment of a class rank entails adverse consequences in the form of additional cash payments. Accordingly, this will be one of the motivations in maintaining and improving the skills of public servants.

But, in relation to municipal employees, the legislator had carried out the regulation of the “class ranks” institute in different ways. In 1998, the Federal law of January 8, 1998 № 8-FL (Federal Law) "On the basics of municipal service in the Russian Federation" [6] did not determine the existence of class ranks in the municipal service, only qualification categories were established. Qualification categories were established by the legislation of subjects of the Russian Federation. Only in 2008, the municipal service introduced the category of "class rank". Legal regulation of class ranks of municipal employees was established by article 9.1. Federal law of 2 March 2007 № 25-FL "On municipal service in the Russian Federation" [15], which was introduced by the Federal law of 25.11.2008 № 219-FL [7].

These changes occurred in connection with the introduced principles of public service on the relationship of municipal service and civil service (article 5 of the Federal law of 02.03.2007 №25-FL "On municipal service in the Russian Federation»). In spite of the fact that this provision was entered already in 2004 by Art. 4 of the Federal law of July 27, 2004 No. 79-FL "On the public civil service of the Russian Federation" [8]. Part 1 of article 9.1. Federal law No. 25-FL of 2 March 2007 stipulates that the law of a subject of the Russian Federation may provide class ranks of municipal employees and establish the procedure for their assignment, as well as the procedure for their retention when transferring municipal employees to other positions of municipal service and when dismissing from municipal service. While in respect of civil servants, the Decrees of the President of the Russian Federation uniformly define the class ranks, the procedure for passing the qualification exam, cash surcharges for the class rank. For example, the decree Of the President of the Russian Federation of February 1, 2005 № 113 "On the order of assignment and preservation of class ranks of the state civil service of the Russian Federation to Federal civil servants" [11], the Decree of the President of the Russian Federation of February 01. 2005 № 111 "On the order of passing of qualification examination by the public civil servants of the Russian Federation and assessment of their knowledge, skills and abilities (professional level)" [12]. The Federal legislator has not defined any minimum requirements and criteria that should be provided by the regional legislator in the regulation of the Institute of "class ranks". Some researchers make recommendations related to the extension of the Federal regulations on the passing of the qualification exam by civil servants to municipal employees [1].

Thus, the Federal law of March 2, 2007 № 25-FL "On municipal service in the Russian Federation" in the original version did not determine the possibility of establishing the municipal service of class ranks or qualifications. At the same time, in the regional legislation of practical activity of municipal authorities there were different models of assignment of class ranks - qualification categories to municipal employees. In some subjects of the Russian Federation, qualification grades were assigned to municipal employees. In addition, unlike Federal legislation, the subjects of the Russian Federation introduced provisions on the assignment of a class rank as a measure of encouragement (Republic of Ingushetia [13], Krasnoyarsk region [10]). It was provided that the class rank can be appropriated as a measure of encouragement for special merits in municipal service, but:

«1) before the expiration of the term established by the Law for municipal service in the corresponding class rank, but not earlier than in six months of stay in the substituted position of municipal service - not higher than the class rank corresponding to this position of municipal service;

2) after the expiration of the term established by the Law for municipal service in the relevant class rank - one step above the class rank corresponding to the substituted position of municipal service within the group of positions of municipal service to which the substituted position belongs».

The process of adoption of laws is underway, when some regions have repeatedly introduced changes (for example, Novosibirsk province [14], Perm region [3], Krasnoyarsk region, Ulyanovsk province [17]). These regulations were amended in 2016. Special attention can be paid to the Law of the Republic of Khakassia from 06.07.2007 № 39-LRK (Law of the Republic of Khakassia) "On municipal service in the Republic of Khakassia" [16], which stipulates, that class ranks are not established for municipal employees. And in 2016 the Law of the Republic of Khakassia of 10.10.2016 N 63-LRK "On class ranks of municipal employees in the Republic of Khakassia" [9] was accepted. Feature of this law is that it does not establish the basis of assignment of a class rank to the municipal employee in the form of qualification examination passing. It is enough to take into account the duration of municipal service in the previous class rank.

Currently, there are additions relating to the regulation of the procedure for the qualification examination and the assignment of class rank in regulatory legal acts regulating the passage of the municipal service. These innovations are related to the problems that arise in practice in the implementation of regulatory legal acts regulating the assignment of the class rank. For example, in 2011 the issue of implementation by municipalities of the Krasnoyarsk region of the law of 24.04.2008 № 5-1565 "O n the peculiarities of legal regulation of municipal service in the Krasnoyarsk region" was actively discussed. Particular attention was paid to the assignment of class ranks to municipal employees and the qualification exam procedure. Representatives of local governments expressed the main problems they face in the preparation and conducting of the qualification exam. It was noted that there was no definition of the procedure for assigning the first class ranks to persons holding municipal positions on the terms of a fixed-term employment contract, as well as municipal employees on parental leave. In addition, according to the representatives of municipalities, the Law does not clearly state the procedure for resolving issues related to the preservation of the assigned class rank in the transition (transfer) of a civil servant to the municipal service. It was noted that the activities on assignment of class ranks to municipal employees in most municipalities of the region has not been organized at the proper level to date [18]. Also, in accordance with the Decree of the Governor of the Krasnoyarsk region of 23.03.2009 № 51-DG (Decree of the Governor) "On approval of the procedure of legal examination of municipal regulatory legal acts of the Krasnoyarsk region", the Department of territorial policy of the Governor of the Krasnoyarsk region conducted a legal examination of municipal regulatory legal acts, submitted by municipalities of the Krasnoyarsk region for inclusion in the Register of municipal regulatory legal acts. As a result of the legal examination revealed inconsistencies with the current legislation on issues related to the implementation of legislation on class ranks of the municipal service. According to article 9.1. The Federal law of 02.03.2007 № 25-FL "On municipal service in the Russian Federation" the order of assignment of class ranks, as well as their preservation in the transition of municipal employees for other positions of municipal service and the dismissal from the municipal service shall be established by the law of a constituent subject of the Russian Federation, if the law of the subject of the Russian Federation provides any class ranks. In Krasnoyarsk region the order of assignment of class ranks to municipal employees was established by articles 4, 4.1. Law of the Krasnoyarsk region of 24.04.2008 № 5-1565 "On the peculiarities of legal regulation of municipal service in the Krasnoyarsk region». That is, establishment of the order of assignment to municipal employees of class ranks belongs to competence of the subject of the Russian Federation and does not belong to competence of local governments of municipalities of a region. However, regulatory legal acts relating to the above-mentioned subject of legal regulation, are issued by local authorities [4].

Discussion. Also, article 9.1. The Federal law "On municipal service in the Russian Federation" assumes only the possibility of establishing class ranks in the municipal service, and this, the researchers note [5], can lead to the fact that those entities that assign qualification ranks to municipal employees, of course, will bring their regional laws in accordance with the current legislation. However, there will be subjects of the Russian Federation, which will not consider necessary to appropriate class ranks to municipal employees. Thus, there may be different practices of existence of class ranks in the municipal service, which contradicts the principles established by articles 4 and 5 of the Federal law "On municipal service in the Russian Federation". The essence of these principles lies in the establishment of general requirements for municipal service. But it will be impossible to achieve it if in some subjects of the Russian Federation, class ranks to municipal employees will be appropriated, so they will have an opportunity to keep them at transition from one level of management to another, and in other subjects where class ranks won't be established, municipal employees lose such opportunity. In the latter case, civil servants of the subject of the Russian Federation, who have a class rank and have decided to go to municipal service, will suffer adverse consequences. Now it is possible to note the trend aimed at overcoming this problem at the level of regulatory subjects of the Russian Federation, when the ratio of class ranks of the state civil service of the Russian Federation and the municipal service is established. The ratio of class ranks of the civil service and class ranks of the municipal service is important from the point of view of, first, the organization of state and municipal service, and secondly, from the point of view of protection of social rights of public servants in the transition from public service to municipal service and vice versa. Some regional legislators have already adopted regulations to address this gap. For example, the law of the

Ulyanovsk province of 7.11.2007 № 163-PL (Province Law) "On municipal service in the Ulyanovsk region" introduces the ratio of class ranks of municipal employees, class ranks of the state civil service of the Ulyanovsk province, the qualification categories of civil servants of the Ulyanovsk province [17].

Thus, the legislation of subjects of the Russian Federation regulating assignment of class ranks from 1997 to the present time tends to change. The main objective of this process is to achieve consistency and transparency in the procedures of the assignment of class rank in the municipal service. This process is not yet complete. It is necessary to draw the attention of regional legislators to the regulation of the following issues:

1. sequential assignment of a class rank after a set time of stay in a certain class rank, after their assignment for the first time;
2. the assignment of class rank in accordance with the substitutable position, within a particular group of municipal posts (higher, chief, leading, senior and junior);
3. early assignment of a class rank as a measure of encouragement;
4. terms of stay in the previous class rank, giving the opportunity to receive the next class rank;
5. the list of restrictions that prevent the assignment of a class rank (for example, the presence of a disciplinary sanction);
6. rules of the qualification exam conducting;
7. requirements to the municipal employee applying for assignment of a class rank;
8. evaluation tools used during the qualification examination;
9. conditions of preservation of a class rank at the termination of the office relations.

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МУНИЦИПАЛДЫҚ ҚЫЗМЕТКЕРЛЕРДІҢ МӘРТЕБЕГЕ ӨТУ ҚҰРУДЫҢ ҚҰҚЫҚТЫҚ РЕТТЕУІ

Аннотация. Бұл зерттеу муниципалдық қызметтің өтуі және муниципалды қызметкерлердің мәртебесін жүзеге асыру мәселелері бойынша Ресей Федерациясының субъектілерінің муниципалды қызметіне құқықтық реттеуді зерттеуге арналған. Практикалық маңызы Ресей Федерациясының субъектілерінің мемлекеттік органдарының заң шығарушы және құқық қорғау қызметінде, сондай-ақ жергілікті өзін-өзі басқару органдарында іс жүзінде қолдануға болатын тұжырымдар мен ұсыныстар зерттелген. Муниципалдық қызметке арналған Ресей Федерациясының субъектілерінің заңнамасын жетілдіру тұрғысында муниципалды қызметтің даму стратегиясын қалыптастыру мәселелеріне ұсынылған тәсілдердің жаңалығы көрсетілген.

Мақалада муниципалды қызметкерлердің федералдық және аймақтық деңгейлердегі сыныптық шендерін тағайындаудың құқықтық реттеу талданады.

Муниципалды қызметкерлердің сыныптық шенеуніктерін тағайындаудың нормативтік-құқықтық реттеудің негізгі кезеңдері, құқықтық реттеу тенденциялары анықталды, Ресей Федерациясының субъектілерінің заңнамаларын өзгертудің себептері анықталды. Автор Ресей Федерациясының өңірлеріндегі сыныптарды тағайындау тәртібін құқықтық реттеу бірдей емес деген тұжырымға келді. Кейбір субъектілер осы саладағы нормативтік-құқықтық актілерді мүлдем қабылдамады. Бірақ практиканың қажеттілігін ескере отырып, қазіргі уақытта бұрын қабылданған ережелердің, сондай-ақ осы саланы бұрын реттемеген өңірлердің нормативтік құқықтық актілері қабылдануда.

Автор Ресей Федерациясының субъектілерінің заң шығарушылары тарапынан сыныптық шенеуніктердің тағайындалуын құқықтық реттеуді жетілдіру жөнінде ұсыныстар әзірледі.

Түйін сөздер: муниципалды қызметкер, біліктілік емтихан, класс атағы, сыныптық атағының берілуі.

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ПРАВОВОЕ РЕГУЛИРОВАНИЕ ПРИСВОЕНИЯ КЛАССНЫХ ЧИНОВ МУНИЦИПАЛЬНЫХ СЛУЖАЩИХ

Аннотация. Данное исследование посвящено изучению правового регулирования муниципальной службы субъектами Российской Федерации, таких вопросов как прохождение муниципальной службы и реализация статуса муниципальных служащих. Практическая значимость обусловлена выводами и рекомендациями, которые могут найти практическое применение в правотворческой и правоприменительной деятельности органов государственной власти субъектов Российской Федерации, а также органов местного самоуправления. Научной новизной обладают предложенные подходы к проблемам формирования стратегии развития муниципальной службы в условиях совершенствования законодательства субъектов Российской Федерации о муниципальной службе.

В статье проанализировано правовое регулирование присвоения классных чинов муниципальных служащих на федеральном и региональном уровне. Выявлены основные этапы нормативно-правового регулирования присвоения классных чинов муниципальных служащих, тенденции правового регулирования, определены причины изменения законодательства субъектов Российской Федерации. Автор приходит к выводу, что нормативно-правовое регулирование порядка присвоения классных чинов в субъектах Российской Федерации происходило не одинаково. Некоторые субъекты вообще не принимали нормативные правовые акты в этой сфере. Но с учетом потребностей практики, в настоящее время происходит изменение ранее принятых положений, так же регионами, которые ранее не регулировали эту сферу, принимаются нормативные правовые акты.

Автор сформулировал предложения по совершенствованию правового регулирования присвоения классных чинов законодателями субъектов Российской Федерации.

Ключевые слова: муниципальный служащий, квалификационный экзамен, классный чин, присвоение классного чина.

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IPO MARKET: TRANSFORMATION OF SAVINGS INTO INVESTMENTS

Abstract. The intensity of IPO implementation, their effectiveness and success, as well as the activity in IPO markets are among the factors allowing assessing the state of national and global economies, as well as to determine investors' sentiment and predict their behavior.

Participants of IPO process should take into account the manifestation of global, regional and national regularities and trends in the market of initial public offers.

The global IPO market is influenced by various factors, including macroeconomic, political and geopolitical ones.

One of the fundamental goals of IPO transaction realization is maximization of the attracted capital, while the key participants of the placement face a conflict of interests. Qualitative execution of technical preparation for holding an IPO does not guarantee a successful, efficient and profitable placement.

A particular impact on the efficiency of placements is provided by the choice of a good time to conduct an IPO, which largely depends on the business cycle of the market.

At present, there is a need to diversify Kazakhstan economy and equalize the imbalance caused by high raw product dependence.

Economic reforms and development of new high-tech sectors increase the need of companies in investments. The development of Kazakhstan IPO market is of strategic importance for stimulating economic growth and increasing the level of liquidity and capital intensity of the national market of securities.

Despite the fact that in Kazakhstan, the current practice of IPO placement has a relatively short history, it can be noted that a number of successful placements has already been made, and the market of initial public offering has been formed, although it has not yet reached a level comparable with developed economies.

The dynamic development of the foreign market of Kazakhstan IPOs and public resonance of the conducted placements led to the fact that Kazakhstan companies are paying increasing attention to this method of attracting capital.

Keywords: securities, capital, stock market, strategy, development, investment, mobilization.

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The initial public offering market (IPO) is a segment of securities market, where the issuer attracts capital. Demand in the market is formed by institutional and retail investors, who participate in the acquisition of shares at the stage of IPO, and the offer isformed by issuers and by the selling shareholders who have cash requirements.

In the article the IPO market is understood as a segment of the securities' market, where the sale of shares is affected by the issuer and shareholders and which isaccompanied by business transformation from private to public.

Before the marketreachedits present state because of evolution, it went through several stages of development [1, 2, and 3]:

• Emergence of a spontaneous market of equity capital (the beginning of the XVIIth - beginning of the XIXth century): emergence of joint stock companies and the first public offering of shares on the stock exchange (the Dutch and British East India companies); active participation of retail investors and absence of qualified and institutional investors as a class, absence of a system for regulating the share placing.

• Institutionalization of the market (1820s - early XXth century): formation and development of professional intermediaries in primary markets (investment banks) and beginningofformation of procedures for the initial public offering.

• Formation of a developed market (mid-1910s-1970s): long periods of growth in the 1920s, 1950s and 1960s alternated with stagnation in the capital market caused by world wars and financial crisis that paralyzed the development of the capital market.

• Formation of the modern market (1970s - present): formation of IPO technology, generalactivization of placements and significant expansion of the range of issuers.

In the history of the financial markets, dozens of crises have occurred: the most significant ones led togreat losses of investors, erosion of confidence to the stock market and serious changes in the regulation of markets. The fall in the value of shares in the secondary market causes a decline of activity in primary markets.

Global IPO market as a segment of the world economy is characterized by regularities and certaintrends of development that were revealed as a result of the analysis of the development of global IPO markets. Globalization of world capital markets [4].

At the moment, national and regional economies are highly interconnected, which affects trendsofdevelopment. In general, all national IPO markets have common trends. Only the degree and depth of reaction to world economic shocks differ.

Negatively, the IPO market is affected by the situation in the world economy [5]: the recent global economic crisis, the European debt crisis and the fall in oil prices [4].

At the moment, markets are demonstrating a slow recovery.

Not only the largest companies and "giants", but also small innovative companiesdemonstrate the tendency to enter the financial market.

Thus**,** companies of small and medium-sized capitalization make up themainvolume of conductedinitial public offering**.** Smaller companies also begin to view IPO as an affordable method for themselves.

Many issuers are not large enough to carry out placement on the international market. Such companies seek to conduct IPO on national stock exchanges, which, in turn, lead to an increase in the number of placements on regional stock exchanges. A number of countries are making efforts to attract capital through creation of regional financial centers.

Particular attention is paid to this issue in Brazil, India and South Africa. A number of existing centers in the course of time become global ones, which, for example, has happened to China. Strengthening the positions of developing countries led to the fact that the market of initialpublic offerings of the United States began to give way to the market of Great China [1, 4].

In the world the tendency of average volume growthof the involved capital within the limits of IPO continues, that is accompanied by an exit on the market of large companies-emitters,settingall new records on volume of placement.

In the first half of 2018, the total volume of initial public offering (IPO) around the world totaled $ 98.6 billion. Compared to the same period in 2017y. , their volume increased by 22%. This value is the maximum one, starting from 2015y. It became known that in the second quarter, the activity of investors and companies in the IPO market grew significantly: from April to June worldwide the volume of primary placements was10% higher than in the first quarter, Reuters reports [6].

The greatest activity was demonstrated by American and Chinese companies. So,sincethe beginning of 2018y.thevolume of American IPO reached the volume of $ 30 billion, the last time such a volume was observed in the first half of 2014y. Since the beginning of 2018y., onlyin the United States 90 primary placements have been held [6].

In the US since the beginning of the year, the largest IPO ($ 3.2 billion) was the initial placement of the company AXA EquitableHoldings: the American subsidiary of the French investment and insurance group AXA.

In the first half of the year, the IPO market of the Asia-Pacific region grew by 20% compared to the same period in 2017and amounted to $ 36.9 billion. The largest placement in Asia was the entryof Xiaomi Company into the stock exchange;this company raised $ 4.7 billion for its securities.

In the EMEA region, the IPO market amounted to $ 25 billion, which is 20.6% more than in the last year. In the first half of the year, Germany was recognized to be the largest market for initial placements in the region [6].

The number of IPOs is growing when the world stock markets demonstrate rapid growth of quotations. In the first quarter of this year, many sites were at historical maximums, which caused increased interest in holding IPO. Given the tax reform in the US, in the second half of the year new records are expected on the US stock market, which will cause a new surge in the IPO segment.

Kazakhstan is not the first country where citizens are given the right to buy shares of the largest enterprises with state participation. Such "folk" IPOs were held in many countries. In the last quarter of the twentieth and the first decade of the twentieth century, the privatization of state property literally seized the countries of Europe, America and Asia. But foreign experience has not always been successful - different companies at different times were soldon the stock market.

In the UK privatization was the main aspect of economic policy during the time of Margaret Thatcher's premiership. For over 10 years, since 1979y. airline, oil, steel and telecommunications companies, ports, watersuppliers, gas suppliers, shipbuilding enterprises have been sold and becameprivately owned. Among them were such well-known brands as Jaguar and Rolls-Royce [7].

As a result, the state received a good income, the efficiency of companiesincreased and competition in the markets improved. And the number of individual shareholders increased from 4 000 000 people in 1983y.up to 10 000 000 in 1995y. (about 17% of the total population of the country).

For example, shares of British telecom were bought by almost 2 million people, including 200,000 employees of the company itself. The next successful IPO was– BritishGas. In 1986, the Government offered 4 billion common shares for sale. Subscription to them was 4 times higher than the offer. 62% of securities were purchased by individuals, 23% - by British large (institutional) investors, 11% by- foreign investors and the remaining 4% - by the Government. And on the first day after the sale of shares, December 8, 1986y., their price jumped by 25%.

The last largestIPO in the history of the UK was held a few weeks ago - the Royal Postal Service RoyalMail, which exists almost 500 years. Investors were offered 52.2% of the company's capital - 521.7 million shares. Another 10% of the shares were donated to 150,000 employees of the postal service free of charge. Demand from private investors exceeded the offer by 7 times, and from institutional investors - by 20 times. As a result, the latter acquired 67% of the placed block of shares, and individuals acquired the remaining 33% [7].

In the history of "folk»IPO there were also unsuccessful examples. Basically, they are related to the placement of shares of financial institutions after overestimation.

So, in Poland in 1993 the population was offered to buy shares of BankŚląskithe largest one at that time in the country. Applications were filed by 817,000 customers (more than 2% of the country's population).

Employees of the bank could buy the securities for half of the placement price. As a result of the IPO, the Polish government raised 2.7 times more than it was planned. After the start of trading on the stock exchange, the quotations of BankŚląski soared more than 14-fold to $ 337.5. The Government still could not findlarge investors who believedinthe bank. As a result, the fall in the value of securities led to panicandmassive sellout. The stock market of Poland in 1994y.lost 40% of its capitalization. Resignations andparliamentaryinvestigationfollowed, and further privatization of banks in Poland was frozen for several years.

The IPO of another state bank also did not bring the expected results. The largest bank in Russia, VTB, in May2007 placed 22.5% of its shares. About $ 8 billion were raised. More than 120,000 RF citizens (about 0.08% of the country's population),who bought securities for $ 1.5 billion, became VTB shareholders. The price of one share was 13.6 kopecks. The minimum purchase amount was set at

30,000 rubles. Already within a couple of months VTB's share price fell below the placement price, and continued to fall manifold. The government of the Russian Federation later had to announce a buy back of the bank's shares. A third of the "folk investors" never took advantage of this opportunity, presumably because of being elementary uninformed. Therefore, the total amount for which buy backwasmade, amounted to 11.4 billion rubles.

To date**,** the government of Kazakhstan plans at the end of 2018to place shares of 3 National companies –"Kazakhtelecom", "Kazatomprom", "Air Astana" and four other top facilities in 2019-2020 yrs.to IPO [8].

Particularattention is paid to privatizationof7 largest national companies, 3 of which are already preparing for possible IPO / SPO deals.

The final term of placement will be determined, taking into account the financial condition of companies, the macroeconomic situation and world prices for raw materials.

In relation to "KazMunaiGas", "Samruk-Energo", "Kazpost" and KTZh, work is underway to determine the key parameters of possible IPOs / SPOs, which are planned to be held in 2019-2020yrs. [8].

One of the goals of IPO is to develop the internal market of the country's share capital and ensure its liquidity, so the priority option is to place shares of national companies in the International Financial Center "Astana" (IFAC).

Theoption of simultaneous listing on foreign exchangesin the form of depositary receipts (GDR) is also considered which will provide additional liquidity, and also will increase the attractiveness of shares among foreign investors.

In general2017y.is characterized by good results in privatization. 546 organizations were withdrawn from the public sector.

Until the end of this year"Kazakhtelecom"shares will be put up for IPO.

The integratedplan of privatization covers 200 fund assets, nine of which are companies-candidates for IPO / SPO or strategic sale. As of July 1, 2018, 144 assets, or 75% of the 191 assets subject to privatization, left the fund group. In particular, 80 assets worth KZT 139.78 billion were sold; corresponding decisions were made on 64 assets for liquidation and reorganization [8].

The Fund's intention is to complete the privatization of the main bulk of its assets before the end of this year.

The Fund intends to complete the privatization of most of its assets, with the exception of transactions, which means that by the end of 2018, 59 assets are planned to be privatized in the group of the fund, of which fifteen were sold since the beginning of the year; for 22 assets the transactions are at the completion stage; 22 are in pre-sale preparation, of which twelve have already been reviewed by the state commission and will be submitted forbids in the near future, materials are prepared for consideration by the state commissionfor ten assets .

Such complex large assets, as "Kazmortransflot", "KBTU", "Vostokmashzavod" and other sareprepared for implementation in 2018.

Particular attention is paidto privatizationof six largest national companies-candidates for IPO / SPO. In the perimeter of these transactions, fourteen of their subsidiaries are planned to be implemented. Three of the six companies-candidatesare already preparing for possible IPO / SPO deals. In particular, the possibility of "Kazakhtelecom" shares placement is considered until the end of the third quarter of this year. In relation to "Kazatomprom", there is a focus on the placement of shares in the IVth quarter,"AirAstana"is also in the process of preparation [8].

IPO can solve the problem of lack of attractiveness of Kazakhstan financial tools. The task of developing folk IPO is set. This is common world practice for the sale of securities of large state-owned companies to the population. Public placement of shares opens significant opportunities for the development of the company.

However, IPO is not always a successful investment of money, as it was saidabove; there are cases of rapid drop of quotations and subsequent lawsuits, changes and composition of the company's management, as well as loss of control over the company.

With the acquisition of the status of a public company, the requirements for corporate governance are tightened, and managers often fail to cope with the burden of risen problems [9, 10]. Sometimes the reason for the failure of an IPO may be the wrong time to enter the market and lack of proper planning and

preparation of the process. In order to make a decision to conduct an IPO, it is necessary to seriously evaluate all the benefits and liabilities that the issuer may have in connection with the acquisition of the status of a "public" company.

Despite all the positive factors of IPO development in Kazakhstan, there are also many restrictive reasons:

1. Holding an IPO requires a fairly high cost, and, in this regard, it is carried out, as a rule, only by very large companies. In Kazakhstan, they can be counted on one hand, at that most of them are with state participation.

2. Oneof the most important requirements for conducting a successful IPO is full transparency of the company. There are practically no large private companies that could afford to conduct an IPO, which means they are not ready for full transparency. In practice, it is practically impossible to obtain information about shareholders and affiliated persons, financial indicators and other information about the companyfrom public sources.

3. Despite the availability of free capital for investment in the financial market, the real investment opportunities are rather limited. The main bulk of potential investors still distrust SM, preferring to invest free money in such areas as real estate or bank deposits. In this regard, the company planning to conduct an IPO on the domestic market is likely with liberal share of expectation to face the problem of finding a sufficient number of investors, interested in acquiring the issued shares.

4. Risks within the issue prospectus. The issue prospectus is an official document prepared by the issuing company and contains significant information about the issuer and its securities. One of the main sections is the so-called risks, which consists of a large number of sub-sections, such as environmental, technological, legislative, political and other risks. Information about potential risks in the prospectus is one of the key factors for decision-making. Their absence is the main obstacle in involvingKazakhstan companies into an IPO.

5. Kazakhstan has all the legislative and economic preconditions for successful conduct of an IPO. The main problem isto what extent they are observed. The main violators of the laws are the domestic companies that have a non-transparent structure of ownership and financial flows. This factor significantly prevents the attraction of investments through IPO.

In the past 10 years, there has been a significant increase in the number of international transactions in the capital markets, in particular IPO transactions. The state of the world markets ofcapital depends on economic growth in developing countries, and this influence will *continue* in the future. Great attention was attracted to the listings in Hong Kongofsuch well-known companies as Prada and L'occitane, which demonstrated the growth of activity of capital markets in the countries of the East.

Companies of different countries planning an IPO will have a wider choice than ever. Obviously, some time will pass before the developing countries form a large pool of local capital and create the necessary regulatory and legalframework.

Therefore, in the short- and medium-term perspective, companies will continue to seek access to capital in foreign markets, mainly in three international financial centers - New York, London and Hong Kong. However, it is expected that Asia as a source of capital will attract more and more issuers and in the course of time become a full-fledged competitor of developed marketsofcapital.

In addition, as capital markets and stock exchanges develop in countries with developingeconomies and as they approach modern requirements, Western companies will increasingly turn their eyes to these markets, hoping that they will be able to get access to the capital of these affluent countries and take advantages of the benefits that can be provided by listing on the exchanges of these countries.

For Kazakhstan, modernization is not just a priority direction of development; capable of solving a significant number of system problems of the economy, but also is the issue of the future of the country.

The most important condition for transformations' implementation in industry is the access of enterprises to capital, in the absence of which it is impossible to carry out large-scale investment programs for the renewal of fixed assets or expansion of production volumes. Being the channelfor transformation of savings into investments, the financial sector can effectively redistribute resources in favor of those companies that are able to introduce innovations most effectively.

Financing of large infrastructure projects, which have a system significance for the economy, although assumes the participation of the state, is implemented with the mobilizationof private investors' capital [11, 12].

The **s**cale of investments, necessary for Kazakhstaneconomy, requires attraction both of national andinternationalinvestors; therefore the task of the financial sector is not only the accumulation of domestic resources, but also the attraction of external resources, in particular through interaction with foreign banks and international financial organizations.

The IPO Institute is just one of such mechanisms that allow Kazakhstan companies to attract capital of both national and international investors.

At the same time, the publiccharacterallows the company later to return to equity capital markets by selling additional shares. Taking into account the fact that many of the conducted public offerings were aimed at attracting investment resources, the presence of a developed IPO institute has system significance for Kazakhstan economy.

Although the share of Kazakhstan capital in the total amount of funds, raised through initial public offerings, is not very significant, there are opportunities to use Kazakhstan infrastructure of Kazakhstan securities' market. The activity of the secondary market depends on how efficiently the primary market functions and what proportion of shares is located inside Kazakhstan.

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IPO НАРЫҒЫ: ЖИНАҚТАРДЫҢ ИНВЕСТИЦИЯҒАТҮРЛЕНДІРУ

Аннотация. IPO-ны енгізудің қарқындылығы, олардың тиімділігі мен жетістіктері, сондай-ақ IPO нарықтарындағы белсенділік ұлттық және ғаламдық экономикалардың жағдайын бағалауға, сондай-ақ инвесторлардың көңіл-күйін анықтауға және олардың мінез-құлқын болжауға мүмкіндік беретін факторлардың бірі болып табылады. IPO процесінің қатысушылары негізгі қоғамдық ұсыныстар нарығындағы жаһандық, өңірлік және ұлттық ерекшеліктер мен тенденциялардың көрінісін ескеруі керек. Жаһандық IPO нарығына макроэкономикалық, саяси және геосаяси факторларды қоса алғанда, түрлі факторлар ықпал етеді. IPO мәмілелерін жүзеге асырудың негізгі мақсаттарының бірі тартылған капиталды барынша арттыру болып табылады, ал орналастырудың негізгі қатысушылары мүдделер қақтығысына тап болады. IPO өткізу үшін техникалық дайындық сапалы орындалуы табысты, тиімді және тиімді орналастыруды қамтамасыз етпейді. Орналастыру тиімділігіне әсері IPO жүргізу үшін жақсы уақытты таңдау арқылы қамтамасыз етіледі, бұл көбінесе нарықтың циклдік сипатына байланысты. Қазіргі уақытта қазақстандық экономиканы әртараптандыру және тауардың жоғары тәуелділігімен туындаған теңгерімсіздікті теңестіру қажет. Экономикалық реформалар және жаңа жоғары технологиялық секторларды дамыту компанияларды инвестициялау қажеттілігін арттырады. Қазақстандық IPO нарығының дамуы экономикалық өсуді ынталандыру және ұлттық бағалы қағаздар нарығының өтімділік деңгейі мен капиталының қарқындылығын арттыру үшін стратегиялық маңызға ие. Қазақстанда IPO орналастырудың қазіргі тәжірибесі салыстырмалы түрде қысқа тарихы бар екеніне қарамастан, көптеген табысты орналастыру орындалғанын және дамыған елдермен салыстырмалы деңгейге жетпегеніне қарамастан, бастапқы қоғамдық ұсыныстар нарығы қалыптасқанын атап өтуге болады. Қазақстандық IPO-дың сыртқы нарығының қарқынды дамуы және орналастырудың қоғамдық резонансы қазақстандық компаниялардың капитал тартудың осы әдісіне көбірек назар аударып отырғандығына әкелді.

Түйін сөздер: бағалы қағаздар, капитал, қор нарығы, стратегия, даму, инвестиция, жұмылдыру.

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РЫНОК IPO: ТРАНСФОРМАЦИЯ СБЕРЕЖЕНИЙ В ИНВЕСТИЦИИ

Аннотация. Интенсивность реализации IPO, их эффективность и успешность, а также активность на рынках IPO являются одними из факторов, позволяющих оценивать состояние национальной и глобальной экономик, а также определять настроения инвесторов и прогнозировать их поведение. Участники процесса IPO должны учитывать проявление глобальных, региональных и национальных закономерностей и тенденций на рынке первичных публичных предложений. Мировой рынок IPO находится под влиянием разных факторов, в том числе макроэкономических, политических и геополитических. Одной из основополагающих целей реализации сделки IPO является максимизация привлекаемого капитала, при этом ключевые участ-

ники размещения сталкиваются с конфликтом интересов. Качественное выполнение технической подготовки к проведению IPO не даёт гарантии проведения успешного, эффективного и прибыльного размещения. Особое воздействие на результативность размещений оказывает выбор удачного времени для проведения IPO, которое во многом зависит от цикличности рынка. В настоящее время существует необходимость в диверсификации казахстанской экономики и выравнивании дисбаланса, вызванного высокой сырьевой зависимостью. Экономические реформы и развитие новых высокотехнологичных секторов увеличивают потребность компаний в инвестициях. Развитие казахстанского рынка IPO имеет стратегическое значение для стимулирования экономического роста и повышения уровня ликвидности и капиталоемкости национального рынка ценных бумаг. Несмотря на то, что в Казахстане современная практика размещения IPO имеет относительно недолгую историю, можно отметить, что уже проведён ряд успешных размещений, и рынок первичных публичных предложений сформировался, хотя ещё не достиг сравнимого с развитыми экономиками уровня. Динамичное развитие зарубежного рынка казахстанских IPO и публичный резонанс проведённых размещений привели к тому, что казахстанские компании обращают всё больше внимания на данный метод привлечения капитала.

Ключевые слова: ценные бумаги, капитал, фондовый рынок, стратегия, развитие, инвестиция, мобилизация.

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THE FUNCTION OF RITUAL IN TRADITIONAL SOCIETY

Abstract. The aim of the study is to analyze the functions of the ritual in the conditions of customary law.

On the basis of historical analysis and dialectical approach the main functions of traditional rituals, as well as the reasons for the refusal of society from the rituals in the distribution of written law are highlighted.

The study analyzes the specifics of the rite as an element of customary law. The rite is discussed in conjunction with custom, as an essential condition for the validity of custom.

It is concluded that customary law as an institution is represented by a set of elements, each of which performs certain functions and ensures the existence of the entire system. Features of act and conservation of customs became the reason of the quantitative and qualitative development of the rites. With the loss of regulatory values of customs, society begins to abandon the rites.

Key words: customary law, custom, rite functions, custom, traditional way of life.

Introduction. In the early stages of the formation of the society and the state, custom was the main regulator. With the development of the state custom begins to "give" leading positions to other sources of law. The process of development of other sources of law is gradual, so for a long time customs are preserved and actively used by society. A regulatory system based on custom and customary law is always ceremonial. The existence of rites is an integral part of customary law. As a rule, rites are given cultural and religious significance. Although the value and scope of use of rites in the early stages of historical development was much broader.

Methods. The role of rites in the regulation of social relations is analyzed with the use of historical and legal research methods.

Results. The main functions of the rites in the traditional society and their purpose in the regulation of social relations are highlighted.

The traditional regulatory system was characterized by a single direction, integrity, with each element performing its functions [7]. Customs and rituals were closely interrelated and acted as a whole. The custom contained a rule of conduct, and the rite visualized procedural issues and put this rule into effect. According to I. V. Sukhanov, the procedure could be more important than the norm itself. Without performance of ritual actions the norm was considered invalid [9, p. 122-123]. The rite was the mechanism or condition under which the existing rule was put into effect. Therefore, the layman takes the rite and custom as mono-norm. This symbiosis existed also during tribal or community relations [8, p.156-168]. In all periods, much attention was paid to the conduct of ceremonial actions. All peoples have had special training with the performance of ritual acts, use of special clothes and items, preparation of venue, ceremony, etc. In total, ritual actions gave meaning to the event or rule, which began to act after the rite.

Ceremonies developed, so there was layering features of different periods, for example, different religious beliefs [2]. Often the rituals were merged with the ritual action. The rite united religion, morality, culture, law and worldly wisdom. In the ritual it is possible to allocate the archaic heritage, the continuity of generations, of ethnic or religious affiliation, the climatic or geographical conditions of residence, the specificity of farming, etc.

For a long time, the rites were of great importance and performed several functions. The main functions of the rites include:

– socialization of the person (adaptation to the existing foundations, introduction to the existing traditions and values of the society);

– educative (formation of stereotypes of behavior of members of society, consolidation of rules of behavior and limits of permissible);

– informative (transfer of information to members of society and future generations);

– legal (procedural consolidation of legally significant facts, assessment of the behavior of the participants in the proceedings).

Unlike customs, rites do not have a regulatory function. The ritual regulates social relations, because it does not contain a rule of conduct, but is only a form of implementing rules. A particular rite may not have all the functions.

Rites can be divided into secret and public (or collective). Some people have mixed versions, i.e. the rite includes two components: a secret action performed alone (a preparatory stage associated with moral "purification" or psychological humility) and a public action, with the presence of a group of participants (the main stage that brought the norm into action and showed the collective the importance of the event). The functions of a particular rite depend on its orientation to the external environment (public rites) or to the inner world of a person (secret rites). The rites committed secretly, have the psychological and moral significance, for them, was typical of the educational impact on people. As a rule, such ceremonies were a synthesis of religious beliefs, superstitions and moral attitudes. Secret rites have many characteristics in common with rituals. Public ceremonies are aimed at the external environment, are more complex cultural, legal and socio-moral phenomenon. As a rule, secret ceremonies had an educational function. For characteristic all public functions ceremonies.

The function of socialization is most often characteristic of rites. Most of the ceremonies were held as conducting events, creating a special emotional background. Emotional attitude allowed to fix in memory the values significant for society [1]. Participation or contemplation of rites created a sense of belonging to social values and collective. The rites contributed to the formation of ideals, distribution of social roles, adaptation to the existing reality. The customary law system was inherently collectivist and was based on close family or community ties. Therefore, the rites formed a collective spirit and were aimed at the unity of all members of society.

Socialization of personality is closely related to the educational function [6]. Rites formed stereotypes of behavior, ideal images, moral foundations [4, p. 37]. For realization of educational function each people had a large number of mass ceremonies directed on formation of the personality (religious, national and seasonal holidays, wedding ceremonies), and also ceremonies motivating on certain actions (seeing off troops or blessing on fight, honoring of heroes, etc.). The presence of a system of rituals allowed to constantly influence the consciousness of the individual and form stereotypes in the minds of members of society.

Each rite can be considered as a source of information, which included the experience and knowledge accumulated by generations, religious beliefs, cultural values. The rites ensured the fixation and transmission of information in a compressed and concentrated form. Due to multiple repetition, emotional mood, "bright picture" of the ceremony, this knowledge is easily assimilated by all members of society.

The legal function is not typical for all public ceremonies. Public ceremonies could have a purely religious orientation. It was especially characteristic for public ceremonies in the family and household sphere, management and legal proceedings. The ceremony was a form of visual expression and consolidation of legally significant facts and served as the basis for the emergence of rights and obligations, change of status of the individual or the adoption of power decisions. The ceremony fixed significant events (birth, marriage, initiation into the knights...). In the absence of writing, the rites "fixed" the event in the public consciousness. Therefore, visualization was of great importance. Rituals in the family and domestic sphere provided for the solemnity, the presence of special attributes (clothes for the ceremony, decals for the participants, a special sequence of actions, etc.) and special training. For example, the wedding ceremony was held in public in a specially established solemn form. The rite was the basis for changing the status and the rights and duties of the spouses. Publicity rites was aimed at informing the tribesmen of legally significant actions. The brightness of the action made the event memorable. Low migration

of the population allowed, thus, to "fix" the most important information of the individual and society as a whole.

Ceremonies also acted as the basis for adoption of imperious decisions. At the stage of tribal relations was widely used by the Institute of ordalii. Various rites of oath (or oath) [6, 10], which were based on religious beliefs and superstitions. Such ceremonies were considered as the main evidence of guilt (or innocence) in the proceedings [3]. Failure to conduct such a ritual was proof of the guilt of a person [5, 11, 12].

The rites were so ingrained in people's minds that some were included in legal acts (for example, in the court of law of 1497 court fights were included to prove guilt). The widespread use of writing has changed the purpose of the rites, from the procedural form of consolidation of legally significant facts; they have become an attribute of the culture of society. The need to create a vivid memorable event has become outdated. Written fixation of legal facts has been developing for several centuries and exists in parallel with the rites. Despite the solemnity, emotionality and significance of the society begins to abandon the rites. The reasons for failure were:

– development of written law;

– improvement of the management system;

– migration and loss of ethnic and religious unity;

– expensive cost of rites (for example, the rite of marriage was not available to all, so the poor men got married late enough);

– large labor and time costs of preparation and conduct of the ceremony;

– increase in the intensity of life.

All these processes began to destroy the existing system. Ceremonies today are the cultural heritage of society, as the relation of rules of behavior and its visualization has been lost (i.e., custom and ritual). The displacement of customs by law destroyed this relationship, so the need for visualization disappeared. Ceremonies are used to create a solemn and emotional atmosphere. Some rites or their elements are preserved today in the public administration in the form of ceremonies (e.g. coronation, significant awards, military funerals, etc.) and in the family and household sphere (marriage, birth of a child, coming of age, etc.).).

At the turn of XX–XIX centuries began the revival of rituals. The artificial return of rites is of cultural significance and is a manifestation of national or religious affiliation. Such rites can have an educational effect, but do not have all the functions of the rite.

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ДӘСТҮРЛІ ҚОҒАМДАҒЫ АРНАЙЫ ФУНКЦИЯЛАР

Аннотация. Зерттеудің мақсаты – әдет-ғұрыпты құқық контексіндегі функцияларын талдау.

Тарихи талдауға және диалектикалық көзқарасқа негізделген дәстүрлі рәсімдердің негізгі функциялары, сондай-ақ жазбаша заңдарды таратқанда қоғамның рәсімдеуден бас тарту себептері анықталған.

Зерттеу әдет-ғұрыптық заңның элементі ретінде салт ерекшелігі талданады. Салт-дәстүр әдет-ғұрыптармен бірге қарастырылады.

Біртұтас заң ретінде институт ретінде көптеген элементтер бар, олардың әрқайсысы белгілі бір функцияларды орындайды және бүкіл жүйенің бар болуын қамтамасыз етеді. Іс-әрекеттердің ерекшеліктері мен кеденді сақтау салт-дәстүрлердің сандық және сапалы дамуына себеп болды. Кедендік реттеу құндылығын жоғалтқан кезде қоғам бұл рәсімдерден бас тартады.

Түйін сөздер: қарапайым заң, әдет-ғұрып, рәсім функциялары, дәстүрлі өмір-салт.

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ФУНЦИИ ОБРЯДА В ТРАДИЦИОННОМ ОБЩЕСТВЕ

Аннотация. Целью исследования является анализ функций обряда в условиях действия обычного права.

На основании исторического анализа и диалектического подхода выделены основные функции традиционных обрядов, а также причины отказа общества от обрядов при распространении письменного права.

В исследовании проводится анализ специфики обряда, как элемента обычного права. Обряд рассматривается во взаимосвязи с обычаем, как неотъемлемое условие действия обычая

Сделан вывод, о том, что обычное право как институт представлен совокупностью элементов, каждый из которых выполняет определенные функции и обеспечивает существование всей системы. Особенности действия и сохранения обычаев стали причиной количественного и качественного развития обрядов. С утратой регулятивного значения обычаев общество начинает отказываться от обрядов.

Ключевые слова: обычное право, обычай, функции обряда, традиционный уклад.

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KAZAKHSTANI FINANCIAL SECTOR PERFORMANCE FEATURES UNDER CURRENT CONDITIONS

Abstract. The financial sector is one of the most, if not the most significant economic sector in modern societies. In advanced countries, it employs more people than major manufacturing industries combined and accounts for a high percentage of the Gross Domestic Product. But the financial services sector also plays a large indirect role in national economies. The financial sector mobilizes savings and allocates credit across space and time, and enables firms and households to cope with uncertainties by hedging, pooling, sharing and pricing risks. This ultimately improves the quantity and quality of real investments and increases income per capita and raises standards of living. Today financial institutions are experiencing unprecedented change in a competitive global environment. The existing model of the financial system of Kazakhstan requires modernization in order to increase the possibilities to finance strategically important areas in the economy and society. In turn, the state should change its policy of active financing to the policy of active stimulation.

The purpose of writing this article and making research was to justify a model of an investment and financial system with a financial center, capable for the formation of a knowledge-based economy and the creation of an infrastructure of intellectual modernization of society. We highlighted the existing conceptual approaches to the financial support of a knowledge-based economy and social and intellectual modernization of society in the article. The analysis of the banking and insurance sectors of the economy, the insurance market and the stock market was carried out, and the positive aspects and advantages of creating a financial center - AIFC were highlighted. In addition, the work revealed the peculiarities of the participation of the financial system of Kazakhstan in the development of knowledge-intensive sectors of the economy and the intellectual renewal of society, and also highlighted the factors and conditions for restarting the financial system of Kazakhstan and determining the model of investment and financial system. The world experience in the use of tools and methods for financing high-tech industries has been studied, which made it possible to determine the general principles for financing a knowledge-intensive economy.

Keywords: Kazakhstan, Knowledge-based economy, Economy, Intellectual and Spiritual modernization, Knowledge-intensive industry, Financing.

Introduction. The financial system is the most important component of a market economy. Any system consists of elements that interact with each other in the process and, specifically, complement each other. Thus, the economy maintains the necessary proportions, which ensures the stability of the entire economy. The system consists of several subsystems. The financial system of Kazakhstan includes the banking system, the insurance system, the stock market, the pension system. The banking system should consist of sufficient number of banks of various types, non-banking institutions, etc. In practice, the banking system should be seamlessly integrated into economic processes. Under the conditions of economy digitalization, the close interaction of the elements of a system or subsystem becomes obvious and effective. Thus, the banking system, working closely with the fiscal system, can significantly improve the efficiency of the systems and their users.

Methods. The development of the financial system of a new quality provides for the harmonious development of all its segments based on the optimal rational and efficient use of the resource potential

and competitive advantages of all subsystems. The article examines all aspects of the development of the financial system from the position of the methodology of generalization and system analysis. In particular, through the synthesis and analysis of modern theories of sustainable development, the development of mechanisms for the implementation of government documents adopted in the course of reforming the economy of Kazakhstan and its financial system, the possibility of forming a model of financial support for a knowledge-based economy and the creation of an infrastructure of intellectual renewal of society are justified. The use of a system analysis in the article proved the factors and conditions that determine the model of the investment and financial system.

System analysis suggests:

– analysis of the banking, insurance sector of the economy, insurance market and stock,

– identification of positive aspects and advantages of creating a financial center - AIFC

– analysis of world experience in the use of tools and methods for financing knowledge-intensive industries.

Results and discussion.

1. The theoretical underpinning of the modern approach to ensure the development of the economy of Kazakhstan. The current goals of achieving results in a knowledge-based economy building are not possible without a social and intellectual renewal of society. This is due to the fact that the social sphere is a relationship, arising at the emergence of human life and man as a social creation. Therefore, this concept itself has several meanings. In philosophy and sociology, it is part of the existence of a society that consists of various social groups and their interconnections. In economics, it's total of organizational institutions (industries, organizations and enterprises) that provide growth in living standards. These include health care, education, social welfare, public services, culture, sports, etc.

The spiritual sphere of society is that sphere of human activity and society, which embraces the wealth of human feelings and achievements of the mind, combines both the assimilation of accumulated spiritual values and the creation of new ones. At the same time, the spiritual life of society encompasses various forms and levels of social consciousness: moral, scientific, aesthetic, religious consciousness. Accordingly, its elements are morality, science, art, religion and law. In the spiritual sphere of society, various cultural, artistic, and moral needs of people appear and become realized. At the same time, many ideas that are created in it are intended for practical use. For example, information technologies and computer programs are created due to mental work, that is, in the spiritual sphere, but they are consumed in the economy, political, social and other fields. From this perspective it seems to us that development of any country in high-tech, highly industrial economy requires the unity of the economic and socio-spiritual spheres of society.

The formation of new economy trends and reaching high rates of development are possible under the risk minimization: administrative, fiscal, customs, legal impact, etc. It is especially important to provide sources of financing: an effective financial system, inflow of foreign investments, a rise in the savings rate, a reduction in capital outflow, etc. For Kazakhstan, it is important to build a progressive financial system, as well as a stimulating investment climate, addressed to the development of advanced sectors of the economy. The modern understanding of the essence of the financial system is not limited to the forms of accumulation, distribution and redistribution of financial flows. The financial system has become a mechanism for transforming savings into investments.

2. Analysis of the financial sector of Kazakhstan as a source of financial resources to ensure industrialization and social modernization of the economy. The modern investment system in Kazakhstan is characterized by the active role of the state and the financial support of the economy is carried out by the state with the participation of the financial sector. That means that, the state is the main source for the implementation of important investment projects of an innovative, industrial nature. In terms of output, we mean not only material, but also spiritual output, as well as the production of services in the socio-cultural sphere. In order to find out why the financial sector represented by private banks, insurance companies and the stock market remain outside the requirements of modern economic development and the need to create new areas and new industries, the financial sector of Kazakhstan will be analyzed.

The National Bank of the Republic of Kazakhstan is the central bank of the state and in accordance with the Law of the Republic of Kazakhstan "On the National Bank of the Republic of Kazakhstan" represents the top level of the banking system and is the issuing, cash settlement, reserve center of the

country, implements monetary and exchange rate policies, implements control and rule-making function, and is also the lender of banks. The National Bank of the Republic of Kazakhstan is an economically and politically independent body, is accountable only to the President and the Parliament of the Republic of Kazakhstan and is not responsible for the obligations of the state.

Commercial banks carry out a wide range of banking operations: lending, deposit, foreign exchange and investment operations, non-cash payments, transfers and other banking operations. In fact, they are all universal and it gives them the opportunity to provide a wide range of services, to produce new products for the population and enterprises, as well as to manage risks. In the market of banking services, there are also specialized banks that perform only a few banking operations or serve one area of the economy. These include state-owned banks, Development Bank of Kazakhstan and House Construction Savings Bank of Kazakhstan.

Kazakhstani banking system is notable for its mobility. This is due to the state of its development, as well as to external factors that require constant action to ensure sustainability. Over the past decade, the number of banks has decreased significantly, due to bankruptcy, merger, or transition to another level of the system. So, at the beginning of 2018, 32 banks and 6 organizations were operating in the country, carrying out certain types of banking operations, including 2 mortgage organizations. But by the middle of the year, the situation had changed somewhat due to the merger of two large banks - Qazkom and the Halyk Bank of Kazakhstan. In addition, a new mortgage organization “Baspana” has appeared, created to implement the new program “7-20-25.”

To begin with, the modern banking system of Kazakhstan is at the stage of development. Above all, banks are trying to react quickly to changes in the global market of banking services related to digital technologies. But, we associate the developing state with its sensitivity to various fluctuations outside the national economy. Moreover, the banking system is characterized by moderate indicators. Thus, in 2017, the assets in the banking sector decreased by 5.5% and amounted to KZT 24.2 trillion. The loan portfolio of banks fell by more than 12.2% and amounted to KZT 13.6 trillion.

Table 1 – Dynamics of assets, liabilities and loan portfolio of second-tier banks

Years	Assets of second-tier banks		Liabilities of second-tier banks, as % of assets	Loan portfolio of second-tier banks	
	KZT trillion	As % of GDP		KZT trillion	as % of assets
2013	15,5	45,3	86,6	13,3	85,8
2014	18,2	45,9	87,1	14,2	78,1
2015	23,8	58,2	89,5	15,6	65,5
2016	25,6	55,4	88,7	15,5	60,5
2017	24,2	44,1	87,2	13,6	56,2
Note. Compiled by the authors according to the data of the National Bank of the Republic of Kazakhstan.					

In 2016, the growth in issuing new loans to large and medium-sized businesses averaged -4.5%, and in 2017 there is already a growth of 4.5%, thus the logarithmic trend of lending to large and medium business in the country was transformed from negative to positive. Interestingly, the opposite trend has developed with the process of issuing new loans to small businesses in the country. If in 2016, lending to SMEs grew by an average of 10.2% compared with the previous year, then in 2017 the growth in issuing loans for the development of small businesses went to a minus (-6.2%).

In 2017, long-term loans increased by 2.9% to KZT 10.8 trillion, short-term loans decreased by 14% to KZT 1.9 trillion. The share of long-term loans in the structure of the loan portfolio amounted to 85% (in December 2016 - 82.6%).

We will conduct a more detailed analysis of the industrial breakdown of the loan portfolio of STB RK (second tier banks of the Republic of Kazakhstan), table 2.

In the Industrial breakdown, the most significant amount of bank loans is accounted for trade, which is an average for 2014–2017 amounts to 29%, services - 24%, construction - 21%, manufacturing industry - 13%, agriculture - 7%, production, including mining, electricity and water supply - 6%.

Table 2 – Industrial breakdown of the loan portfolio of STB RK, as %

Economic sector	Years			
	2014	2015	2016	2017
Manufacturing industry	11	12	13	15
Trade	28	31	30	26
Construction	29	18	19	19
Services	22	25	24	25
Agriculture	5	7	8	8
Production	5	7	6	7
Note. Compiled by the authors according to the data of the National Bank of the Republic of Kazakhstan.				

The reasons for the low lending activity of the industry include the fact that enterprises in the industry are more in need of long-term financial resources for modernization and structural changes. Banks are focused on a more short-term and highly profitable non-manufacturing sector.

This leads to the conclusion that it is necessary to continue systemic measures aimed at stabilizing the banking sector of the country, identifying mechanisms for their activation in the innovative-industrial development of the country. It was mentioned in Address to the nation made by N. Nazarbayev. As part of the sixth task “Restarting” the financial sector, the President gave a task to the National Bank of Kazakhstan and Government to resolve the issue of providing long-term business lending at rates that take into account real profitability in sectors of the economy. It is necessary to strengthen the interaction of banks and enterprises of the real sector of the economy in order to strengthen banking participation in the economic development of the republic. For this purpose, it will be interesting to look over the experience in the countries, where measures are also being taken to increase the activity of the banking system in the process of crediting and financing knowledge-based industries. Thus, in many countries there is an extended network of specialized state credit institutions: Construction bank (Spain), Industrial Bank (Korea), Agrarian Bank (China). In the banking activities of some countries, there can be noticed a pronounced diversification across industries and regions. For example, in Germany, Deutsche Bank, which heads the country's leading financial and industrial group, specializes in certain sectors of the economy: electrical engineering, nuclear, mining and metallurgical industries, heavy engineering [1].

Unfortunately, the statistics of the National Bank do not reflect the focus of borrowed funds, and we cannot trace whether there are loans in the loan portfolio aimed at developing production through innovation and the use of new high-tech technologies.

But, on the other hand, the policy of providing the population with housing, initiated by the state and implemented through the banking sector, is quite actively promoted. This is reflected in lending to individuals. The share of loans to individuals increased from 31,8% to 35,7% [2]. In the structure of loans to individuals, consumer and mortgage loans occupy the largest share. The growth in mortgage lending is associated with the implementation of the Mortgage Housing Loan / Mortgage Refinancing Program. The National Bank allocated KZT 130 billion to refinance loans with the remaining debt from 2004 to 2009 for the implementation of the program. It should be noted that during the implementation of the program, meetings of public organizations, borrowers and banks were held to find ways to pay off problem loans. The problems of debt arising were related to the fact that most of them were issued in foreign currency, as well as to the fact that the socially vulnerable segments of the population turned out to be borrowers. The refinancing program was implemented with the assistance of the Kazakhstan Mortgage Company. By now, 23,600 applications have been refunded for a sum of more than KZT 146 billion. Since April 2018, it has been transferred to the Problem Loans Fund.

In the structure of banks' liabilities, the main share is represented by deposits of individuals and legal entities. The reduction in liabilities may also be associated with a decrease in the deposit base of banks due to decrease in the level of household savings and decrease of confidence in banks. So, only in 2017, deposits of residents decreased by 3.0%, reaching KZT 17.5 trillion, whereas in 2016 there was an increase of 13.6%. The reduction was due to a decrease in deposits of legal entities.

As you can see, in recent years there has been a tendency to reduce assets, liabilities and the loan portfolio of second-tier banks. The volume of assets of the banking system of Kazakhstan is rather modest in contrast to countries with developed banking systems. Thus, the share of total assets of the banking sector in the gross product of developed countries is 100-300%, and developing - about 50-120%. It is clear that such indicators somewhat narrow the possibilities of crediting the economy in the required volume.

The rather difficult situation in the banking system of Kazakhstan in recent years highlights the priorities of regulation by the National Bank in the direction of ensuring financial stability and improving the banking sector. Banks have practically ceased to fulfill their main function of redistributing money by lending to the economy. The deterioration of the situation in banks was due to problems that had been accumulating over the years and could not be solved. The high level of problem loans, which in 2013 reached 33% of the total loan portfolio of the banking system, required comprehensive solutions [3]. In this regard, the regulator has set the task of improving the loan portfolio of banks through the implementation of a phased plan. Thus, in 2017, a diagnosis of the real state of credit portfolios was carried out, which revealed non-performing loans through the assessment of regulatory provisions for the loan portfolio. Further, the National Bank has developed a program to improve the financial sustainability of the banking sector [4]. According to the Program, systemic banks with a significant social component are subject to recovery. At the same time, support measures will be applicable only for banks, whose shareholders will also take steps to recapitalize and guarantee the repayment of state funds.

Thus, KZT 653 billion was allocated from the state to support ATF bank, the Eurasian Bank, Bank Center Credit and bank RBK. At the same time, banks have liabilities for five years to pay half of this amount in cash to their banks in order to write off a large amount of non-performing loans. This is about KZT 1.2 trillion. These are loans that have been issued to banks over the past 10 years, they are bad, unserviceable. And they do not allow these banks to normally lend the economy. Banks must return them within 15 years, and during this time begin to actively lend to the economy. As of April 1, 2018, banks have already issued loans, taking into account the restructuring of borrowers in the amount of KZT 865 billion. Including small and medium businesses – KZT 315 billion, corporate business – KZT 329 billion, physical persons – KZT 222 billion. The sum of KZT 2 trillion was previously also sent to the country's banking sector. For this amount, assets of Kazkommertsbank were repurchased by the Problem Loan Fund to carry out further work on improving the portfolio.

Thus, the own capital of banks was increased and the stability of the banking sector was ensured. According to the regulator, such measures will expand the ability of banks to lend to the economy in the future. In the meantime, banks are trying to adhere to a rather conservative credit policy, which is reflected in Table 2. In addition, restraining the process of lending to the economy is connected with the tightening of the requirements of the banks themselves to potential borrowers on the quality of collateral. However, the desire to attract a solvent borrower in a highly competitive environment contributed to lower interest rates on loans. In the sectoral breakdown, the most significant amount of bank loans to the economy accounted for trade - 15.9%, industry - 15.6%, construction - 7.2%, agriculture - 5.5%. Lending to small sized businesses in 2017 decreased by 7.1% to KZT 2.8 trillion, which is 21.9% of the total loans to the economy.

The accumulative pension system has recently been centralized by the state, and corporate governance is now underway. Investment management is carried out by the National Bank of the Republic of Kazakhstan. Currently, the number of individual retirement accounts is 10.22 million units, of which 95% are accounts for obligatory pension contributions, 4.5% for obligatory professional pension contributions and 0.5% for voluntary pension contributions. The amount of pension savings get to the sum of KZT 8.57 trillion. Pension payments amounted to KZT 110.93 billion.

In order to ensure a stable level of profitability, the National Bank follows the strategy of a diversified investment portfolio. Therefore, 47.48% of pension assets are invested in Kazakhstan government securities, 18.49% in financial instruments of second-tier banks (bonds, shares and depositary receipts of issuers, deposits), 11.25% in government securities of foreign countries, 15% - in quasi-public sector bonds. 67. 62% of investments were invested in KZT assets, 31.93% - in assets in US dollars and 0.35% - in Russian rubles.

The return on pension assets since the beginning of 2018 was 5.3%, while inflation was 2.7%. In annual terms, the profitability of pension assets was 8.9% with inflation of 5.9%. It should be noted that investment income may vary from period to period. The amount of net investment income accrued on individual retirement accounts of investors since the beginning of 2018 amounted to KZT 423.07 billion, which is 42% more than in the same period last year [5]

Thus, it turns out that about 50% of the assets of the pension fund, which are in the government securities, are actively directed towards the release of state programs through distribution through the state budget. Over the past 5 years, budget expenditures have increased by 2 times, that is, by KZT 6.2 trillion. In the insurance sector of Kazakhstan there are 32 insurance organizations, 16 insurance brokers and 59 actuaries. Key performance indicators of insurance organizations in the Republic of Kazakhstan for the period from 2013 to 2017 are reflected in table 3.

Table 3 – The main indicators of insurance organizations performance in the Republic of Kazakhstan for 2013-2017, KZT billion

The index	years				
	2013	2014	2015	2016	2017
Total assets	523,4	612,9	825,7	856,5	926,7
Total net worth	254,6	286,9	406,4	402,3	413,0
Amount of liabilities Insurance reserves Total insurance premiums The total amount of insurance payments	268,8	326,0	419,3	454,2	513,7
Amount of liabilities Insurance reserves Total insurance premiums The total amount of insurance payments	240,3	298,4	376,9	412,3	460,5
Amount of liabilities Insurance reserves Total insurance premiums The total amount of insurance payments	279,0	266,0	288,0	357,0	370,2
Amount of liabilities Insurance reserves Total insurance premiums The total amount of insurance payments	52,0	62,0	67,0	83,0	73,0
Note. Compiled by the authors according to the data of the National Bank of the Republic of Kazakhstan.					

Over the past five years, there has been a quantitative growth in the main indicators of the development of insurance organizations in the country. Thus, the total volume of assets of insurance organizations in 2017 increased by 1.7 times compared with 2013 and amounted to KZT 926.7 billion. The total equity capital for 2017 increased by 7.2% than on the same date in 2016 and amounted to KZT 413.0 billion. In 2013, the amount of liabilities of insurance organizations amounted to KZT 268.8 billion, and in 2017 this figure increased by almost 2 times and amounted to KZT 513.7 billion. The amount of insurance reserves amounted to KZT 240.3 billion or 89.4% of the total liabilities, which is 37.9% more than the same indicator as of January 1, 2013. In 2017, KZT 460.5 billion amounted to reserve indicators of insurance organizations, which is about 90.0% of the total liabilities. In comparison with 2016, this is an increase of 11.6%. If we analyze the data on the total amount of insurance premiums, then from 2013 this parameter also increased from 279.0 billion to KZT 370.2 billion, but in 2014 due to the adoption of a moratorium on concluding pension annuity contracts (Resolution of the Board of the National Bank February 2014 No. 32 “On approval of the Rules for transferring pension savings to an insurance organization under a pension annuity contract”), which was valid from July 1, 2013 to May 5, 2014, the amount of insurance premiums decreased. As we remember, in that period a new stage began in reforming the existing pension system of the country, initiated by the President of the Republic of Kazakhstan N. Nazarbayev. The dynamics of the indicator “total insurance payments” also shows an increase from KZT 52.0 billion in 2013 to KZT 73.0 billion in 2017.

The structure of the investment portfolio of insurance companies in Kazakhstan is not highly differentiated. Up to 90% of the insurance fund is placed in classic financial instruments - deposits and securities. Such tool as the issuance of loans, which is actively used by insurance companies of European countries, in Kazakhstan can only be used by insurance companies licensed in the life insurance class. Its share does not exceed 0.1% of the total investment portfolio. Over the past 3 years, insurance companies have not invested in other instruments, including refined precious metals and metal deposits.

According to expert estimates, in 2017 insurance organizations will invest in the economy of Kazakhstan about KZT 39 billion, and in general the investment portfolio will total about KZT 705 billion [6]. Unfortunately, we do not have data on the structure of the securities portfolio of insurance companies. If we take into account that this securities portfolio consists of securities listed exclusively on the Kazakhstan Stock Exchange, then, taking into account a rough estimate, the share of investments of insurance organizations in the economy will be about 22% of the total securities market traded at KASE.

As of January 1, 2018, the securities market of the Republic of Kazakhstan was represented by 45 brokers and (or) dealers, 10 custodian banks, 21 investment portfolio managers, 2 transfer agents. The following 3 infrastructure organizations also operate on the securities market: Kazakhstan Stock Exchange JSC, which carries out securities trading and other financial instruments trading activities and deals for clearing financial instruments on the securities market, Central Securities Depository Papers JSC and United Registrar of Securities JSC, carrying out exceptional professional activities in the securities market without a license [7].

Let us pay attention to the corporate bond market, as they are the main type of securities with which the real sector enterprises could raise money for the development of their own production, table 4.

Table 4 – Indicators of the development of stock markets and corporate bonds of Kazakhstan

Index	Years				
	2013	2014	2015	2016	2017
Stock market					
Emitters	81	79	90	102	110
Instruments	103	100	113	120	127
New listings	8	10	20	18	11
Corporate bond market					
Emitters	72	74	72	65	66
Instruments	246	275	278	267	262
New listings	40	55	54	32	37

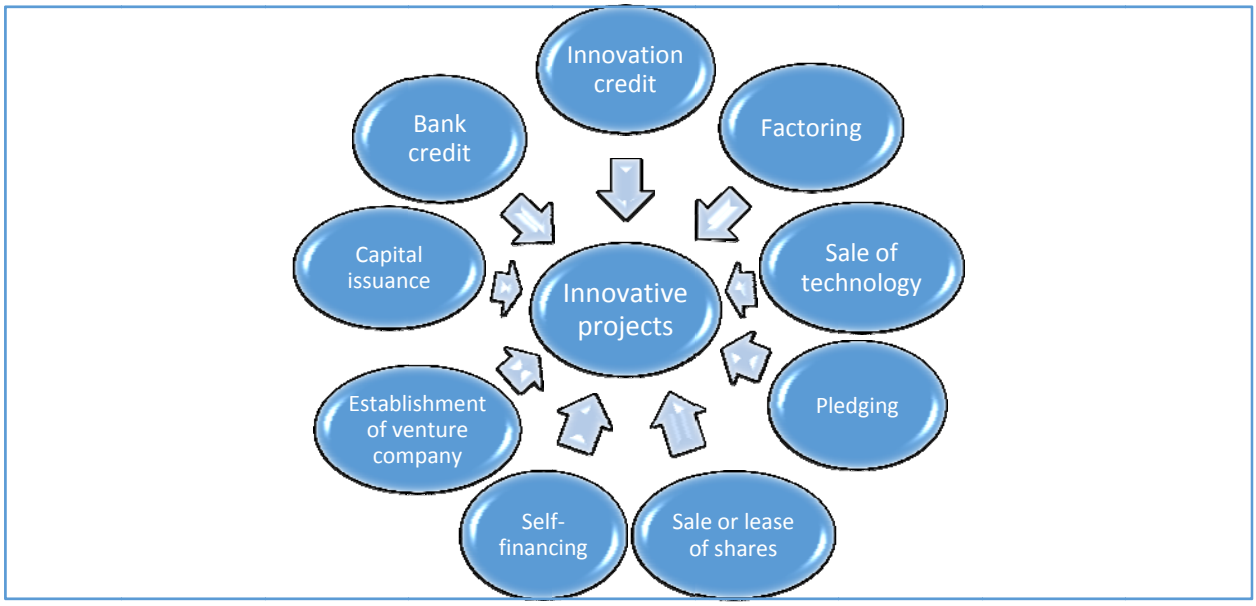
Note. Compiled by the authors according to the data of the KASE [https://kase.kz/ru/].

Starting from 2014, the number of issuers on the exchange-based corporate bond market has decreased from 74 to 66. There has been a decline in instruments on the market from 275 in 2014 to 262 in 2017, the number of new listings on the market has also decreased from 55 to 37, during the reporting period. For the first half of 2018 on the KASE stock exchange trading volume amounted to KZT 74.5 trillion. This is 24.5%, or KZT 24.1 trillion, less than in the same period last year. At the same time, the activity fell asleep in the securities market, the volume of trading in which fell by 64.2%. This is primarily due to the contraction of the volume of trading in government securities by more than 77.2% or KZT 792.6 billion. In our opinion, this is due to the growing interest in the money market. The main factor in reducing investors' attention was the low level of business interest in funding and attracting money in the securities market. Entrepreneurship and business, as before, are trying to survive at their own expense and, as a last resort, at the expense of bank loans.

In general, according to the National Bank of Kazakhstan, the capitalization of the market for corporate securities listed on the official list of Kazakhstan Stock Exchange JSC increased by 15.4% in 2017 and amounted to KZT 26.0 trillion [NB RK Report 2017], while in 2013, this figure was KZT 9.9 trillion, an increase of 2.6 times. The ratio of the capitalization rate of Kazakhstan companies of the organized market to the gross domestic product remains for the analyzed period at the level of indicators

of developing markets, that is, about 25%. The capitalization to GDP by year was as follows: 2013 - 15%, 2014 - 15%, 2015 - 26%, 2016 - 25%, 2017 - 27%. In international comparison, these are quite low indicators, for example, in the UK - 107%, in the USA - 103%, in Russia - 62%, in Germany - 33%.

3. Methods of financing knowledge based projects and objects of social and intellectual sphere. World experience shows that the system of financing innovative projects includes the following sources and methods of financing.



Note. Compiled by the authors.

Figure 2 – Sources and forms of financing innovative projects

In the United States and Southeast Asia, the dominant role in financing innovative programs is given to loans from banks and other financial structures, issuing securities and domestic sources (retained earnings and depreciation deductions). It means that due to extra budgetary sources of investment financing the main part of investments in the national economy is provided [8].

For the development of venture financing in Kazakhstan, the government represented by development institutions, various innovation funds provide financial support for innovative projects using such financial instruments as innovative grants, project and venture financing and a grant for targeted technology programs, table 5.

As can be seen from the financial instruments of the quasi-state support of the development of knowledge-intensive high-tech sectors of the economy of Kazakhstan that we systematized, today, the width of the portfolio of financing instruments of NATD JSC, in particular, is 2 and the depth is 3 positions.

As you can see, many methods that are actively used in developed countries do not find application in Kazakhstan, which is due to the following reasons:

- Insufficient domestic sources of long-term financing. The lending market in Kazakhstan is rather narrow and focused mainly on mortgage and consumer lending products. In addition, market loans do not have the financial resources to finance science-intensive and, most often capital-intensive projects with a long maturity. Banks lack experience and knowledge of risk assessment and decision-making on innovative and knowledge-intensive projects;

- the need to improve the legal framework in the area of risk distribution, the provision of guarantees and other forms of financing high-tech projects. Also important is the direction of improving legislation, such as ensuring legislative stability;

- the need for human resources capable of the most qualified assessment of the costs of high-tech projects and to build financial models with regard to risks and forecasts.

Table 5 – Financial instruments to support innovative projects of JSC "NATD"

Financial instrument	Aim	Terms of financing
Innovative grants for technological development of industries	The solution of technological problems in the industry through the acquisition, adaptation and implementation of foreign technologies in enterprises whose products and services have a significant impact on the technological development of existing industries or create the basis for the emergence of new high-tech industries.	70% for the purchase of a license agreement; 50% for the purchase of equipment; 85% of the cost of improving technological competence, but not more than KZT 500 million.
Innovative grants for technological development of existing enterprises	The solution of technological problems of enterprises through the transfer of technology to the priority areas.	70% for the purchase of a license agreement, 50% for the purchase of equipment, but not more than KZT 400 million.
Innovative grants for technology commercialization	Introduction (use) of the results of scientific and (or) technological activities in their own production, intended to obtain a positive economic effect.	50% of the applicant's own funds / 50% of the grant funds, but not more than KZT 200 million
Business incubation	Development of the Business incubation ecosystem, support of technological entrepreneurship.	Business incubators receive co-financing of expenses in the amount of up to 50%, but not more than KZT 35,000,000 within 12 months from the date of execution of the contract.
Project and Venture Financing	Investments to the ownership capital of developing enterprises that are engaged (or are going to engage in) the development of high-tech projects.	This funding has been suspended.
Note. Compiled by the authors according to the data of the National Agency of Technological Development JSC.		

According to the available statistics, within the framework of grant financing, the Agency concluded in the period from 2011 to 2016, 328 contracts totaling KZT 12,195 million, including: in 2014 - 38 projects worth KZT 641.1 million; in 2015 - 51 projects in the amount of KZT 1 623.5 million; in 2016 - 66 projects in the amount of KZT 1 995.7 million [9].

In general, the volume of innovation grants depends on the size of funds allocated from the republican budget, as well as the terms and conditions defined in the Rules for the provision of innovative grants. The main task of the Agency is the reception of applications, their consideration and examination, and at the end this issue of grants.

Project and venture financing is currently suspended due to deteriorating economic conditions and their inefficiency. Currently, there is an anti-crisis policy, the return of investments. As of July 1, 2017, KZT 4.185 billion is the sum of the Agency's investment portfolio, focused on 3 domestic and 3 foreign venture funds and 5 project companies.

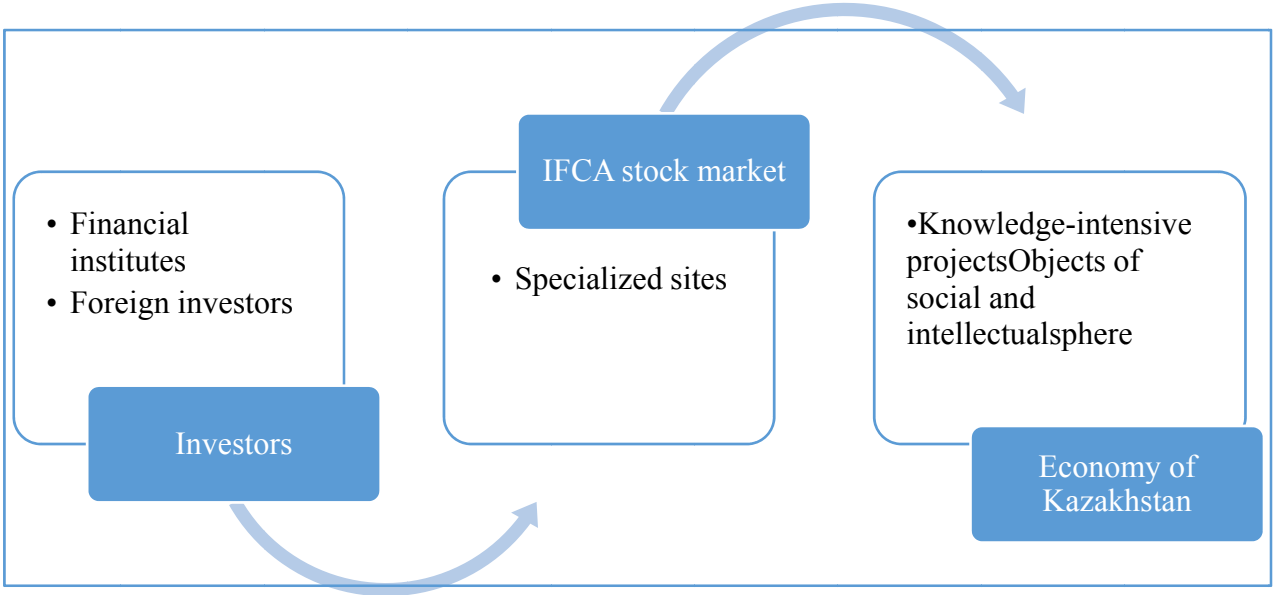
For the development of the innovation market infrastructure, including business incubators, the role of the Agency is only to develop proposals for the creation of conditions (benefits, subsidies, joint programs, special grants).

Thus, the investment strategy of quasi-state institutions for the support and development of high-tech and knowledge-intensive sectors of the economy of Kazakhstan in the current conditions cannot be named active, and most likely, as the strategy of the banking sector is anti-crisis. The investment portfolio of JSC "NATD" was subjected to measures of a "health-improving" nature and, until 2020, anti-crisis measures were taken to exit the projects and return on investments. Developed a new development strategy of JSC "National Agency of Technological Development" for 2014-2023 [9].

The modern investment system in Kazakhstan is characterized by the active role of the state and the financial support of the economy is carried out by the state with the participation of the financial sector. That means that the state is the main source for the implementation of important investment projects of an innovative, industrial, production nature. In terms of production, we mean not only material, but also intellectual production, as well as the production of services in the socio-cultural sphere. It is also necessary to support social projects and invest in the infrastructure of intellectual renewal of society. The loss of moral guidelines can lead to intellectual crisis. However, an analysis of the approaches of the banking and

quasi-state mechanisms for financing the knowledge-intensive economy and the intellectual development of society shows that “band aid approach” is occurring. The state allocates numerous funds from the budget, the National Fund and the UAPF funds to support the banking sector, thereby increasing the dependency attitudes among banks and businesses. At the stage of transition to a new technological order, rational use of financial resources, effective financial support of important tasks demanded by special programs and business plans of the Strategy - 2025 acquire special significance.

The socio-spiritual component becomes a factor that determines not only the full value of human existence, but also reveals the potential of its capabilities. The level of social and spiritual condition of the people determines the measure of the socio-economic, cultural and industrial development of the country's society. From the point of view of sustainable and stable growth, the social and spiritual industry is urged to ensure accessibility, timeliness, quality and continuity of social, spiritual and cultural services, the welfare of the population is one of the main priorities of the Republic. The peculiarity of the modern stage of solving the tasks set by the Government on the formation of a knowledge-based economy and the spiritual renewal of society is that these areas are closely interrelated. We conclude that the relationship is also present in the methods of financing these areas. As well as the social and spiritual sphere, the sphere of innovation and knowledge-intensive industries is financed mostly by the state. It is clear that the methods and mechanisms of financing can be quite comparable and close, with the exception of certain points. Taking into account the current legislation and the level of development of economic structures, in our opinion, the model of the investment and financial system with a hub is quite applicable. The implementation of such projects can be supported by the stock market of the International Financial Center Astana (figure 2).



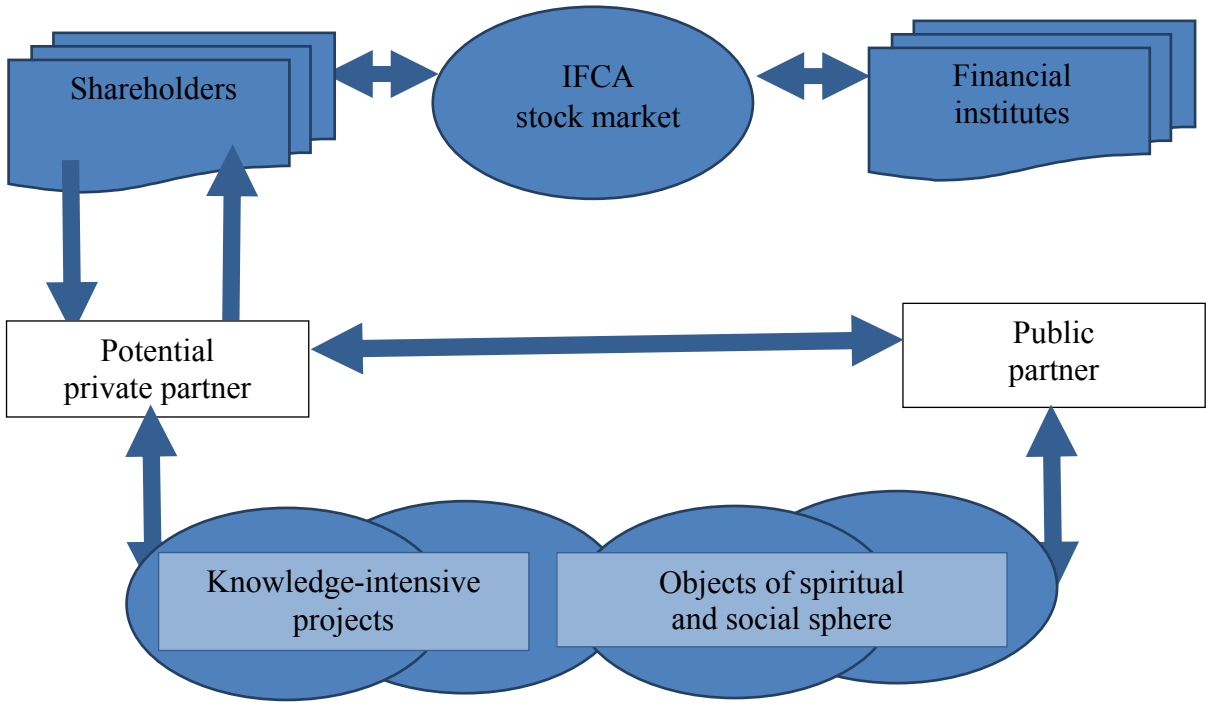
Note. Compiled by the authors.

Figure 2 – The scheme of financial support for the growth of knowledge-intensive industries in the economy of Kazakhstan and the intellectual (spiritual) modernization of society

It seems to us that one of the most possible mechanisms for investing in industries with a high content of scientific components and social and spiritual renewal of society can be the concept of public-private partnership.

We propose a scheme for financing high-tech and socially significant facilities, based on the concept of public-private partnership (further - P3) (figure 3).

We also believe that financial institutions of the republic can be involved in this concept, which will revitalize the entire financial market not only of the country, but also of the region, including the countries of Central and Southeast Asia, Africa and Europe. The relevance of this concept in the framework of



Note. Compiled by the authors.

Figure 3 – The scheme of participation of financial institutions in the financing of knowledge-intensive projects and objects of the social and spiritual sphere through the stock market on the principles of public-private partnership

achieving the goals set is becoming increasingly important for Kazakhstan. In the future, the concept of PPP will be the main approach for the period of transition from public to private financing of knowledge-intensive industries and the production of spiritual goods. In Kazakhstan, despite institutional achievements in the field of PPP, there is still a need to further improve the mechanism for attracting financial institutions to implement similar projects in strategically important sectors of the country's economy, including the social sphere (education, health, tourism, etc.). The PPP mechanism, in our opinion, is promising from the point of view of the development of the infrastructure of the spiritual renewal of Kazakhstan's society: sports and tourism, including medical, health care and education as an alternative to budget spending. Through PPP through fiduciary and privatization mechanisms, it is necessary to activate private sector resources. The Head of State in the framework of the annual Message to the people of Kazakhstan dated January 31, 2017 "The Third Modernization of Kazakhstan: Global Competitiveness" noted the need to update the infrastructure "using all possible types and forms of PPP: state property trust management, service contracts and others. At the same time, all approval procedures should be simplified and accelerated as much as possible, especially for small projects. PPP should be the main mechanism for the development of infrastructure, including social ".

One of the advantages of implementing project on public-private partnership is the use of new technologies and innovations based on the experience of the private sector. The gain is in efficiency, as private operators enter into a life cycle contract in order to obtain the maximum possible profit, which is achieved mainly by improving the efficiency of investment and operating activities. If a PPP project is structured in such a way as to allow a private investor to pursue these related objectives, then efficiency improvements in infrastructure services can be realized.

Additional increase in efficiency is achieved due to better coordination between the two main functions performed during the PPP project: modernization of the facility and operation (maintenance) of equipment. If the project is implemented only from a state-owned source, there is a risk of lack of interest of contractors in the supply of quality equipment, due to the lack of further operation and completion of obligations after the commissioning of the object. The interest of the private partner, who will be responsible for the opening and operation of the facility in the long term, in upgrading the facility will make it

possible to economically use the funds while optimizing costs when purchasing the necessary equipment and property.

Successful implementation of a socially significant project by attracting private financing will send a powerful signal to private investors that the state is "open" for their entry and successful activity in the domestic market of the country. This approach would improve the vision of Kazakhstani economy and help finance future projects.

In addition, project financing from the state budget is a significant burden in the short term and may, potentially, mean that other projects will not be implemented. This may carry real value for the state.

While PPPs allow the state to transfer operational functions to a more efficient private sector, at the same time focusing on key responsibilities, such as sectoral regulation and supervision. If it is properly structured, such an approach should result in lower government spending, and provide consumers with cheaper, but better-quality, services. In addition, this approach simplifies the administrative process for the state. The load on the republican budget is reduced, since state expenditures are "stretched" for the entire duration of a life cycle contract.

The implementation of the project under the PPP scheme allows the government to distribute the risk of not completing the Project on time in a more efficient way - a unilateral distribution of risk. All risks of technical equipment, operation and maintenance fall on the private partner and are managed by him. Unilateral liability eliminates the need for interaction between different performers, often leading to errors and mutual claims in case of defects. With one-sided responsibility, management of such interaction is carried out by a private partner who can better perform an economic function than the public sector. Moreover, the Private Partner will want to start operating earlier in order to start earning income from a public source and raise the rate of profit, and, accordingly, can complete construction earlier than the established deadlines [10].

Financing from the state budget involves the material and technical equipment of the object through the supply and installation of funds from the republican budget. Funds from the budget are distributed during the period of technical equipment, which will be a fairly large burden on the budget, taking into account the cost of the high-tech project. Upon completion of the equipment installation period, the period of operation and maintenance of the PPP facility begins. There are risks of delayed financing of the modernization of the facility from the budget, which would entail risks of not completing the modernization on time, and also lead to an increase in the value of the facility; the lack of adequate funding for the maintenance will affect the functional state and entail rapid depreciation of equipment, restrictions on activities.

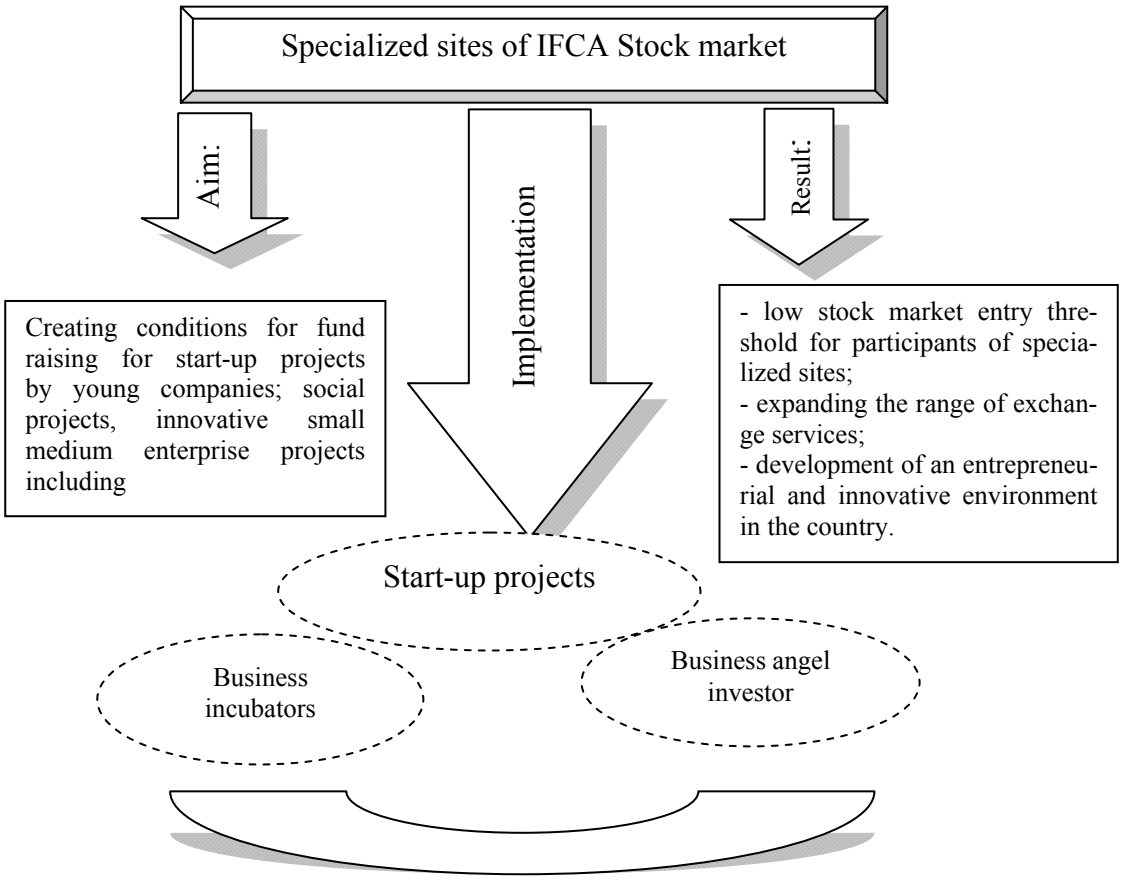
The implementation of such a scheme becomes real due to the fact that over the years, in our previous studies, we talked about the problem of access of business entities to (exchange) market-financing instruments. It should be noted that in 2017 in this regard, the regulator was taken measures aimed at structural changes in the Kazakhstan Stock Exchange, where there were three exchange platforms: the main, alternative and mixed.

The creation of an alternative platform was aimed at attracting small and medium-sized enterprises interested in investing in the stock market. There are minimum requirements for participants, lower tariffs compared to the main platform, there is no supervision over the manipulation of transactions, that is, conditions created to popularize the attraction and allocation of capital in the stock market. In our opinion, such a listing transformation will contribute to the strategy of attracting new issuers and investors to build a knowledge-based economy. Also, the initiative to create a new platform for startup projects is worthy of approval. The main essence of a segmented stock exchange model is outlined in figure 4.

Innovative companies and projects in the field of E-commerce, Fin Tech, Bio Tech and others will be allowed to enter new sites. At the same time, new conditions for the development of the national and world economies required the development of a new joint action plan between the Government and the National Bank for the development of the national stock market for 2018-2021. The plan is aimed at creating an efficient and competitive securities market, contributing to increased business activity, further institutional development of the financial sector, financing priority sectors of the economy, and overall long-term economic growth.

To achieve this goal, it is important to solve problems in the following areas:

- improving the infrastructure and regulation of the stock market;



Note. Compiled by the authors according to the data of the National Bank of the Republic of Kazakhstan.

Figure 4 – Segmented platform of the IFCA stock market

- stimulation of supply and demand in the stock market; expansion of international cooperation;
- improving the regulatory system for financial institutions;
- creation of a system for encouraging access to specialized platforms of the stock exchange;
- increase of investment activity in the country;
- creation of an attractive investment climate, etc.

In general, government support for innovation activity is not limited to the allocation, redistribution and control of financial investments in high-tech technologies. The role of the state also lies in the need to create the "right atmosphere", that is, conditions to stimulate innovation, new technologies, the emergence of new knowledge and constructive in terms of its high-quality and effective, socially oriented implementation. It is also necessary to increase the degree of confidence of the corporate sector, the scientific community, innovators, and investors in the policies and institutions of the financial system implemented in the country.

Conclusion. Thus, an analysis of the mechanisms for financing a knowledge-based economy shows that science and the social sphere in Kazakhstan are funded almost on a residual basis. At the same time, multi-billion funds, mainly from the state treasury and its reserves, went to the second-tier banks without previously agreed public conditions and obligations for their intended use. As for the structure of the loan portfolio of banks, the objects of lending related to the strategic objectives of the state are financed by the state itself. This applies to both housing mortgage financing, and various loans for the agro-industrial complex and SMEs. There is no objective information of the National Bank (regulator of the banking system of Kazakhstan) on the targeted use of allocated funds in support of the STB of the RK.

In Kazakhstan, the state is the main implementer of its strategies and programs in the field of science, culture, art and social spheres. Financial support for high-tech and knowledge-intensive projects is provided by the state in the form of direct and indirect support methods.

At the same time, the phase of transition to a higher level of technological structure requires a rational approach to the use of financial resources and the effectiveness of financial funding of state programs within the framework of the Strategy - 2025 will depend on it. economy. In this regard, great importance should be given to the development of promising methods of investing in a knowledge-based economy: venture financing, Islamic finance, leasing schemes and other methods. The practice of implementing various types of projects in the field of technological equipment and material and technical strengthening, the construction of infrastructure facilities of a knowledge-intensive economy shows the effectiveness of mixed investment methods.

The existing model of the financial system of Kazakhstan requires modernization in order to increase the possibilities to finance strategically important areas in the economy and society. In turn, the state should change its policy of active financing to the policy of active stimulation.

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ҚАЗАҚСТАННЫҢ ҚАРЖЫ СЕКТОРЫНЫҢ ЗАМАНАУИ ШАРТТАРДАҒЫ ЕРЕКШЕЛІКТЕРІ

Аннотация. Қазіргі кезде қоғамдағы ең маңызды секторлардың бірі қаржы секторы болып табылады. Дамыған мемлекеттерде осы салада өңдеу өнеркәсібінде еңбек ететін адамдардың санынан көп адамдар жұмыспен қамтылған, және осы сала жалпы ішкі өнім үлесінде жоғарғы пайызға ие. оған қоса, қаржы қызметтері секторы ұлттық экономикаларда үлкен жанама рөл ойнайды. Қаржы секторы жинақтарды мобилді етеді, несиелерді кеңістікте және уақыт аралықтарына бөлістіреді, сондай ақ фирмалар мен үй шаруашылықтарына тәуекелдерін хеджирлеу, бірыңғайластыру, бөлістіру және бағалау арқылы белгісіздікпен күресуге мүмкіндік береді. Нәтижесінде шынайы инвестициялардың сапасы мен саны жақсарады, жан басына шаққандағы табыс көлемін ұлғайтады және өмір сүру деңгейін жоғарылатады. Бүгін қаржылық институттар жаһандық бәсекелестік ортада бұрын болмаған өзгерістерге тап болуда. Қазақстандағы қолданыстағы қаржы жүйесінің үлгісі жаңғыртуды қажет етеді, бұл экономика мен қоғамның стратегиялық маңызы бар аумақтарын қаржыландыруға мүмкіндіктерді кеңейту үшін керек. Өз кезегінде, мемлекет белсенді қаржаландыру саясатын белсенді ынталандыру саясатына өзгертуі тиіс.

Мақаланың мақсаты ғылыми сыйымды экономиканы қалыптастыруға және қоғамның рухани жаңғыруын қамтамасыз ететін орталығы бар инвестициялық-қаржы жүйесінің үлгісін негіздеу болып табылады. Мақалада ғылыми сыйымды экономиканы және қоғамның әлеуметтік-рухани жаңғыруын қаржылық қамтамасыз етудің қолданыстағы тұжырымдамалық тәсілдері бөліп көрсетілген. Экономиканың банк, сақтандыру секторлары, сақтандыру және қор нарықтары талданып, Астана халықаралық қаржы орталығын құрудың артықшылықтары мен оңтайлы жақтары көрсетілген. Оған қоса, қоғамның экономикалық және рухани жаңаруын дамытуға Қазақстанның қаржы жүйесінің қатысу ерекшеліктері анықталған , сондай-ақ қаржы жүйесін қайта құрудың және инвестициялық-инвестициялық жүйе үлгісін анықтайтын факторлар мен шарттар белгіленген. Экономиканың ғылыми сыйымды салаларын қаржыландыру құралдары мен әдістерін пайдаланудағы әлемдік тәжірибе зерттелді, ол ғылыми сыйымды экономиканы қаржыландырудың жалпы қағидадалын анықтауға мүмкіндік берді.

Түйін сөздер: Қазақстан, білім экономикасы, экономика, интеллектуалды және рухани жаңғыру, ғылыми сыйымды сала, қаржыландыру.

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ОСОБЕННОСТИ ФИНАНСОВОГО СЕКТОРА КАЗАХСТАНА В СОВРЕМЕННЫХ УСЛОВИЯХ

Аннотация. Финансовый сектор является одним из самых, если не самым значительным сектором экономики в современных обществах. В развитых странах в нем занято больше людей, чем в основных отраслях обрабатывающей промышленности, и на него приходится высокий процент валового внутреннего продукта. Но сектор финансовых услуг также играет большую косвенную роль в национальных экономиках. Финансовый сектор мобилизует сбережения и распределяет кредиты в пространстве и времени, а также позволяет фирмам и домашним хозяйствам справляться с неопределенностью путем хеджирования, объеди-

нения, распределения и оценки рисков. Это в конечном итоге улучшает количество и качество реальных инвестиций, увеличивает доход на душу населения и повышает уровень жизни. Сегодня финансовые институты испытывают беспрецедентные изменения в конкурентной глобальной среде. Существующая модель финансовой системы Казахстана требует модернизации, чтобы расширить возможности для финансирования стратегически важных областей экономики и общества. В свою очередь, государство должно изменить свою политику активного финансирования на политику активного стимулирования.

Целью статьи является обоснование модели инвестиционно-финансовой системы с центром, способным обеспечить формирование наукоемкой экономики и создание инфраструктуры духовного обновления общества. В статье выделены существующие концептуальные подходы к финансовому обеспечению наукоемкой экономики и социально-духовного обновления общества. Проведен анализ банковского, страхового сектора экономики, рынка страхования и фондового рынка и выделены положительные стороны и преимущества создания финансового центра – МФЦА. Кроме того, в работе выявлены особенности участия финансовой системы Казахстана в развитии наукоемких отраслей экономики и духовного обновления общества, а также выделены факторы и условия перезагрузки финансовой системы Казахстана и определяющие модель инвестиционно-финансовой системы. Изучен мировой опыт использования инструментов и методов финансирования наукоемких отраслей экономики, что позволило определить общие принципы финансирования наукоемкой экономики.

Ключевые слова: Казахстан, экономика знаний, экономика, интеллектуальная и духовная модернизация, наукоемкая отрасль, финансирование.

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INFLUENCE OF GLOBALIZATION PROCESSES AND THE FOURTH INDUSTRIAL REVOLUTION ON THE DEVELOPMENT OF FOREIGN ECONOMIC ACTIVITY OF KAZAKHSTAN

Abstract. The article deals with the features of foreign economic activity management. One of the issues discussed and insufficiently studied in the scientific literature is the management of foreign economic activity. The article attempts to study the essence of this type of activity. Based on the system-process approach, the authors describe the main elements of foreign economic activity management and specify the content of its stages. The article reveals the features of foreign economic development strategy formation. The necessity of application of technologies and innovative methods of management when entering the international markets is proved. Also, the article considers the interpretation of the fourth industrial revolution and its impact on the development of economic sectors of the Republic of Kazakhstan. The article describes the main aspects and potential of foreign trade characteristics of both enterprises and regions of the Republic. The influence of globalization processes and the fourth industrial revolution on the socio – economic development of the country is described.

Key words: globalization, the fourth industrial revolution, economic growth and development, change management.

1. Introduction. In the years that have passed since the beginning of the reforms, many enterprises have become more adapted in terms of understanding the work in the new conditions, managed to withstand the confrontation with foreign and domestic competitors, began to buy new equipment and update the range [1].

Very often, Kazakh enterprises, having a sufficiently good competitiveness of products and the potential for further development, cannot compete adequately in foreign markets or even in the Russian market with imported products. On the one hand, this is influenced by the peculiarities, the difference in activities in foreign markets compared to the domestic market, which include:

- special requirements of consumers and working conditions in these markets (especially in the markets of developed countries with a high culture of consumption);
- requirements for product quality and service level;
- more time-consuming study of these markets (often the company cannot afford to conduct comprehensive studies, which creates even greater uncertainty in the sale of products);
- difficulties with the organization of the sales network (usually it takes quite a lot of time and resources) [2];
- specific environmental conditions: national legislation, rules and methods of payment, business customs, etc.

2. Methodology. Methods of management of foreign economic activity are methods, methods of influence of the subject on object of management (not excluding the return influence of object on the subject), the head on collective and collective on the head. Management methods are classified according

to numerous features. Thus, the methods of direct and indirect impact were used in the study. When using the former, the direct result of the impact is assumed, while the latter were aimed at creating certain conditions for achieving specific results. Methods of formal and informal influence can be distinguished. Their ratio reflects the characteristic features of the management style.

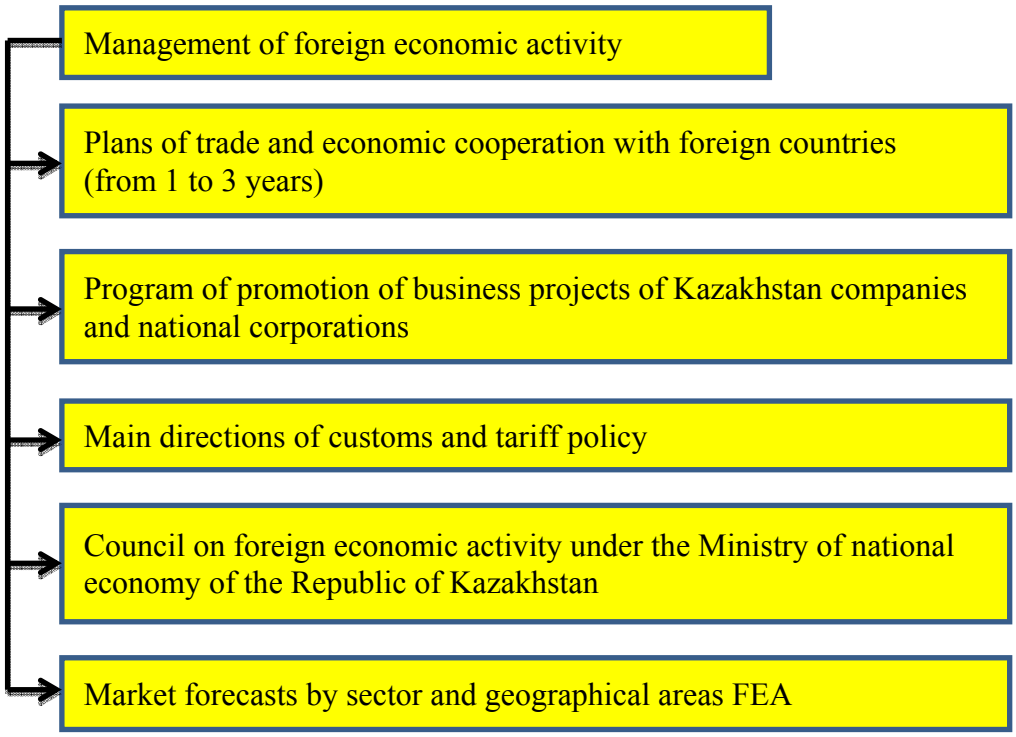
The most important was the classification of management methods on the basis of objective laws inherent in the management system, as well as the needs and interests of the person or persons to whom the impact is directed. On this basis, the following management methods are distinguished.

Organizational methods. These are management methods that are based on organizational laws and organizational relationships between people. In this group of management methods, the authors used: methods of organizational-stabilizing, administrative and disciplinary action.

Methods of management of organizational and stabilizing influence are intended for creation of an organizational basis of joint work. This is-the distribution of functions, responsibilities, responsibilities, powers, establishing the order of business relationships, which is achieved by structuring (the creation of a capable organization based on the analysis of goals and objectives, the synthesis of constituent elements, parts, units, as well as a combination of their functions and coordination of actions), regulation, regulation and instruction separately and their combination. Methods of management of administrative influence can compensate for the unaccounted moments of the organization and bring the system to new parameters by directives, orders, instructions, resolutions, regulations, etc. Particular importance in the study of organizational management methods were administrative, which are associated with the nature of power of public administration, and methods of management of legal management, the state means of legal impact on public relations.

The essence of economic methods is to use economic incentives to enhance activities in foreign markets in the right direction and to build economic capacity in General.

3. Results. The mechanism of decision-making in the foreign economic sphere should be constantly improved. At the same time, the change in the model of state regulation of foreign economic activity requires the introduction of new tools and documents for the operational management of this sphere (figure 1) [3].



Note: Compiled by the authors on the basis of the studied material.

Figure 1 – Strategic management of foreign economic activity

First, short-term (from one to three years) export promotion programs will be developed, which determine the key areas of industrial exports and a set of tools to achieve the goals, taking into account the priority and specifics of specific foreign markets, the needs of industries and regional characteristics of production and sales of exported products.

Secondly, but the key partner countries of the Republic of Kazakhstan will be prepared bilateral plans of trade and economic cooperation (for up to three years), defining the main target parameters of mutual trade and investment and specific measures to achieve them.

Third, these programs and plans will be supplemented by annual directives to the trade missions of Kazakhstan in foreign countries, aimed at solving specific tasks to improve cooperation with the host country [4].

Fourth, the "Main directions of customs and tariff policy" will be approved annually, which determine the priorities of the Republic of Kazakhstan in this area.

Fifth, the system of preparation (including outsourcing) of medium - and long-term market forecasts for the main sectors and geographical directions of foreign economic activity of Kazakhstan will be improved in order to identify opportunities and potential threats, followed by making the necessary adjustments to the foreign economic policy of the country [5].

Directions of organization and management system of foreign economic activity.

Export:

* formation of foreign exchange resources necessary to ensure import supplies;

* creation of prerequisites for improving the competitiveness of products produced by enterprises of the regions and the country [6].

Import:

* modernization of production and technological potential of enterprises;

* formation of a competitive environment for domestic producers through the supply of imported goods;

* to provide, on the basis of reciprocity, favorable conditions for the export of enterprises.

Foreign investment:

* creation of prerequisites for the merger of domestic and foreign capital in order to strengthen the position of enterprises in the region's foreign markets and the development of import-substituting industries;

* introduction of advanced technology and market management experience in the economic system of the region.

Own investment abroad:

* formation of stable cooperation ties for the overall strengthening of the region's position in the world economy;

* participation of the region in the conversion of foreign countries into investments [7].

Ensure economic security:

* ensuring the guaranteed supply of the region with the necessary imported goods;

* diplomatic provision of favorable conditions for foreign economic activity of enterprises in the region.

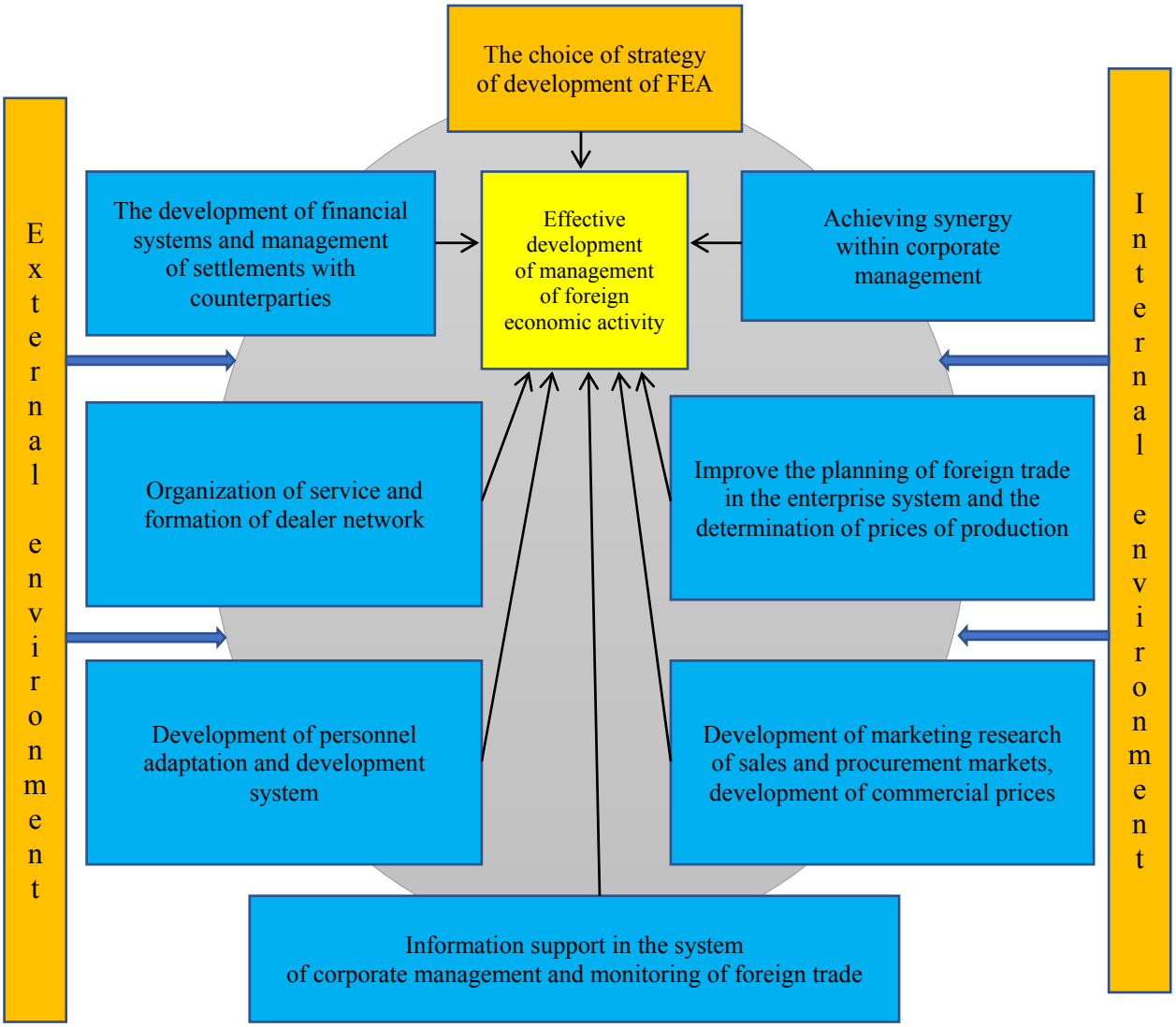
To achieve these goals, activities are planned, which can be grouped as follows.

Financial and economic measures to stimulate exports, development of export potential and import-substituting industries. Financial support for the export of enterprises (organizations) of the country, the promotion of export potential and import – substituting industries-one of the most effective means of strengthening foreign economic potential [8].

Taking into account the current state of the economy of Kazakhstan and the urgent problems of development of the foreign economic complex, the priorities in the field of financial assistance to the development of foreign trade are as follows (figure 2):

* provision by the government of guarantee obligations on credit resources attracted by authorized banks to ensure working capital of industries and organizations-subjects of foreign economic activity [9];

* provision of guarantees and insurance of export credits against commercial and political risks to ensure the protection of exporters [10];



Note: Compiled by the authors on the basis of the studied material.

Figure 2– Financial and marketing aspects of foreign economic activity management

* study of the possibilities of lending with the participation of the national budget for export-oriented R & d, development of science-intensive and high-tech products, including the use of the potential of defense enterprises, the purchase of equipment for the development of export and import-substituting industries, lending to the production of export products with a long production cycle, including the purchase of raw materials and components not produced in Kazakhstan [11];

* formation of a system of tax incentives using mechanisms, free economic zones, offshore zones, special sectors of the economy, adapted to the conditions and priorities of foreign economic activity;

* expansion of production cooperation by expanding the scale of effective use of customs regimes of processing by traders in accordance with the Customs code of the Republic of Kazakhstan [12];

* determination of the procedure for calculation and payment of income tax in terms of the share of the Republican budget of enterprises – exporters of finished, primarily machine-technical products, identical to the procedure established for small enterprises [13].

Financial support for exports and assistance in the development of import-substituting industries within the framework of the policy under consideration are carried out, as a rule, from the regional budget, extra-budgetary funds, borrowed funds on a refundable basis for payment through the authorized banks of the government [14].

4. Conclusions. As a result of the analysis of literary and electronic sources devoted to this problem, we can say that foreign economic activity is implemented both at the state level and at the level of individual economic entities.

An enterprise is an economic entity that produces and sells goods, performs works and provides services on the basis of the use of economic resources. Foreign economic activity is a sphere of economic activity related to international production integration and cooperation, export and import of goods and services, access to the foreign market.

The main forms of foreign economic activity is foreign trade and international cooperation of production.

The current stage of development of the world economy and business is characterized by the processes of globalization. The global market is dominated by international companies. All this requires new approaches to business management. Now the field of activity of the company is not a single country or region, but almost the whole world. It is obvious that management principles are also changing. Management becomes international.

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ЖАҺАНДАНУ ЖӘНЕ ТӨРТІНШІ ӨНЕРКӘСІПТІК РЕВОЛЮЦИЯ ҮДЕРІСТЕРІНІҢ ҚАЗАҚСТАННЫҢ СЫРТҚЫ ЭКОНОМИКАЛЫҚ ҚЫЗМЕТІНІҢ ДАМУЫНА ӘСЕРІ

Аннотация. Мақалада сыртқы экономикалық қызметті басқару ерекшеліктері қарастырылған. Пікірталас және ғылыми әдебиетте жеткілікті зерттелмеген мәселелердің бірі сыртқы экономикалық қызметті басқару болып табылады. Мақалада осы Қызмет түрінің мәнін зерттеуге әрекет жасалған. Жүйелік-үдерістік тәсілге негізделе отырып, авторлар сыртқы экономикалық қызметті басқарудың негізгі элементтерінің сипаттамасын және оның кезеңдерінің нақтыланған мазмұнын келтіреді. Сыртқы экономикалық даму стратегиясын қалыптастыру ерекшеліктері көрсетілген. Халықаралық нарықтарға шығу кезінде басқарудың технологиялары мен инновациялық әдістерін қолдану қажеттілігі негізделген. Сонымен қатар, мақалада Төртінші өнеркәсіптік революцияның түсіндірмесі және оның Қазақстан Республикасының Экономика секторларының дамуына әсері қарастырылған. Республиканың кәсіпорындары мен өңірлерінің сыртқы сауда сипаттамаларының негізгі аспектілері мен әлеуетті мүмкіндіктері сипатталған. Жаһандану үдерістері мен Төртінші өнеркәсіптік революцияның елдің әлеуметтік-экономикалық дамуына әсері сипатталған.

Түйін сөздер: жаһандану, Төртінші өнеркәсіптік революция, экономикалық өсу және даму, өзгерістерді басқару.

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ВЛИЯНИЕ ПРОЦЕССОВ ГЛОБАЛИЗАЦИИ И ЧЕТВЕРТОЙ ПРОМЫШЛЕННОЙ РЕВОЛЮЦИИ НА РАЗВИТИЕ ВНЕШНЕЭКОНОМИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ КАЗАХСТАНА

Аннотация. В статье рассмотрены особенности управления внешнеэкономической деятельностью. Одним из дискуссионных и недостаточно изученных в научной литературе вопросов является управление внешнеэкономической деятельностью. В статье предпринята попытка исследования сущности данного вида деятельности. Основываясь на системно-процессном подходе, авторы приводят характеристику основных элементов управления внешнеэкономической деятельностью и уточненное содержание его этапов. В статье раскрыты особенности формирования стратегии внешнеэкономического развития. Обоснована необходимость применения технологий и инновационных методов управления при выходе на международные рынки. Также, в статье рассмотрена интерпретация четвертой промышленной революции и ее влияния на развитие секторов экономики Республики Казахстан. В статье охарактеризованы основные аспекты и потенциальные возможности внешнеторговых характеристик как предприятий, так и регионов Республики. Описано влияние

глобализационных процессов и четвертой промышленной революции на социально-экономическое развитие страны.

Ключевые слова: глобализация, четвертая промышленная революция, экономический рост и развитие, управление изменениями.

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THE ROLE OF PLANT PREPARATIONS IN IMPROVING THE SAFETY AND QUALITY OF MILK IN SUBCLINICAL MASTITIS OF COWS

Abstract. The production of safe and high-quality milk in case of cow disease with mastitis is an urgent task. In the production of milk, it is necessary to strictly observe the technology and the veterinary and sanitary rules for milking, to carry out timely diagnosis and treatment of cows at subclinical mastitis. In the conditions of the Chuvash Republic, an analysis of the causes of lesions in the quarters of the mammary gland was carried out and the main directions for timely diagnosis and prevention of subclinical mastitis of cows were established. The dynamics of affection of udder quarters with mastitis during the lactation period was determined and with a positive effect it was tested the combined use of plant preparations - pihtoin ointment and trauma-gel for the treatment of subclinical mastitis of cows, which ensures the safety and high quality of products.

The use of pihtoin ointment in the treatment of cows with subclinical mastitis led to recovery of the udder in 16.7% of the cows. The quantity of mesophilic aerobic and facultative anaerobic microorganisms in milk decreased 1.6 times.

The use of the trauma-gel in the treatment of subclinical mastitis in cows led to the recovery of the udder in 63.2% of sick cows. The content of microorganisms in milk declined by 13%.

The results of studying the effect of the combined use of pihtoin ointment and trauma-gel preparation on the milk quality of cows showed that with the combined treatment of subclinical mastitis, all 14 sick cows recovered, that was 100%.

In the treatment of subclinical mastitis of cows during the lactation period, we recommend the combined use of plant preparations - pihtoin ointment and trauma-gel 2 times a day with an interval of 12 hours for 5 days. The combined use of pihtoin ointment and trauma-gel preparation for the treatment of cows allowed to reduce not only the number of somatic cells and improve the quality of milk, but also the cost of treatment by 3.8 times.

Preparations on a plant basis have excluded the damage from milk rejection, which is presented in the treatment with antibiotics.

Keywords: milk safety, subclinical mastitis, somatic cells, microorganisms, trauma-gel, pihtoin ointment.

Introduction. Dairy cattle husbandry is the leading direction in the structure of the entire agro-industrial complex [1-23]. Getting quality and safe milk from cows is an urgent task for milk producers [1-8, 14-23]. One of the reasons for the poor quality of milk is cow disease with mastitis [6-13]. The high content of somatic cells in milk reduces heat resistance and other technological properties of milk. Milk received from cows with mastitis causes staphylococcal infections in humans. Diagnosis of latent mastitis is of great importance both during lactation and during the dry period, as well as to increase the competitiveness of any breed of dairy cattle and breeding of healthy young-stock. [24-26].

The aim of the research is to develop and to conduct veterinary and sanitary measures for the prevention and treatment of subclinical mastitis of cows during the lactation period.

To achieve the aim, the following objectives were set:

1. to conduct a veterinary and sanitary examination of cows' milk.

2. to determine the factors affecting the content of microorganisms and somatic cells in the milk of cows, and to take measures to reduce them.

3. to establish the dynamics of affection of the udder of cows with subclinical mastitis.

4. to analyze the effectiveness of the use of plant-based preparations - pihtoin ointment and trauma-gel preparation, and to justify their combined use for the treatment of cows with subclinical mastitis.

Methods of research. The experimental work was carried out on the basis of the Accredited Testing Laboratory of the budget institution of the Chuvash Republic "Chuvash Republican Veterinary Laboratory" of the State Veterinary Service.

Research and production studies were carried out on the basis of a dairy farm SKHPK-collective farm named after Lenin of the Cheboksary district of the Chuvash Republic (CR).

For the conducting research, 3 experimental groups and 1 control group of holsteinized black-and-motley cows were formed according to the analogue group method, taking into account body weight and age of animals. The quality of cow's milk was homogeneous in terms of physico-chemical parameters. During the study period, cows of all groups were on the same feeding diet under the same maintenance, feeding and milking conditions.

The study of the dynamics of udder affection and the influence of plant drugs on the effectiveness of the treatment of subclinical mastitis and the quality of cows' milk was performed in the commercial dairy farm No 1 (CDF 1) with a population of 180 milking cows. The way of keeping cows is tethered, using pasture in summer. During the housing season, cows are kept on a leash in a room; for regimen of cows, the walking areas are used. The farm is equipped with the ADM-8 milking machine with a milk line. Milking of cows is carried out in stalls in glass milk lines. The research included a study of the quality of milk in terms of organoleptic and physicochemical parameters; analysis of milk from each quarter of the udder for subclinical mastitis using the California test and the kenotest, as well as clinical examination of cows with a high content of somatic cells in milk.

In the preparatory period, we conducted an examination of the quality of milk in the dairy laboratory of the farm for organoleptic and physico-chemical properties. The number of somatic cells in milk, the bacterial contamination of milk, the presence of abnormal milk, antibiotics, inhibiting substances were determined in the republican veterinary laboratory. In the milk of cows at CDF 1, it was revealed an increased content of somatic cells. The results of milk quality research in the initial period were taken as the initial ones.

In the main period, cows' milk was examined for subclinical mastitis with the help of rapid mastitis tests. They determined the frequency of attack rate of quarters of the cows' udder with subclinical mastitis during lactation and revealed the causes of the disease.

In the final period, cows were treated with plant-based preparations - pihtoin ointment and trauma-gel preparation, and their effectiveness in treating subclinical mastitis was determined (table 1).

Table 1 - Administration of herbal preparations

Indicator	Group			
	1 experimental	2 experimental	3 experimental	4 control
Number of cows, heads	45	45	45	45
Number of cows, heads: - with subclinical mastitis; - recovered	 18 3	 19 12	 14 14	 7 4
Preparation	Pihtoin ointment	Trauma-gel	Pihtoin ointment and Trauma-gel	Mastiet Forte
Frequency of treatment	2 times a day with an interval of 12 hours			1 time per day in a dose of 10 ml
Method of treatment	application to the affected quarter of the udder			intramammary
Duration of treatment, day	5			

The studies were performed using zoohygienic methods: temperature, humidity, air velocity, carbon dioxide, ammonia and hydrogen sulfide content in the air, microbial contamination and dust content in the room air were determined on a commercial dairy farm. Clinical and physiological methods were used to determine body temperature, pulse rate and respiration in animals of the control and experimental groups. The veterinary and sanitary examination of milk was carried out using the following methods: organoleptic method - for determining color, smell, taste, and texture; areometric method - for density; titration - for acidity; filtering - for the purity group; Gerber's acid method - for a mass fraction of fat; measuring the mass fraction of total nitrogen according to Kjeldahl - the mass fraction of protein; the arbitration method - for the mass fraction of dry matter and nonfat milk solids; method of counting colonies of mesophilic aerobic and facultative anaerobic microorganisms - QMAFAnM; with the use of indicator of methylene blue - inhibiting substances; by identifying bacteria of the genus Salmonella - pathogens, incl. salmonella; by changing the viscosity in a visual way and using a viscometer - the number of somatic cells.

Statistical processing was performed by the method of variation statistics on the reliability of the differences in compared indicators. The values of arithmetic averages (M), standard deviations (σ), mean errors (m) were calculated using the Microsoft Office Excel 2007 computer program. The degree of reliability of differences in mean values in cases of normal distribution was determined using Student's criterion.

Research results. In the integrated agricultural production center - the collective farm named after Lenin of the Cheboksary District of the Chuvash Republic, dairy production is carried out on two farms. CDF 1 uses the tie-up housing, CDF uses 2 loose keeping of cows. The quality of milk differs depending on the method of keeping cows. Mass fraction of protein and fat in milk are within the basic norms. Acidity, purity group, density of milk meet the requirements.

The content of microorganisms and somatic cells in milk significantly exceeds the requirements, which makes it necessary to identify the causes, to develop and to take measures to eliminate them.

In this regard, in the conditions of the collective farm named after Lenin the production experiments to determine the safety and quality of milk were conducted. It was decided to develop and take the veterinary and sanitary measures to reduce the content of microorganisms and somatic cells in the milk of cows.

Cows' milk, like other types of agricultural products, is primarily defined by safety. These requirements are also reflected in modern regulatory and technical documents. Russian Federation has a technical regulation of the Customs Union “On the safety of milk and dairy products” (TR CU 033/2013).

The quantity of mesophilic aerobic and facultative anaerobic microorganisms (QMAFAnM) at the beginning of the research in the spring-summer period in milk of cows of the CDF 1 was 390-497, the CDF 2 - 340-413 thousand CFU/cm^3. On average, QMAFAnM in milk of cows of the CDF 1 was 440, of the CDF 2 - 370 thousand CFU/cm^3 at the norm for milk not more than 100 thousand CFU/cm^3.

In the milk of cows of CDF 1, the Somatic Cell Count (SCC) averaged 600 thousand/cm^3 with an oscillation interval of 430-1000 thousand/cm^3, while the norm for milk does not exceed 400 thousand/cm^3. In the milk of cows of CDF 2, the Somatic Cell Count was significantly lower and averaged 500 thousand/cm^3, the interval was 310-580 thousand/cm^3.

Thus, the bacterial infection of the milk of cows of CDF 1 exceeded the requirements by 5 times, the milk of cows of CDF 2 was 4 times higher. SCC in the milk of cows of CDF 1 exceeded the requirements by 50%, CDF 2 - by 25%.

In this regard, the implementation of sanitary and hygienic measures aimed at reducing bacterial contamination and the somatic cell count in milk of cows, is relevant.

The results of our research confirm that an important factor in preserving the quality of milk is a proper organization of the hygiene of cows milking and compliance with instructions for using milking equipment.

To reduce the total bacterial number in milk, the somatic cell count and to improve its quality and safety in dairy farms of the agricultural collective farm named after Lenin together with the specialists of the farm developed and conducted sanitary and hygienic measures: bacteriological studies of the secretion of the udder of cows suffering from mastitis; identifying the source of the disease; timely implementation of preventive and therapeutic measures; monitoring compliance with the rules of milking; identification

and treatment of cows with reproductive organs; regular monitoring of the state of the mammary gland of cows; control of the level of somatic cells in milk with rapid mastitis tests to detect latent mastitis.

Taking sanitary and hygienic measures led to the fact that the bacterial contamination of milk in the spring-summer period of the second year of research compared with the first year of the same period on CDF 1 decreased 1.8 times and amounted to 73-373 thousand CFU/cm^3. At CDF 2 QMAFAnM decreased 4.6 times with an interval of fluctuations of 59-117 thousand CFU/cm^3. The average content of QMAFAnM in the milk of cows of CDF 1 and CDF 2 was 250 and 80 thousand CFU/cm^3, respectively, while the norm for milk is not more than 100 thousand CFU/cm^3 (table 2).

Table 2 – The effect of sanitary and hygienic measures on the content of microorganisms and somatic cells in the milk of cows

Indicator	Norm for milk according to TR CU 033/2013	Research results			
		The first year		The second year	
		CDF 1	CDF 2	CDF 1	CDF 2
QMAFAnM, CFU/cm^3 (g), not more	$1 \cdot 10^5$	$3.4 \cdot 10^5$	$3.7 \cdot 10^5$	$2.5 \cdot 10^5$	$0.8 \cdot 10^5$
Pathogenic, including salmonella in 25 g of product, (cm^3)	not allowed	not found		not found	
Somatic cells in 1 cm^3, not more	$4 \cdot 10^5$	$6 \cdot 10^5$	$5 \cdot 10^5$	$5 \cdot 10^5$	$4 \cdot 10^5$
Note: QMAFAnM - the quantity of mesophilic aerobic and facultative anaerobic microorganisms.					

The veterinary and sanitary measures carried out in the first and second years of research at the CDF2 allowed to reduce the SCC in milk from 500 to 400 thousand/cm^3, which meets the requirements of the Technical Regulations of the Customs Union "On the safety of milk and dairy products" (TR CU 033/2013) . At CDF 1, SCC in milk decreased from 600 to 500 thousand/cm^3, however, these figures exceed current requirements.

A high concentration of microorganisms and somatic cells in the milk of cows of CDF 1, in our opinion, is a sign of parasecretion of the udder or disease of cows.

Maintaining udder health in cows is especially important during the lactation period, when the mammary gland of a cow is under tremendous stress. Mastitis of cows causes significant damage to the farm from premature culling of cows, reduced performance of dairy cows, the incidence of calves, the cost of diagnosis, treatment, etc. It is important to recognize the disease in time to prevent its spread - an important task of farmers.

To successfully solve the problem of increasing the number of somatic cells in milk, we studied the distribution of subclinical mastitis of cows during lactation. Studies of a quarter of the udder of cows for detection of mastitis were performed on CDF 1 for two years during lactation. To determine the number of somatic cells in the secretion of the udder, California mastitis test and kenotest were used. Milk with a positive reaction was tested by settling-out sample (table 3).

Table 3 – The affection of the udder by the inflammatory process in subclinical mastitis of cows during lactation

Udder quarters	Groups							
	1 experimental		2 experimental		3 experimental		4 experimental	
	Year of experiment							
	first	second	first	second	first	second	first	second
1 quarter, %	63.6	72.2	69.6	57.9	100	64.3	60.0	28.6
2 quarter, %	36.4	22.2	30.4	36.8	–	37.7	40.0	71.4
3 quarter, %	–	–	–	5.3	–	–	–	–
4 quarter, %	–	5.6	–	–	–	–	–	–
Sick cows, heads	11	18	23	19	1	14	10	7
Sick cows, %	24.4	40.0	51.1	42.2	2.2	31.1	22.2	15.6

It was established that subclinical mastitis of cows during lactation often develops in spring and summer. So, in November, subclinical mastitis was found in 30 cows, which is 16% of the herd, in July - in 58 cows or 32%.

The use of pihtoin ointment in the treatment of cows with subclinical mastitis led to a recovery of the udder in 16.7% of the cows. The quantity of mesophilic aerobic and facultative anaerobic microorganisms in the milk of the first experimental group decreased by 1.6 times. The somatic cell count with the use of pihtoin ointment in the experimental group did not change and amounted to 420 thousand in 1 cm3 of milk, while the norm of top-grade milk was 400 thousand in 1 cm3. Thus, the milk of cows in the control and experimental groups according to the content of microorganisms and somatic cells corresponds to the first grade.

The use of the trauma-gel preparation in the treatment of subclinical mastitis of cows in the second experimental group resulted in recovery of the udder in 63.2% of sick cows. The content of microorganisms in milk decreased by 13%. At the same time, QMAFAnM amounted to 410 thousand CFU/cm^3, which exceeds the norm. The somatic cell count in the milk of cows in the experimental group decreased by 2.4% and amounted to 400 thousand in 1 cm^3, which corresponds to the requirements of TR CU 033/2013.

In the third experimental group, it was studied the effect of the combined use of pihtoin ointment and trauma-gel on the quality of milk of cows. With the combined treatment of subclinical mastitis, all 14 sick cows recovered, which was 100%. It was established that QMAFAnM decreased by 2.6 times and amounted to 180 thousand CFU/cm^3, at a norm of 100 thousand CFU/cm3. The somatic cell count in the milk of the third experimental group decreased by 1.3 times and amounted to 320 thousand in 1 cm3. A significant decrease in the number of somatic cells in cow's milk with combined treatment led to the improvement in the quality of milk.

From our point of view, this is due to the fact that the trauma-gel preparation has a hydrophilic base penetrating deep into the tissues, such a base makes it possible to apply it even on fresh wounds. Trauma-gel quickly restores tissue immunity in the lesion focus, blocks the development of pathogenic microflora, stimulates wound self-cleaning and the development of granulation tissue.

In our studies, the trauma-gel preparation was applied to the affected or painful places after the pre-toilet with a thin layer 2 times a day, easily rubbing into the skin. At the same time, a decrease in the number of somatic cells by 2.5% was established. The combined use of pihtoin ointment and the trauma-gel for the treatment of cows allowed to reduce the somatic cell count and improve the quality of milk (table 4).

Table 4 – Effect of pihtoin ointment and trauma-gel preparation on the content of microorganisms and somatic cells in the milk of cows

Indicator	Norm for milk according to TR CU 033/2013	Group			
		1 experimental	2 experimental	3 experimental	4 experimental
QMAFAnM, CFU/cm^3 (g), not more	$1 \cdot 10^5$	$3.0 \cdot 10^5$	$4.1 \cdot 10^5$	$1.8 \cdot 10^5$	$4.7 \cdot 10^5$
Somatic cells in 1 cm^3 (g), not more	$4 \cdot 10^5$	$4.2 \cdot 10^5$	$4.0 \cdot 10^5$	$3.2 \cdot 10^5$	$4.1 \cdot 10^5$

Timely diagnosis of subclinical mastitis, reliable prevention, effective treatment form the basis of measures to control mastitis and contribute to enhancing the quality of milk.

The quality control of cows' milk with the help of the California test and kenotest revealed subclinical mastitis and timely treatment.

It was revealed that QMAFAnM (the quantity of mesophilic aerobic and facultative anaerobic microorganisms) in the milk of cows of the experimental and control groups ranges from 180 thousand to 470 thousand with a norm of not more than 100 thousand CFU/cm^3. SCC in the milk of cows of the 1 experimental group was 420 thousand in 1 cm³ ($P \leq 0.05$), of the 2 experimental group - 400 thousand ($P \leq 0.05$), of the 3 experimental group - 320 thousand ($P \leq 0.05$), of the control group - 410 thousand in 1 cm^3.

Thus, the quality of cows milk of the 2 and 3 experimental groups according to the SCC meets the requirements of TR CU 033/2013. Milk of cows in the 1 experimental and the 4 control groups - does not correspond.

Discussion of the research results. Milk by the specificity of its receiving always contains a certain number of bacteria. The higher in quality it is, the lower the content of bacteria and mechanical impurities. In Russia, the number of mesophilic aerobic and facultative anaerobic microorganisms in accordance with the requirements of the technical regulations of the Customs Union "On the safety of milk and dairy products" (TR CU 033/2013) in cow's milk is allowed no more than $1 \cdot 10^5$ CFU/cm^3, the somatic cell count is not more than $4 \cdot 10^5$ in 1 cm^3.

According to the norms of European standards, in milk no more than $2.5 \cdot 10^5$ somatic cells per 1 cm^3 are allowed. In the USA, a herd of cows is considered prosperous to mastitis if the somatic cell count in milk is not more than $2 \cdot 10^5$ per 1 cm^3.

Various factors contribute to the appearance of mastitis in the herd. First of all, bacteria are present in the environment of cow, and especially a lot of them are on the litter. Mastitis caused by the environment, appears mainly as a result of poor-quality, dirty litter in animals, which was revealed at the initial stage of our research. Udder invasion occurs between milkings. Cows are particularly susceptible to these bacteria at the beginning of their “dry” period, when the nipple channels are open [14].

Mastitis in cows is observed in any period of lactation, while high-yielding animals more often get sick, which leads to significant losses. To increase the effectiveness of the developed measures for the prevention of subclinical mastitis of cows during lactation, it is necessary to identify all the factors that contribute to the emergence and distribution of the disease. Our research confirms the results of scientists of the need to organize the timely detection of the initial stages of mammary gland inflammation of cows with regular milk testing and the necessary treatment [8-12].

The criterion for the intensity of the incidence of cows with mastitis and the presence of impurities of mastitis milk is the somatic cell count. However, it should be remembered that this indicator in healthy cows may increase immediately after calving, before drying off, during oestrus, as well as in old animals that had previously suffered from mastitis.

Somatic cells are the usual components of normal milk, they are represented by leukocytes and epithelium of the alveoli and the lactating ducts. The secret of healthy cows is dominated by epithelial cells formed during natural aging and tissue renewal. With mastitis, leukocyte migration increases to the inflammatory focus, which leads to a sharp increase in the number of somatic cells. According to research, 1 ml of milk of all ages healthy cows contains an average of 250 thousand somatic cells, and with the disease of subclinical mastitis it is almost four times more. Counting somatic cells in raw milk as well as counting bacterial contamination are common methods for assessing the quality of milk in all countries producing milk and dairy products. These indicators are used not only as payment criteria for milk producers, but also they are a means of assessing the state of the cow udder [6].

As a result of our research, investigations of other scientists and practitioners, the main factor affecting the number of somatic cells is an infection of the udder in the past or present. Other factors, such as lactation period, age and seasonality, are considered less significant. [1-6, 13-16].

Clinical and subclinical forms of inflammation lead to a significant loss of productivity not only in the current, but also in subsequent lactations. This is due to the death of part of the cells of the secretory epithelium of the mammary gland and regeneration due to connective tissue. In some cases, we observed atrophy of individual quarters of the udder.

Monitoring of the herd to identify the clinical and subclinical forms of mastitis in our studies has made it possible to effectively use a wide range of measures [8-12]. Prevention of mastitis on the farm should consist of a complex of veterinary and sanitary, zoohygienic, zootechnical and economic and organizational activities. Untimely detection, late or irrational treatment of mastitis causes atrophy of the affected udder. As a result, the cow becomes milkless and economically unsuitable. To prevent mastitis in cows, it is necessary to apply full feeding, active exercise, comply with the requirements for sanitary conditions and microclimate of the premises, follow the rules for milking the cows, carry out timely diagnostic tests for detection of mastitis and for treatment. On the farm, it is necessary to organize the diagnosis of mastitis of cows during the dry period twice, checking the cows 10–15 days from the

beginning of the dry period and 10–15 days before calving and carrying out the necessary treatment of the udder with preparations used in the dry period.

Our research confirms that cows are susceptible to new infections within 10 days before and 10 days after calving, due to the fact that the concentration of antibiotics decreases, the teat canals are usually open, the cow lies a lot, and immunological mechanisms change in animals. The most common environmental microorganisms are Esherichia coli and Streptococcus uberis.

Investigations by many scientists confirm that mastitis can be forgotten if all aspects relating to the cow's environment and milking procedures are carefully observed. this reduces the number of bacterial populations on the udder and nipple surfaces, especially at the tips of the nipples.

In the integrated agricultural production center - collective farm named after Lenin two main forms of mastitis were revealed - clinical and subclinical. Clinical mastitis - with visible signs of illness. In this form of mastitis, in cows, the udder edema, high fever, redness, pain, and a change in secretion were observed. Clinical mastitis caused a decrease in milk production. An organoleptic evaluation revealed the presence of flakes and clots in the milk, the watery color of the milk. Subclinical mastitis was determined using special tests. It was defined that the infected part of the udder of the animal looks normal, the milk is outwardly unchanged, but milk yield and milk quality are reduced.

In the work carried out in the conditions of the IAPC-collective farm named after Lenin, cows were examined for subclinical mastitis. During lactation, the frequency of affection of the udder quarters and the causes of cows disease were determined. We studied the effectiveness of plant-based preparations for subclinical mastitis. Based on research, measures have been developed to improve the quality of milk based on the prevention of subclinical mastitis. In the studies, it was used plant preparations - pihtoin ointment and trauma-gel. These means were used to treat cows, alternating every other day: pihtoin ointment – on the 1, 3, 5 day, trauma-gel - on 2 and 4 days. The multiplicity and method of use - 2 times a day with an interval of 12 hours for five days by applying the preparation on the skin of the affected quarter of the udder after washing with clean water, drying and preliminary milk from the patient quarter.

Conducted scientific studies allowed to early diagnose subclinical mastitis and prescribe appropriate treatment, reduce damage from milk loss, prevent culling of the animal, and preserve the quality of milk.

The degree of decline in the productivity of cows due to mastitis depends on the stage of the disease and varies from subtle changes to the complete cessation of milk secretion. Technological indicators of milk of cows with mastitis are reduced due to: an increase in the amount of chlorine and sodium in it; reducing the content of low-fat solids; reduce the ability of milk proteins to coagulate (inertness of rennet, delayed secretion of whey); the appearance of inhibitors in milk as a result of therapeutic interventions.

The results of our research confirm that the incidence can be determined by the somatic cell count in one quarter. Quarters, in the milk of which the number of somatic cells averages up to 100 thousand per 1 ml, is considered healthy. As practice shows, this indicator can vary from 50 thousand to 200 thousand in 1 ml depending on, for example, the age of the cow, the feeding and the conditions in the cowshed. The presence of somatic cells in 1 ml of milk in an amount of 300 thousand to 800 thousand indicates subclinical mastitis. On average, about 5-35% of quarters of the udder of the entire herd are infected with pathogenic bacteria, i.e. have signs of subclinical mastitis.

In the treatment of mastitis, various drugs are used. In our research, we used herbal based preparations. The use of pihtoin ointment in the treatment of subclinical mastitis led to a decrease in QMAFAnM in the milk of cows by 1.6 times. The number of somatic cells when using pihtoin ointment in the experimental group did not change and amounted to 420 thousand in 1 cm^3 of milk at a rate of 400 thousand in 1 cm^3.

The use of the trauma-gel preparation in the treatment of subclinical mastitis of cows led to a decrease in the content of microorganisms by 13%. At the same time, QMAFAnM amounted to 410 thousand CFU/cm^3, which exceeds the norm. The somatic cell count in the milk of cows of the experimental groups decreased by 2.4% and amounted to 400 thousand in 1 cm^3, which corresponds to the requirements.

The combined use of pihtoin ointment and trauma-gel preparation in the treatment of subclinical mastitis of cows reduced QMAFAnM (the quantity of mesophilic aerobic and facultative anaerobic microorganisms) by 2.6 times. The somatic cell count in milk decreased by 1.3 times. The use of the combined treatment of animals of the third experimental group contributed to a significant decline in SCC in the cow's milk.

When comparing the damage caused by mastitis and the cost of measures to eliminate it, it was established that the amount of damage is several times higher than the costs necessary for a successful struggle with clinical mastitis of cows.

The economic damage from mastitis consists of the following factors:

- in cows that have undergone mastitis, milk production goes down to 300 kg from 1 cow per year;
- irreversible changes in mammary tissue occur (proliferation of connective tissue) and the previous milk yield is not restored;
- animals of high value for breeding and productive relations are prematurely rejected due to the atrophy of udder quarters;
- increases the incidence of calves and their mortality.

The use of milk with a high content of somatic cells reduces the quality of dairy products (butter, cheese, sour cream, kefir). The possibility of expanding the range of products, which in turn leads to a decline in the purchase price for milk from dairy processing enterprises, is also decreasing.

In addition to the economic damage, mastitis is a direct source of contamination of milk with microbes, their metabolic products, and toxins, which cause various intestinal and respiratory infections in people, especially in children, i.e. reduced milk safety indicator.

Thus, with the combined use of pihtoin ointment and the trauma-gel preparation, the treatment expense for one cow is reduced by 3.8 times. There is no damage from the rejection of milk, which is available during treatment with antibiotics.

Conclusion The veterinary and sanitary examination has established that the milk of cows from the integrated agricultural production center - the collective farm named after Lenin on the mass fraction of protein and fat, acidity and density meets the requirements of the technical regulations of the Customs Union “On the safety of milk and dairy products” (TR CU 033/2013). Bacterial contamination and the somatic cell count exceed the requirements.

It was found that in cows, subclinical mastitis during lactation period develops when the rules for milking are violated. Measures taken to eliminate these violations in milking cows allowed to reduce the bacterial contamination of the milk of CDF 1 cows by 1.8 times, of CDF 2 - by 4.6 times. The quantity of mesophilic aerobic and facultative anaerobic microorganisms in the milk of cows in CDF 1 and CDF 2 averaged 250 and 80 thousand CFU/cm^3, respectively, at a norm for milk not more than 100 thousand CFU/cm^3.

The somatic cell count in the milk of cows of CDF 1 and CDF 2 decreased by 100 thousand/cm^3 and amounted to 500 and 400 thousand/cm^3, respectively.

Carrying out veterinary and sanitary measures at CDF 2 contributed to the improvement of milk quality up to the requirements of TR CU 033/2013.

It was established that subclinical mastitis in cows during lactation often develops in spring and summer and is 16 and 32%, respectively.

The use of pihtoin ointment in the treatment of sick cows with subclinical mastitis led to a decrease in the quantity of mesophilic aerobic and facultative anaerobic microorganisms in milk by 1.56 times, and the use of trauma-gel preparation - by 1.15 times.

The trauma-gel helped reduce the number of somatic cells in milk to 400 thousand in 1 cm^3.

Conclusions. The combined use of pihtoin ointment and trauma-gel preparation in the treatment of subclinical mastitis of cows contributed to the recovery of 100% of cows and caused a decrease in the quantity of mesophilic aerobic and facultative anaerobic microorganisms in milk by 2.6 times and amounted to 180 thousand CFU/cm^3.

The somatic cell count in the milk of cows declined by 1.3 times and amounted to 320 thousand in 1 cm^3, which meets the requirements of the TR CU 033/2013.

The combined use of pihtoin ointment and the trauma-gel with subclinical mastitis of cows reduced the cost of treatment by 3.8 times.

Plant basis preparations have excluded the damage from milk rejection, which is present in the treatment with antibiotics.In the treatment of subclinical mastitis of cows during the lactation period, we recommend the combined use of plant preparations - pihtoin ointment and trauma-gel 2 times a day with an interval of 12 hours during 5 days.

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СИЫРЛАРДЫҢ СУБКЛИНИКАЛЫҚ ЖЕЛІНСАУ КЕЗІНДЕГІ СҮТТІҢ ҚАУІПСІЗДІГІНІҢ САПАСЫН ЖОҒАРЛАТУДАҒЫ КӨКӨНІСТІ ПРЕПАРАТТАРДЫҢ МАҢЫЗЫ

Аннотация. Қауіпсіз және жоғары сапалы сүт өндіру өзекті мәселе,егер сиыр желінсаумен ауыратын болса. Сүт өндіруде ветеринар-санитарлық және технологиялық ережелерін қатаң түрде сақтау керек, субклиникалық желінсау кезінде уақтылы диагностикалауды және емдеуді жүзеге асыру қажет. Чуваш Республикасы жағдайында сүт безінің төрттен бір бөлігінің зақымдану себептеріне талдау жүргізілді және сиырдың субклиникалық желінсауды уақтылы диагностикалау мен алдын алудың негізгі бағыттары анықталды. Лактация кезеңі кезінде емшектегі сүт безінің төрттен бір бөлігінің зақымдану динамикасы анықталды және оң нәтиже көрсеткендей, сиырдың субклиникалық желінсауын емдеуге, аралас шипалы шөптік препараттарды - пихтажақпа майы және «травма-гель» заттарды қолданылуы өнімнің сапасы мен қауіпсіздігін қамтамасыз ететіні тексерілді.

Сиырларды субклиникалық желінсауды емдеу кезінде пихтажақпа майын қолданғанда, сиырлардың 16,7%-ы қалпына келтірілді. Сүттегі мезофильді аэробты және қосымша анаэробты микроорганизмдердің саны 1,6 есеге азайды.

Сиырларды субклиникалық желінсауды емдеуде кезінде «травма-гель» пайдалану арқылы сиырлардың 63,2%-ы қалпына келтірілді. Сүт құрамындағы микроорганизмдердің саны 13%-ға төмендеді.

Сиыр сүтінің сапасына зерттеудің нәтижелері көрсеткендей пихтажақпа майы мен «травма-гель» препараттарын араластырып пайдаланудың әсері, субклиникалық желінсауды араластырып емдеу кезінде барлық 14 ауру сиырды 100% қалпына келтірілгенін көрсетті.

Лактация кезеңінде сиырдың субклиникалық желінсауын араластырып емдеу препараттарымен - пихта жақпа майы және «травма -гель» күніне 2 реттен 5 күн бойы 12 сағаттық интервалмен пайдалануды ұсынамыз.

Сиырларды емдеуге арналған пихта жақпа майы және «травма-гель» препаратын қолдану соматикалық клеткалардың санын ғана емес, сүттің сапасын жақсартуға мүмкіндік берді, сонымен бірге емделу құны 3,8 есеге азайған.

Көкөніс препараттар, негізі сүттің зақымдануын жойды, антибиотиктермен емдеу кезінде сүттің зақымдануы қол жетімді болған.

Түйін сөздер: сүт қауіпсіздігі, субклиникалық желінсау, соматикалық жасушалар, микроорганизмдер, «травма-гель», пихта жақпа майы.

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РОЛЬ ПРЕПАРАТОВ РАСТИТЕЛЬНОГО ПРОИСХОЖДЕНИЯ В ПОВЫШЕНИИ БЕЗОПАСНОСТИ И КАЧЕСТВА МОЛОКА ПРИ СУБКЛИНИЧЕСКОМ МАСТИТЕ КОРОВ

Аннотация. Производство безопасного и высокого качества молока при заболевании коров маститом является актуальной задачей. В производстве молока необходимо строго соблюдать технологию и ветеринарно-санитарные правила доения, осуществлять своевременную диагностику и лечение коров при субклиническом мастите. В условиях Чувашской Республики проведён анализ причин поражения четвертей молочной железы и установлены основные направления по своевременной диагностике и профилактике субклинического мастита коров. Определена динамика поражения четвертей вымени маститом в лактационный период и с положительным эффектом апробировано комбинированное применение препаратов на растительной основе – пихтоиновой мази и травма-геля для лечения субклинического мастита коров, что обеспечивает безопасность и высокое качество продукции.

Использование пихтоиновой мази в лечении коров, больных субклиническим маститом, привело к выздоровлению вымени 16,7% коров. Количество мезофильных аэробных и факультативно анаэробных микроорганизмов в молоке снизилось в 1,6 раза.

Использование препарата травма-гель в лечении субклинического мастита коров во привело к выздоровлению вымени 63,2% больных коров. Содержание микроорганизмов в молоке снизилось на 13%.

Результаты изучения влияния комбинированного применения пихтоиновой мази и препарата травма-гель на качество молока коров показали, что при комбинированном лечении субклинического мастита выздоровели все 14 больных коров, что составило 100%.

В лечении субклинического мастита коров в лактационный период рекомендуем комбинированное применение препаратов на растительной основе – пихтоиновой мази и травма-геля 2 раза в сутки с интервалом 12 часов в течение 5 суток. Комбинированное применение пихтоиновой мази и препарата травма-гель для лечения коров позволило снизить не только количество соматических клеток и повысить качество молока, но и затраты на лечение в 3,8 раза.

Препараты на растительной основе исключили ущерб от браковки молока, имеющийся при лечении антибиотиками.

Ключевые слова: безопасность молока, субклинический мастит, соматические клетки, микроорганизмы, травма-гель, пихтоиновая мазь.

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IS WELFARE THE CORRELATION UNITY OR THE STRUGGLE OF ITS COMPONENTS? (Based on the data of the countries of the former soviet union)

Abstract. The article is to present such welfare components as human development index, *economic growth*, energy consumption, ecological condition. The object of the research is the dynamics of the welfare of countries from the former Soviet Union. For evaluation a set of such criteria as gross domestic product per capita, human development index and energy consumption per capita have been used. In addition such indicators as gross domestic product per unit of energy use; emissions of CO_2, methane and greenhouse gases per capita, and area of forests have also been investigated.

Factual data for the period 1997-2015 have been used. The research is related to the common stages of the transformation and parameters of the development of countries from the former Soviet Union over a certain period of time. Nevertheless, countries that have a common past have demonstrated a significant variation in the dependencies of the studied indicators. Based on the results of the correlation analysis, a group of countries showing a high dependence on all the welfare criteria on the factors considered (Russia, Armenia, Azerbaijan, Belarus) has been chosen.

A positive correlation of human development index has been found in codependency of human development index and gross domestic product per unit of energy use. A positive correlation of gross domestic product per capita indicator has been found in codependency of gross domestic product per capita and gross domestic product per unit of energy use; gross domestic product per capita and CH4 per capita (exception Ukraine). A study of dependencies allows us to equate economic growth and welfare. It is common for the countries from the former Soviet Union (correlation coefficient for most countries is 0.95) between economic growth rates and energy consumption, as well as energy consumption and CO^2 emissions (correlation coefficient 0.85–0.997).

All countries show an obvious dependence of economic growth on energy consumed. A slightly weaker correlation has been noticed in Kyrgyzstan and Kazakhstan. A negative correlation between energy consumption per person and gross domestic product per unit of energy use has been found in Uzbekistan. The reason is the growth of the population in spite of the decrease in energy consumption. A negative correlation between the gross domestic product per capita and the forest area is common for Kazakhstan, Kyrgyzstan and Tajikistan, which have a small forest fund.

The data obtained allowed us to classify countries according to the level of energy consumption and dependence on the sources of natural resources. Energy consumption as a welfare criterion has its own specific number of dependencies. It is this criterion that has the maximum number of dependencies with a strong negative correlation for countries from the former Soviet Union. That lays the groundwork for expanding the list of correlating factors in future research.

Key words: welfare, human development index, economic growth, energy consumption, CO_2 emissions.

Introduction. The growth of welfare as a key strategic priority acquires special significance in the conditions of limited resources. The maintenance of the required rates of economic growth with the predicted depletion of traditional energy resources, providing the functioning of the world economy as a whole and of an individual state in particular. The inclusion of various spheres of life in the formation of the level of welfare makes the study of approaches to its assessment through various criteria with the

elaboration of each related component, relevant. The complexity of a problem is connected with a broad differentiation of levels of social and economic development of the countries. Thus, about a quarter of the population of the planet live in the countries with an average consumption of food considerably exceeding physiological requirements, a low child mortality, a high life span and almost 100% literacy. The 4/5 of the commercial energy consumed annually accounts for the population of the most developed countries. The rest of the 3/4 are mostly illiterate or semiliterate, their life span is three decades shorter. The countries of the former Soviet Union occupy an absolutely unique niche. It is caused by reforming of the approaches to the economic management (refusal of the planned economy), transition to energy efficient economy in a very short time amidst the significant increase in welfare. It constitutes the choice of an object of the present research. A wide range of approaches to the assessment of welfare reflects his versatility. It allows to identify the most significant aspects of their correlation interdependence and interaction.

The considerable number of initiative projects confirms the importance of criterion of welfare. For example, The "Beyond GDP" Conference (2007), Stiglitz/Sen/Fitoussi (2009), etc. European Statistical System Committee (ESSC) has created a group responsible for the development of set of the indicators corresponding to contents of the message of "GDP and Beyond". Other international organizations make considerable efforts in the field, especially within an initiative project "Better Life: Measurement of Welfare and Progress". A number of researchers (L. Liu, T. Chen and Y.Yin, J.G. Lambert, C. A. Hall, S. Balogh, A. Gupta, M. Arnold, C. Pasten, J. C. Santamarina) [1-3] hold to the opinion regarding the existence of communication between the quality of life and energy consumption. Rahman, Huq claim the accurate correlation between consumption of energy and the general economic conditions [4]. Hoque sees energy production as an indicator of physical quality of life. Meanwhile Forrester uses the criteria of pollution, population density, consumption of food and resources [5]. Nicholas Apergis with his research team (2010) investigated the cause-and-effect relationship between CO_2, energy consumption, including the renewable energy, and economic growth for a number of the developed and developing countries [6, 7].

There is a wide range of approaches to assessment of the cause-and-effect relationship between the economic growth and energy consumption – from denial of any dependence to the mutually causing influence of these parameters, including the unidirectional influence of only one factor (for example, the increase of energy consumption causes economic growth, however the feedback effect is absent).

So, Kraft (1978) [8] has proved the influence of economic development on the energy consumption growth; Akarca, Long (1980) claimed about the lack of cause-and-effect relationship between GDP and consumption of primary energy resources [9]; The Stern (1993) adhered to the opposite point of view and subsequently (in 2000) he proved the existence of the economical and energy interaction [10].

Some researchers have identified the particular characteristics of different counties in this interaction. On the basis of the analysis of indicators of the countries of the Organization for Economic Co-operation and Development (30 countries) and the countries, not included in it (78 countries), Asafu-Adjaye (2000) [11], J. Chentanavat with coauthors (2008) have defined that the relation between energy consumption and GDP is very common only for highlydeveloped countries[12].

Russian scientists M.M. Alibegov and L.M. Grigoriev claim that electricity rates have to be considered as a significant indicator of the consumption level of primary energy resources [13]: the higher electricity rates in the country are, the lower the rate of primary energy resources consumption per GDP. The opponents of that point of view are V.A. Volkonsky and A.I. Kuzovkin, A.P. Parshev, G.P. Litvintseva [14-16].

Thus, comparison of results of assessment of welfare on the basis of various criteria with the detailed elaboration by means of allocation of the set of factors is of interest.

Research methods. There is a wide range of the indicators reflecting economic and social progress of society, supplementing, partially duplicating each other or even confrontational. As a result of definition of multicomponent indexes of progress in order to complete or replace gross domestic product (GDP) indicator, human development index (HDI), Index of steady economic welfare, Indicator of original progress as a criterion of welfare of society have been offered. The limitation of GDP indicator is his focus on the assessment of economic activity without taking into account other indicators of living standards, including subjective ones. For example, Germany has one of the highest GDP per capita and at the same time the widest gender gap in labor compensation (2011). It must be noted that GDP is connected

with welfare from a position of the provision of population with material wealth. This indicator is cross functional, well-timed and easy to use. Michael Spence claims that in order to reach necessary welfare, the countries should show such rates of economic growth which will provide both social integration, and ecological sustainability [17]. GDP indicator can be replaced by the characteristic of welfare through power consumption assessment per capita of the main segment of the population meeting vital needs. These expenses can significantly vary depending on countries and segments of the population of each state. The existence of a wide range of criteria of welfare causes probability of different results of its assessment, including the opposite ones [18].

Such criteria as HDI (as symbiosis of progress of economic and social fields), GDP per capita (economic growth) and energy consumption per capita (energy efficiency of economy) are of research interest. In this context the material of the countries of the former Soviet Union with emphasis on oppositely directed tendencies has been investigated.

Detailed elaboration of the resulting indicators (GDP per capita in US dollars, HDI and energy consumption per capita) has allowed to allocate a number of the factors correlating with them:

- GDP per energy use unit (in fixed prices 2005, parity of purchasing power in USD for a kilogram of oil equivalent);
- emissions of CO_2 per capita;
- emissions of methane per capita in metric tons of an equivalent of CO_2;
- emissions of greenhouse gases per capita (in metric tons of an equivalent of CO_2);
- area of the woods (% of the total area of lands).

A number of ecological factors is not mentioned directly in the HDI, but they are indirectly reflected in such criteria as «the expected lifetime». Taking into use such factor as «the area of woods» is connected with consideration of the woods as an instrument of compensation of technology-related pressure upon the environmental conditions, health and working ability of the population, their participation in a recreation. Panel International Energy Agency [19], the United Nations [20], Organisation for Economic Co-operation and Development [21], The Word Bank [22], United Nations Development Programme [23] have formed factual base of the study. The period of the studied indicators is 16 years (from 1997 to 2012). The significance of the received correlation has been checked by means of Student statistic [24].

$$t_{pac} = \frac{|r|}{\sqrt{1-r^2}}\sqrt{n-2},$$

where r – correlation coefficient; n – period of time, year (n = 16). If $t_{pac} \geq t_{kr}$ then the correlation is recognized as statistically significant.

At significance value 0,05 critical value is t_{kr} = 2,14 [25]. With rare exception the correlation between the studied indicators was significant.

Results. First of all, the dynamics of the chosen criteria of welfare must be characterized (figure 1, 2).

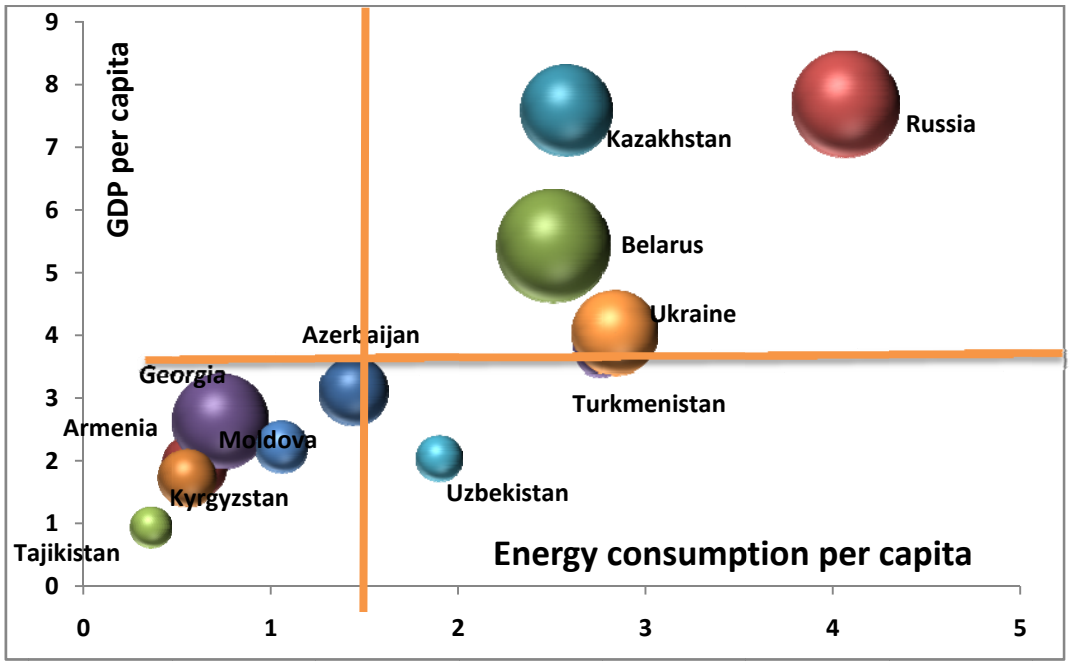


Figure 1 – Economic Growth, Energy Consumption and the HDI (1997):
** diameter of a tag reflects the level of HDI (the more diameter, the higher the rating of the country);*
** horizontal and vertical lines of the section – by average values of parameters.*

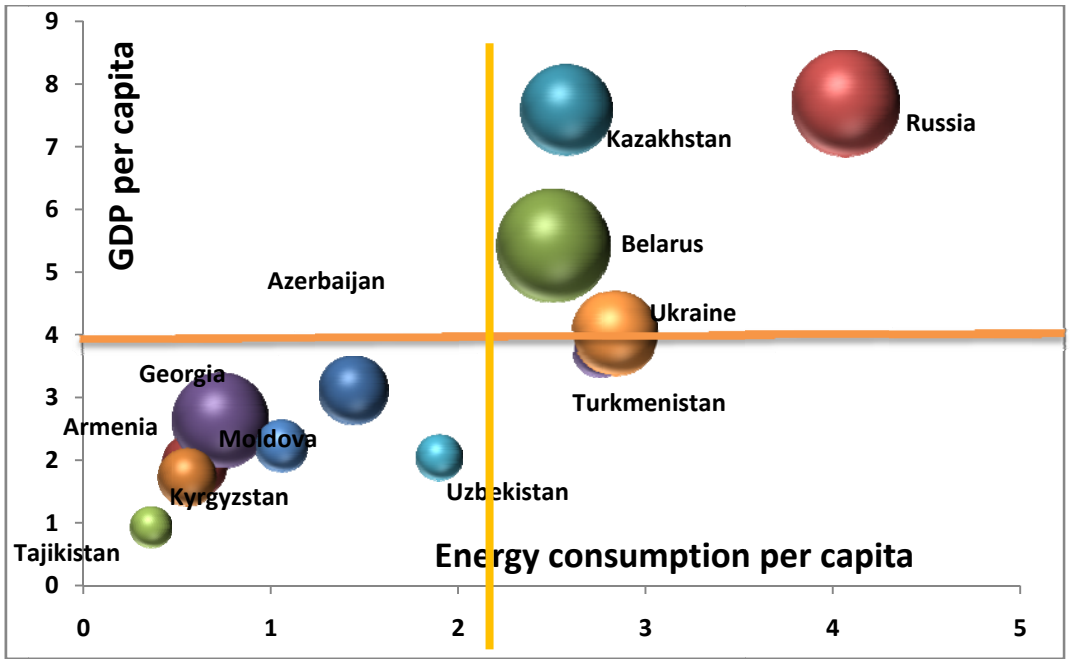


Figure 2 – Economic growth, energy consumption and HDI 2013:
** diameter of a tag reflects the level of HDI (the more diameter, the higher the rating of the country);*
** horizontal and vertical lines of the section – by average values of parameters.*

The investigated data show high dependence of economies of the countries on energy consumption. It has been found in their conditional division into two groups:

- the countries with low GDP and low energy consumption per capita;
- the countries with high GDP and high energy consumption per capita.

In 2013 the group of the countries on the quadrants has practically remained. Some countries have improved the situation (Russia, Azerbaijan, Kazakhstan, Turkmenistan, etc.), in Ukraine GDP has fallen. It must be noted that in 2013 the first group includes the countries with a low and average level of HDI (low level - Kyrgyzstan, Tajikistan), the second group includes the countries with high human development index (Russia, Belarus). The exception of the second group is Turkmenistan with a low human development index. That can be partly explainable by a low level of GDP per capita. However the country sticks to the status of the "vice-leader" in energy consumption per capita. Based on the statistical data of these 11 countries, the parameters have both positive and negative correlation:

For an indicator of HDI the positive correlation is revealed in the following dependences:

• HDI and GDP per unit of energy use;

• HDI and CH_4 per capita (an exception is Ukraine);

The closeness of correlation between HDI and GDP per unit of energy use is 0,73–0,998.

For an indicator of GDP the positive correlation is revealed in the following dependences:

• GDP per capita and GDP per unit of energy use;

• GDP per capita and CH_4 per capita (an exception is Ukraine).

For an indicator of energy use per capita the positive correlation is revealed in the following dependences:

• energy use per capita and CO_2 per capita;

• energy use per capita and greenhouse gas emissions per capita.

To the countries of the former Soviet Union are likely to have close positive connection (correlation coefficient for the majority of the countries is 0,95) between the rates of economic growth and energy consumption, as well as the energy use and emissions of CO_2 (coefficient of correlation 0,85–0,997).

The received results correspond to results of the empirical research conducted earlier for other countries. In fact, the economic growth has led to increase of consumption of energy, what in turn, has caused increase of emissions of CO_2. Partly it is caused by insufficiently high rates of implementation of energy efficient technologies, and insufficient investments. We will consider the criteria of welfare, energy consumption and economic growth, focusing on the negative correlation of the allocated parameters.

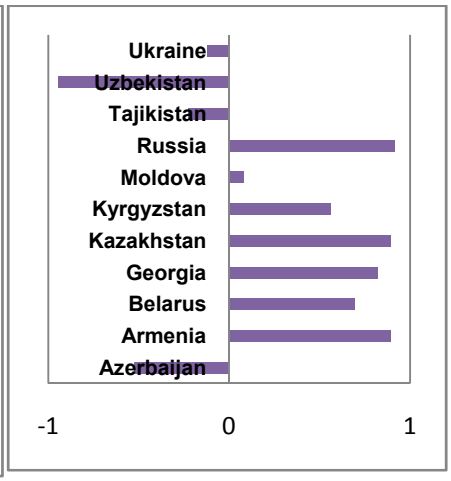
Correlation relationship of HDI (figure 3). All of the countries investigated have shown a rather close connection between HDI and GDP per energy use unit. That indicates that the welfare is based on energy consumption. The negative correlation observed concerns three countries – Uzbekistan, Ukraine and Azerbaijan regarding the parameter of the greenhouse gases per capita, in particular emissions of carbon dioxide and methane. This fact can be connected with the decrease of power consumption in the period of 1996-2014. Thus, Azerbaijan has reduced power consumption by 5 times, Uzbekistan by 3 times, Ukraine by 2,1 times. It is also connected with development of alternative and nuclear power engineering. Thus, in Uzbekistan it has increased by 82%, in Ukraine by 59%. Uzbekistan has raised positions by 6 points concerning the index of human development, Azerbaijan by 2 points correspondingly.

Correlation relationship of GDP per capita (figure 4). The unambiguous dependence of economic growth on the consumed energy is common for all countries, the weaker correlation has been observed in Kyrgyzstan and Kazakhstan. Uzbekistan shows the negative correlation between energy consumption per capita and GDP per unit of energy use (0,893). The reason for that is the growth of the population of the country at the time of decrease in energy consumption by 25%. GDP per unit of energy use (in fixed prices 2005, parity of purchasing power in USD for a kilogram of oil equivalent) has grown almost by 3 times.

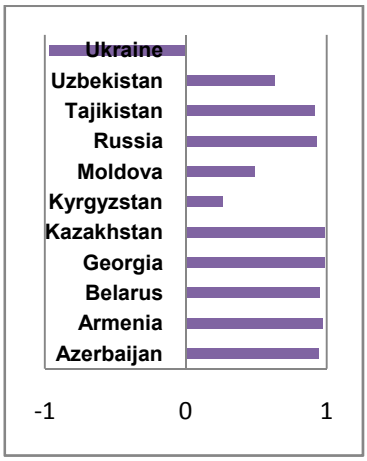
The negative correlation between GDP per capita and the area of the woods defines Kazakhstan, Kyrgyzstan and Tajikistan, which have insignificant forest area.

Correlation relationship of energy consumption per capita (figure 5). The whole picture concerning energy consumption and emissions of CO_2 and greenhouse gases (an exception: only Russia) is common for all countries. The negative correlation concerning energy consumption per capita and GDP per unit of energy use; energy consumption per capita and CH_4 per capita is observed in Uzbekistan. First of all it is connected with the growth of population by 27% (1997-2013) with increase in GDP. The emissions of methane have increased only by 5%. Negative correlation between energy consumption per capita and forest area in Kazakhstan, Kyrgyzstan and Tajikistan are connected with an insignificant share of forest area in the total area of all lands – 1,2%, 3,3% and 2,9% correspondingly (besides, in Kyrgyzstan the forest area has reduced by 24%).

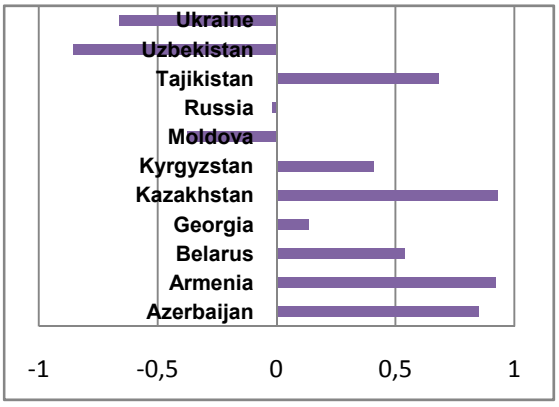
correlation coefficients of the HDI and the ratio of GDP to energy



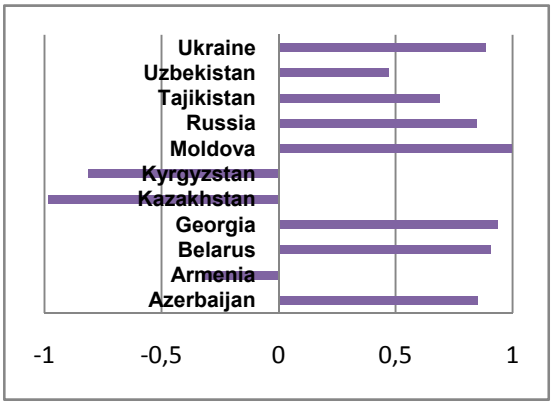
correlation coefficients of HDI and CO_2 per capita



correlation coefficients of HDI and CH_4 per capita

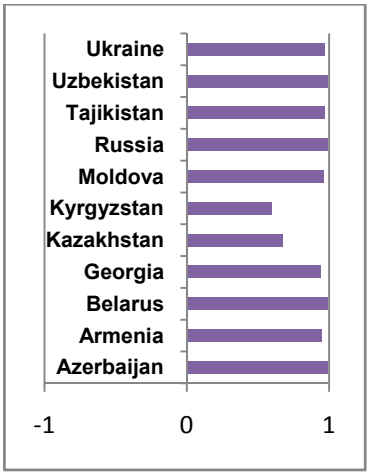


correlation coefficients of the HDI and greenhouse gases per capita

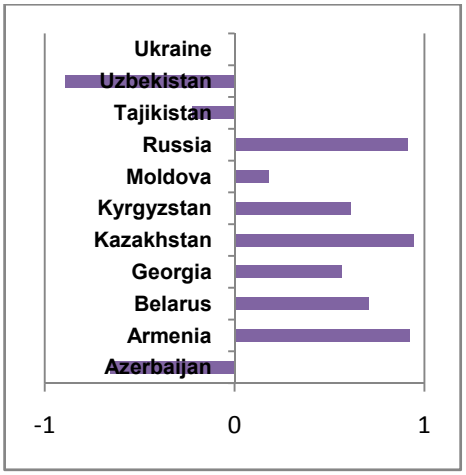


correlation coefficients of HDI and forest area

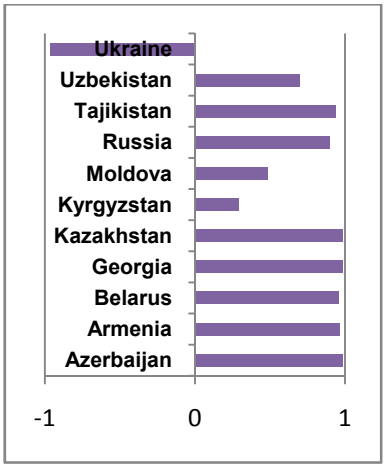
Figure 3 – Correlation relationship of HDI



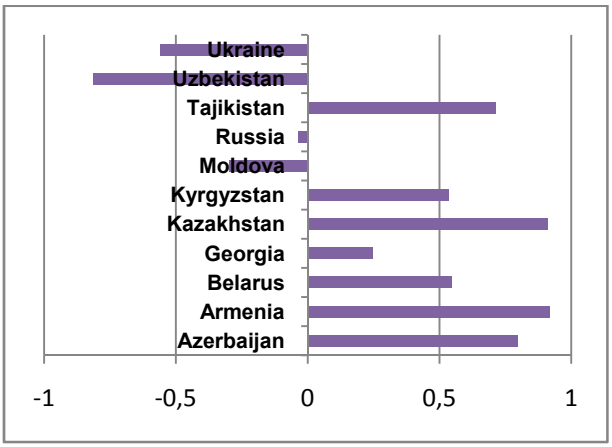
correlation coefficients of GDP per capita and GDP per unit of energy use



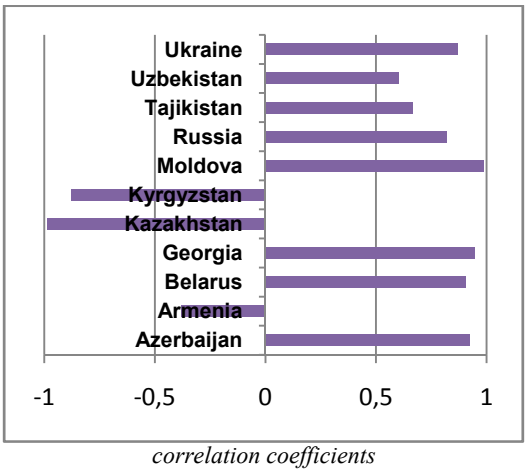
correlation coefficients of GDP per capita and CO_2 per capita



correlation coefficients of GDP per capita and CH_4 per capita

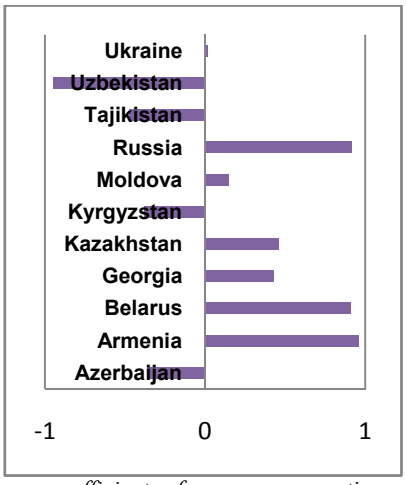


correlation coefficients of GDP per capita and greenhouse gases per capita

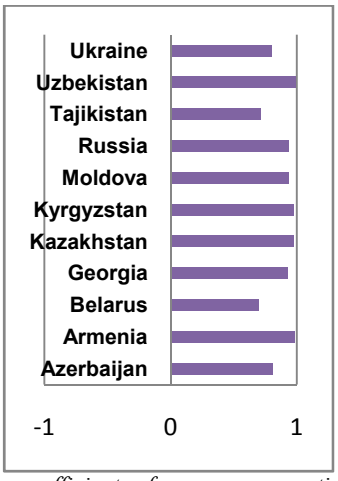


correlation coefficients of GDP per capita and forest area

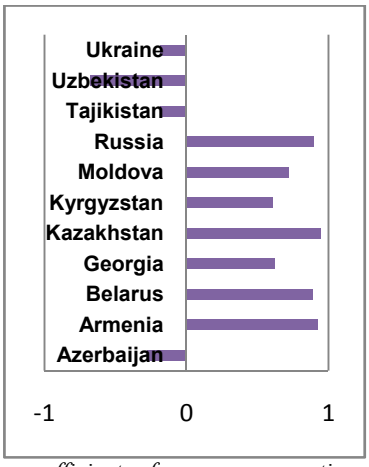
Figure 4 – Correlation relationship of GDP per capita



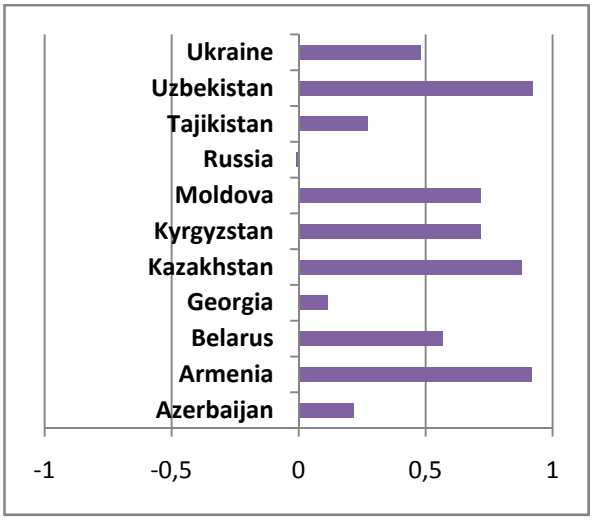
coefficients of energy consumption per capita and GDP per unit of energy use



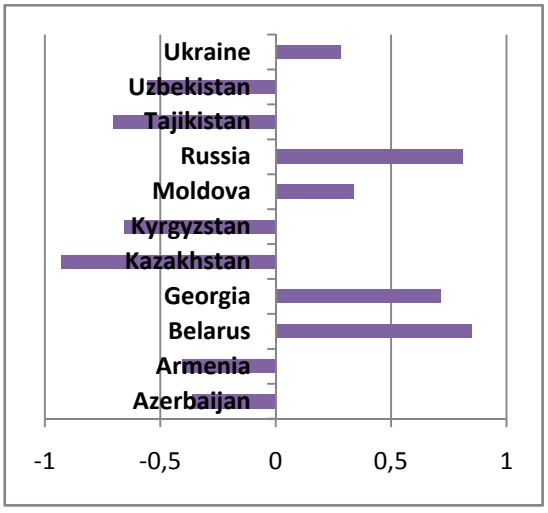
coefficients of energy consumption per capita and CO_2 per capita



coefficients of energy consumption per person and CH_4 per capita



correlation coefficients of energy consumption per capita and greenhouse gases per capita



correlation coefficients of energy consumption per capita and forest area

Figure 5 – Correlation relationship of energy consumption per capita

For elaboration of this criterion we will compare consumption of energy of extractable resources and the level of energy consumption and GDP (figure 6).

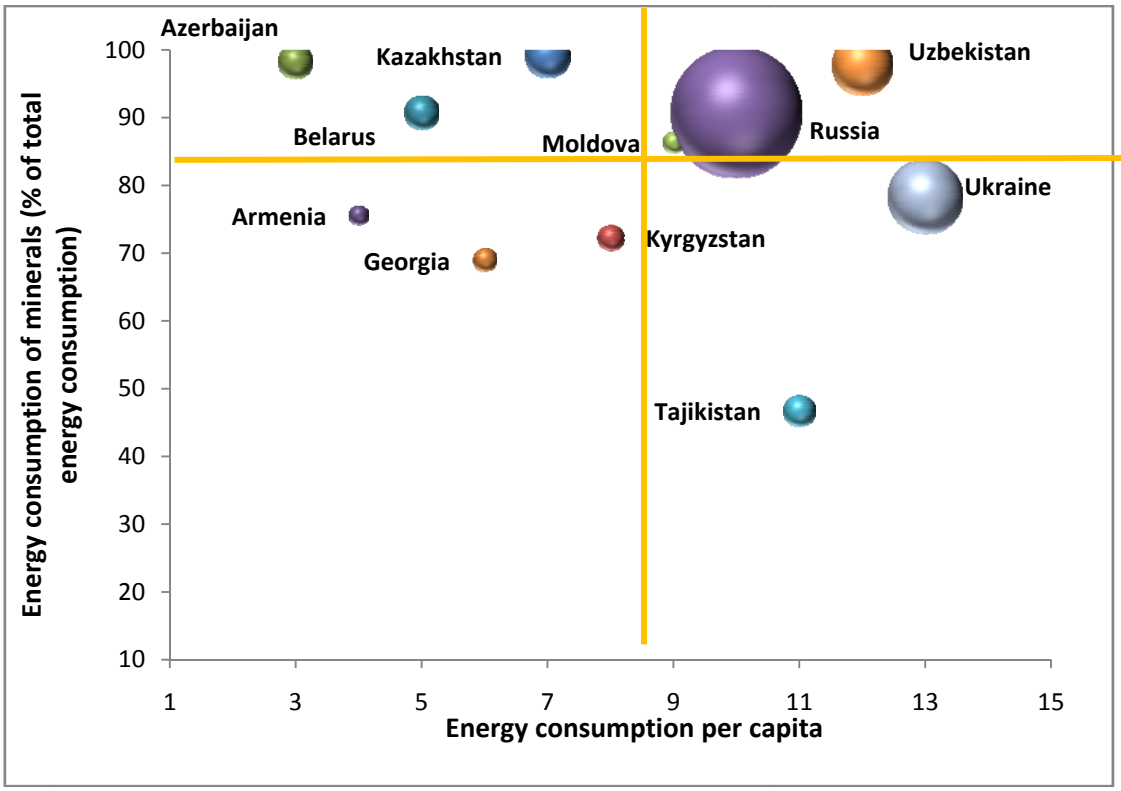


Figure 6 – Consumption of mineral energy and energy intensity of the economies of the post-Soviet countries:
** Diameter of a circle is positively associated to the population of the country*
** Horizontal and vertical lines of the section – by average values of parameters.*

The obtained data can be divided into 4 groups of the countries:

- the countries with rather low power consumption and with average dependence on power sources of extractable resources (Armenia, Georgia, Tajikistan);
- the countries with rather low power consumption and with high dependence on power sources of extractable resources (Azerbaijan, Belarus);
- the countries with average power consumption and with medium high dependence on power sources of extractable resources (Kyrgyzstan, Ukraine);
- the countries with medium high power consumption and with high dependence on power sources of extractable resources (Russia, Kazakhstan, Uzbekistan).

The following data regarding the first group can also be provided:

- Tajikistan: the share of the renewable electric power from the total production of the electric power is 99% (generally hydraulic power), consumption of renewable energy is 50% of the general final energy consumption;
- Georgia: a share of development of the renewable electric power from total production of the electric power is 80%, consumption of renewable energy is 32% of the general final energy consumption;
- Armenia ranks No. 3 among the considered countries;
- The most dependent country among the considered ones on the use of power sources of extractable resources is Uzbekistan, generally on natural gas (80% in the structure of primary power sources, oil – about 16%, coal and hydroelectric power - the rest). Uzbekistan ranks № 11 in the world in extraction of natural gas, ranks № 10 on its consumption, ranks № 34 on consumption of primary energy [26].

We will distinguish the countries with a close positive correlation (close to 1) (table 1).

Table 1 – Grouping of countries by positive correlation

Factors	Criteria		
	HDI	**GDP per capita**	**Energy consumption per capita**
GDP per unit of energy use	Ukraine, Uzbekistan, Tajikistan, Kazakhstan, Russia, Moldova, Georgia, Belarus, Armenia, Azerbaijan	Ukraine, Uzbekistan, Tajikistan, Russia, Moldova, Georgia, Belarus, Armenia, Azerbaijan	Russia, Belarus, Armenia
CO_2 per capita	Russia, Kazakhstan, Georgia, Armenia	Russia, Kazakhstan, Armenia, Belarus	Ukraine, Uzbekistan, Russia, Moldova, Kyrgyzstan, Kazakhstan, Georgia, Armenia, Azerbaijan, Belarus, Tajikistan
CH_4 per capita	Tajikistan, Kazakhstan, Russia, Georgia, Belarus, Armenia, Azerbaijan	Tajikistan, Russia, Kazakhstan, Georgia, Belarus, Armenia, Azerbaijan	Russia, Kazakhstan, Armenia, Belarus, Moldova
Greenhouse gases per capita	Kazakhstan, Armenia, Azerbaijan	Kazakhstan, Armenia, Azerbaijan, Tajikistan	Uzbekistan, Kazakhstan, Armenia, Kyrgyzstan, Moldova
Forest area	Ukraine, Russia, Moldova, Georgia, Belarus, Azerbaijan	Ukraine, Russia, Moldova, Georgia, Belarus, Azerbaijan	Russia, Belarus, Georgia

Thus, the countries which have shown high dependence on the considered factors by all criteria of welfare are Russia, Armenia, Azerbaijan, Belarus.

Each of the countries mentioned has defining characteristics:

• Russia has high GDP and energy consumption per capita (figures 1, 2) with essential dependence on conventional energy sources (fig. 18);

• Armenia has a low level of GDP and energy consumption per capita (figures 1, 2), and is less dependent on conventional energy sources;

• Azerbaijan is the country with high GDP and low energy consumption with high dependence on conventional energy sources;

• Belarus is the country with high GDP and average energy consumption with high dependence on conventional energy sources.

A number of the countries shows negative correlation regarding the following dependences (table 2).

Table 2 – Grouping of countries by negative correlation

Factors	Criteria		
	HDI	**GDP per capita**	**Energy consumption per capita**
GDP per unit of energy use			Azerbaijan
CO_2 per capita	Azerbaijan	Azerbaijan	
CH_4 per capita			Azerbaijan
Greenhouse gases per capita	Russia	Russia	Russia
Forest area	Armenia	Armenia	Azerbaijan, Armenia, Tajikistan

In Russia the negative correlation of all criteria of welfare and a factor Greenhouse gases per capita has been revealed. In Azerbaijan the prevalence of negative correlation of energy consumption per capita with practically all factors has been noticed (4 of 5).

Thus, the conducted research predetermine the extension study of welfare of these countries, perhaps, at extension of the list of factors and/or allocation of factors of the second level.

Discussion. Comparison of the provided data has revealed almost full identity of dependences of welfare: HDI and economic growth (GDP per capita). In the context of studied dependences it allows to equate the economic growth and welfare. Partly it is explained by the high importance of meeting material needs of the investigated countries, connected with the leap of standards of well-being after the transformation of the economic system. In Russia GDP has per capita changed from $2 641,77 (1996) to $14 467,79 (2013). Energy consumption has its own specific "set" of dependences, creating prerequisites of extension of the list of the correlating factors in future researches. This criterion has the maximum quantity of dependences with strong negative correlation. It makes necessary to elaborate both the criterion, and factors, correlating with it. It seems also reasonable to specify energy consumption by industries, discuss institutional aspects of the problem, structure the consumed energy resources. Such countries as Russia, Armenia, Azerbaijan (table 2) can be taken as objects of investigation.

Conclusion. The presented research doesn't pretend to completeness. It is unlikely to close the chapter on choosing the criterion of welfare, especially taking into account flexible specific characteristics. Nevertheless, the result is: integrated character of the assessment received when applying such indicator HDI and GDP per capita for the countries of the former Soviet Union has been established. The factor of energy consumption per capita has to be investigated more deeply on the basis of the obtained data. Perhaps, additional allocated factors will allow to define new aspects of criteria per capita. That does not mean the refusal of such indicators as HDI and FGP.

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АУҚАТТЫЛЫҚ – КОРРЕЛЯЦИЯЛЫҚ БІРЛІК НЕМЕСЕ ҚҰРАМДАС БӨЛІКТЕРДІҢ ТАЛАСЫ (Посткеңестік елдердің материалдары негізінде)

Аннотация. Көрсетілген мақалада зерттеу нәтижесіне сәйкес кеңес өкіметін құраған мемлекеттердің 1997-2015 жылдар аралығындағы әртүрлі белгілерді қолданумен (ЖІӨ халықтың жан басына шаққандағы, АӘДИ және халықтың жан басына шаққандағы энергияны тұтыну) әл-ауқатын зерттеудің нәтижелері келтірілген.

Обьектілердің зерттеуі постсоветстық кеңістіктегі беделді динамикадан туындады. Бағалау үшін критерийлер жиынтығы пайдаланылды: жан басына шаққанда ЖІӨ, АӘДИ және адам басына шаққанда энергияны тұтыну. Энергияны пайдалану бірлігіне ЖІӨ, CO_2 қалдықтары, метан және парниктік газдар,орман алаңы бөлшек факторлары ретінде анықталды.

Зерттеудің ерекшелігі трансформацияның ортақ кезеңдеріне, бұрынғы Кеңес Одақ елдерінің белгілі бір уақыт кезеңінде ұлттық экономиканың даму көрсеткіштеріне байланысты. Дегенмен, ортақ өткені бар елдер, зерттелген көрсеткіштердің тәуелділіктеріндегі айтарлықтай шашыраңқылықты көрсетті. Корреляциялық талдаудың нәтижелері бойынша барлық әл-ауқат критерийлерінде жоғары тәуелділік танытқан елдер тобы анықталды. (Ресей, Армения, Әзірбайжан, Белорусия). АӘДИ көрсеткіштері үшін АӘДИ және ЖІӨ тәуелділігіне қатысты энергияны пайдалану бірлігіне байланысты оң корреляция анықталды.

Жан басына шаққандағы ЖІӨ көрсеткіші үшін тәуелділіктерге қатысты оң корреляция анықталды: жан басына шаққанда ЖІӨ және энергияны пайдалану бірлігіне ЖІӨ; жан басына шаққандағы ЖІӨ, адамға шаққандағы CH_4 (Украинадан басқа). Бұл зерттелген тәуелділіктер шегінде экономикалық даму мен әл ауқат арасында теңдік белгісін қоюға мүмкіндік берді. Посткеңестік кеңістіктегі елдерге экономикалық даму мен энергия тұтыну (көп елдер үшін корреляция коэффициенті 0,95) және энергия тұтыну мен CO_2 қалдықтар арасындағы (корреляция коэффициенті 0,85-0,997) тығыз оң қатынастар тән.

Барлық елдер экономикалық дамудың тұтынылатын энергияға тәуелділігін көрсетеді, Қырғызстан мен Қазақстан үшін корреляция біршама төмен. Өзбекстан үшін энергияны тұтыну және энергияны пайдалану бірлігіне шаққанда ЖІӨ арасындағы теріс корреляция белгіленді. Оған себеп - энергия тұтыну көлемінің азаюында ел халқының өсуі. Жан басына шаққандағы ЖІӨ мен орман алқабының арасындағы теріс кор-

реляция шамалы орман қоры бар Қазақстан, Қырғызстан және Тәжікстанмен сипатталады. Алынған мәліметтерге сәйкес елдерді энергосыйымдылық деңгейі мен пайдалы қазбалардан энергия көздерінің тәуелділіктері "байланысы" бойынша топтастыруға мүмкіндік берді.

Энергия тұтынуға әл ауқаты критериясы сияқты өзіндік нақты тәуелділіктер "жиынтығы" тән. Сонымен қатар, посткеңестік кеңістіктегі елдер үшін бұл критерий ең күшті теріс корреляциялық байланыспен тәуелділігі максималды санға ие. Бұл болашақ зерттеулерге корреляциялық факторлардың тізімін кеңейтудің алғышарттарын құрайды.

Түйін сөздер: әл-ауқаты, адам әлеуетінің даму индексі, экономикалық өсу, энергия тұтыну, CO_2 шығарындылары.

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БЛАГОСОСТОЯНИЕ – КОРРЕЛЯЦИОННОЕ ЕДИНСТВО ИЛИ БОРЬБА СОСТАВЛЯЮЩИХ? (На материале стран постсоветского пространства)

Аннотация. В представленной статье проведено исследование таких значимых компонент благосостояния как индекс человеческого развития (ИЧР), экономический рост, энергопотребление, экологическая составляющая.

Объектом исследования выступила динамика благосостояния стран постсоветского пространства. Для оценки использована совокупность критериев: ВВП на душу населения, ИЧР и энергопотребление на душу населения. В качестве детализирующих факторов определены - ВВП на единицу использования энергии; выбросы CO_2, метана и парниковых газов на душу населения; площадь лесов.

Использованы фактологические данные за период 1997-2015 гг. Специфика исследования связана с общностью этапов трансформации, параметров развития национальных хозяйств бывших стран Советского Союза в течение определённого периода времени. Тем не менее, страны, имеющие общее прошлое, продемонстрировали существенный разброс зависимостей исследуемых показателей.

По результатам корреляционного анализа выделена группа стран, продемонстрировавших высокую зависимость по всем критериям благосостояния от рассмотренных факторов (Россия, Армения, Азербайджан, Белоруссия). Для показателя ИЧР положительная корреляция выявлена в отношении зависимостей ИЧР и ВВП на единицу использования энергии. Для показателя ВВП на душу населения положительная корреляция выявлена в отношении зависимостей: ВВП на душу населения и ВВП на единицу использования энергии; ВВП на душу населения и CH_4 на чел. (исключение Украина).

Это позволило в рамках исследуемых зависимостей поставить знак равенства между экономическим ростом и благосостоянием. Странам постсоветского пространства характерна тесная положительная связь (коэффициент корреляции для большинства стран 0,95) между темпами экономического роста и энергопотреблением, а так же потреблением энергии и выбросами CO_2 (коэффициент корреляции 0,85–0,997). Однозначную зависимость экономического роста от потребляемой энергии демонстрируют все страны, чуть более слабая корреляция – для Киргизии и Казахстана. Отрицательная корреляция между энергопотреблением на человека и ВВП на единицу использования энергии установлена для Узбекистана. Причина тому - рост населения страны при снижении энергопотребления. Отрицательная корреляция между ВВП на душу населения и площадью лесов характеризует Казахстан, Киргизию и Таджикистан, имеющие незначительный лесной фонд.

Полученные данные позволили провести классификацию стран по «связке» уровня энергоемкости и зависимости от источников энергии полезных ископаемых. Энергопотреблению как критерию благосостояния характерен собственный специфический «набор» зависимостей. Более того, именно данный критерий имеет максимальное количество зависимостей с сильной отрицательной корреляционной связью для стран постсоветского пространства. Это создает предпосылки расширения перечня коррелирующих факторов в будущих исследованиях.

Ключевые слова: благосостояние, индекс развития человеческого потенциала, экономический рост, энергопотребление, выбросы CO_2.

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ACTIVATION OF ADAPTOGENESIS AND BIORESOURCE POTENTIAL OF CALVES UNDER THE CONDITIONS OF TRADITIONAL AND ADAPTIVE TECHNOLOGIES

Abstract. For the first time, the influence of the biological stimulators of the new generation, polystim and PV-1, on the growth and development of calves under the conditions of traditional growth technology and in premises of lighter type of the adaptive technology (individual houses and pavilions on the open area) and on the quality of young stock meat has been studied. The possibility of activating the adaptive processes and increasing the resistance of the organism of such animals under the influence of these biostimulators to low temperatures of the habitat for protein-carbohydrate-vitamin metabolism, the function of the hematopoietic organs and the buffer system is established. The tested preparations activated the growth and development of calves, reduced the incidence of respiratory organs and gastrointestinal tract.

The possibility of correction of cellular and humoral factors of nonspecific resistance of the calf organism with the help of polystim and PV-1 during the winter period when growing according to traditional technology and in premises of light type has been experimentally proved.

Activation of the bioamine spectrum of the blood components was revealed due to manifestations of response reactions from the sympatho-adrenal, serotonergic and histaminergic systems of the calves organism depending on different growing conditions.

The quality of meat of the animals, which were injected with biostimulators, did not differ in organoleptic, biochemical and physicochemical parameters from those obtained without the use of stimulators, which indicates its ecological safety and biological fullness.

Keywords: calves, traditional technology, adaptive technology, biostimulators, adaptation, growth, development, meat quality.

Introduction. In spite of significant advances in modern zootechnical science and practice, the problem of the fulfilment of the EEU countries population with high-quality livestock products, including beef, is topical. More than 95% of beef is produced by slaughter meat of super-repair young animals and the rejected adult livestock of dairy and combined directions of productivity, the slaughter contingent of which and the level of productivity do not provide the necessary production volumes. For beef production, the young stock of the black-motley breed is used mostly, it is more adapted and maximally realizes the bioresource potential under optimal feeding and maintenance conditions. Currently, many farms successfully practice adaptive technology of calf growing [1-4].

The essence of this technology lies in the fact that calves in the first day are kept under mother-cows, then transferred to individual houses-prophylactorium, and 30 days later - to group houses. There are many positive aspects of this technology, but the main thing is the rupture of the epizootic chain, the formation of mechanisms for emergency adaptation and the increase in nonspecific resistance to habitat

factors. The lack of scientifically based methods of pharmacological treatment of temperature stress using biostimulants inhibits the realization of the potential capabilities of the technology of calf growing and its widespread introduction into the production process [5-9, 11].

In light of the implementation of the ecological-adaptive theory of health protection and the provision of high productivity, there is a need to move from the existing traditional concept: sick animal - diagnosis - therapy, to a new global problem: animal population - habitat - prevention [1-4, 15, 18].

According to D.A. Baimukanov et al., in order to prevent the immune deficiency, to stimulate the level of nonspecific body protection to the pressure of environmental and technological stress factors and to realize the bioresource potential of the meat qualities of bull-calves, a wide range of feed and bioactive additives, immunocorrectors, antioxidants and Prevention-N-A and Prevention -N-E biologics [1].

The veterinary pharmaceutical market offers a variety of medicines. Most of them are synthetic and often cause complications, including aggravation of immunosuppressive conditions, contaminate raw materials and food products, and environment. Therefore, recently of great interest are medicines made from natural raw materials, which, when introduced into the animal's body, even in small amounts cause a positive effect [10, 12-14, 16, 17, 19, 20]. Such preparations are biostimulants polystim and PV-1, developed by scientists of the Chuvash State Agricultural Academy.

The aim of this study is to scientifically substantiate the growing of calves in the winter period in terms of traditional and adaptive technologies using new generation biological stimulants.

Material and methods. The objects of the research were calves of black-and-motley breed aged 1 to 180 days old bred in JSC "Agro-industrial company "Adal" of Enbekshikazakhsky district of Almaty region, the Republic of Kazakhstan.

The studies were conducted against the background of a balanced feeding according to the rations adopted in the farms, taking into account the main indicators stipulated by the Norms and rations of feeding of farm animals. Due to the extreme conditions in the process of growing calves in light-type rooms, the level of milk feeding was provided for by 20% above the accepted norms.

To activate adaptogenesis and realize the bioresource potential of calves, environmentally safe biological preparations were used – polystim and PV-1.

We have carried out two scientific and economic experience, in terms of traditional and adaptive technologies. In each variant of the experiments, three groups of newborn calves were selected on the basis of pair-analogues (one control and two experimental) taking into account the clinical and physiological state, breed, age, sex, and body weight. Each group consisted of 10 calves.

When setting up the experiments, no biostimulants were administered to the control group of animals; the 1st experimental group was intramuscularly injected with a polystim at a dose of 3 ml for the 1-2nd and 5-6th days of their life, and the 2nd experimental group with PV-1 at the same dose and at the same time.

With traditional technology, newborn calves were kept with mother-cows for one day, then transferred to a replaceable sectional dispensary, where they were kept until 21 days of age, and after the prophylactic period - in a calf house until the end of the observation period (180 days).

When grown in light-type premises, newborn calves were transferred from the maternity ward, where they were kept for 1 day with mother-cows, to individual houses and kept until the age of 30 days. Then they were transferred to pavilions in an open area, where observations continued until the age of 180 days.

In 5 calves from each group on the 1, 30, 60, 90, 120, 150 and 180th days of their lives, indicators of the physiological state, morphological and biochemical blood profiles, non-specific resistance, as well as growth and development were determined.

After the slaughter of young stock (control and experimental groups), meat quality and histomorphology of the internal organs were determined at 180 days of age.

Results. The parameters of the microclimate in the maternity ward, dispensary and calf house for the research period in terms of traditional technology were within the zoohygienic norms (table 1).

In light-type premises, the air temperature was lower than the regulatory data by 15.2-18.3 °C and was -1.2±0.19 °C and -4.3±0.31 °C. The relative humidity and bacterial load of the air environment, the content of ammonia, hydrogen sulfide, carbon dioxide and dust in individual houses and pavilions were lower than in dispensary and calf house (table 2).

Table 1 – Microclimate with the traditional technology of keeping calves

Parameters	Premises		
	maternity ward	dispensary	calf house
Air temperature, °C	14.6±0.33	15.4±0.27	13.7±0.28
Relative humidity, %	75.7±1.17	74.6±1.01	76.5±0.40
Air velocity, m/s	0.18±0.02	0.19±0.01	0.21±0.01
Light factor	1:15	1:13	1:12
Natural light factor, %	0.6±0.06	0.8±0.02	0.8±0.02
Concentration of pollutants in the air:			
ammonia, mg/m^3	7.1±0.59	5.1±0.23	8.6±0.22
hydrogen sulphide, mg/m^3	4.0±0.29	3.2±0.17	5.5±0.19
carbon dioxide, %	0.19±0.01	0.17±0.01	0.23±0.01
bacterial load, thous/m^3	14.9±1.07	23.5±0.80	33.4±0.85
dust content, mg/m^3	1.5±0.22	1.3±0.09	3.0±0.14

Table 2 – Microclimate with adaptive technology for keeping calves

Parameters	Premises		
	maternity ward	individual houses	pavilions
Air temperature, °C	15.1±0.32	-1.2±0.19	-4.3±0.31
Relative humidity, %	74.8±1.10	80.7±1.07	77.3±1.55
Air velocity, m/s	0.22±0.01	0.41±0.02	0.49±0.01
Light factor	1:15	–	–
Natural light factor, %	0.7±0.05	–	–
Concentration of pollutants in the air:			
ammonia, mg/m^3	8.2±0.53	–	–
hydrogen sulphide, mg/m^3	4.7±0.46	–	–
carbon dioxide, %	0.17±0.01	0.05±0.01	0.05±0.01
bacteria, thous/m^3	22.7±1.08	1.3±0.15	3.5±0.27
dust, mg/m^3	2.6±0.18	0.3±0.06	0.2±0.03

It was established that the data of the clinical and physiological state of the young stock of the control and experimental groups for the entire observation period were within the physiological norms.

With the traditional technology of growing young stock, 6 animals were ill in the control group (4 of them with bronchopneumonia and 2 dyspepsias) for the entire observation period, in the 1st experimental group - 2 bronchopneumonia and 1 dyspepsia, and in the 2nd experimental group - only 1 dyspepsia. Duration of illness averaged 7.66±1.20, 4.33±0.66, and 4.00±0.00 days, respectively. That is, in experimental animals, it was shorter by 3.33 and 3.66 days, respectively.

When grown in light-type rooms, 3 animals became ill in the control group (2 bronchopneumonia and 1 dyspepsia), and in the 1st and 2nd experimental groups - 1 animal with dyspepsia. The duration of disease in animals of the control group was 6.33±0.79 days, while for the others - 5.00±0.00 and 4.00±0.00 days, respectively. Consequently, in the experimental animals it was shorter by 1.33 and 2.33 days, respectively, and proceeded in a milder form than in the control.

Live weight and average daily gain of young stock by the end of the observation period turned out to be higher in animals of the 1st and 2nd experimental groups compared to the control: in terms of the traditional technology by 5.6 and 8.2 kg and by 16.0 and 7.0 g, and when keeping in the light-type premises - by 6.0 and 8.4 kg and 20.0 and 46.0 g ($P<0.05$-0.001), respectively. A similar pattern was found in the dynamics of the growth rate of experimental animals (table 3).

When comparing exterior measurements of calves (table 4), it was found that throughout the entire observation period, animals of the 1st and 2nd experimental groups, grown with the use of biostimulants, had the best performance compared with the control data.

So, in calves grown under the traditional technology, the difference in the values of measurements of the oblique body length, height at withers, chest girth behind the shoulder blades and metacarpus at the age of 180 days was, cm: 5 and 7, 3 and 5, 5 and 7, 0,9 and 1,0, in the light-type premises – 5 and 6, 5 and

Table 3 – Dynamics of calves growing

Group of animals	Age, days	Average daily gain, g	Body mass, kg	Growth rate
With the traditional technology of maintenance				
Control	1 30 60 90 120 150 180	– 580±8.08 633±10.59 640±22.09 700±18.26 700±10.44 773±12.51	29.4±1.08 46.8±1.16 65.8±1.28 85.0±1.14 106.0±1.14 127.0±0.89 150.2±1.16	– 1.59 2.23 2.89 3.60 4.32 5.11
1st experimental	1 30 60 90 120 150 180	– 627±24.6 653±8.33 700±33.30 747±20.03 727±12.51 789±13.20	28.6±0.81 47.4±0.93 67.0±0.77 88.0±0.55* 110.4±0.87* 132.2±0.97** 155.8±1.16**	– 1.65 2.34 3.08 3.86 4.62 5.45
2nd experimental	1 30 60 90 120 150 180	– 633±10.59** 680±13.38* 695±20.57 754±22.57 747±13.43* 780±38.86	30.0±1.10 49.0±1.00 69.4±0.68* 90.0±0.95** 112.6±0.87** 135.0±0.95*** 158.4±1.03***	– 1.63 2.31 3.00 3.75 4.50 5.28
With the adaptive technology of maintenance				
Control	1 30 60 90 120 150 180	– 600±14.91 660±19.44 693±24.49 647±22.61 707±16.33 747±17.00	30.4±1.21 48.4±1.21 68.2±1.11 89.0±1.26 108.4±1.29 129.8±1.46 152.2±1.24	– 1.59 2.24 2.92 3.56 4.27 5.0
1st experimental	1 30 60 90 120 150 180	– 647±13.33* 713±17.00 733±10.54 727±19.44* 707±12.47 767±10.54	29.4±1.03 48.8±0.97 70.2±1.36 92.2±1.16 114.0±1.14* 135.2±1.46* 158.2±1.36*	– 1.66 2.39 3.13 3.88 4.59 5.38
2nd experimental	1 30 60 90 120 150 180	– 653±17.00* 693±16.33 740±19.44 740±12.47** 700±10.54 793±12.47	30.8±1.02 50.4±1.36 71.2±1.36 93.4±1.21* 115.6±1.36** 136.8±1.20** 160.6±1.25**	– 1.64 2.31 3.03 3.75 4.44 5.21
Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.				

Table 4 – Dynamics of exterior measurements of calves

Group of animals	Age, days	Oblique body length	Height at withers	Chest girth	Metacarpus girth
With the traditional technology of maintenance					
Control	1 30 60 90 120 150 180	69±0.87 80±0.89 89±1.14 102±0.75 106±0.80 111±1.07 117±0.89	68±0.97 76±1.14 84±0.75 86±0.51 89±0.97 93±0.84 97±0.66	73±0.98 85±1.34 95±1.05 104±0.68 109±0.86 115±0.77 120±0.98	9.8±0.08 10.4±0.10 12.4±0.11 13.1±0.16 13.5±0.18 14.1±0.32 14.6±0.28
1st experimental	1 30 60 90 120 150 180	72±1.03 82±0.93 92±0.73 105±0.55* 111±0.73** 118±1.03** 122±1.00**	70±0.71 79±0.86 86±0.40* 89±0.80* 93±0.93* 97±0.71** 100±0.58**	74±1.00 88±0.86 98±1.00 108±1.33* 115±1.16** 120±1.07** 125±1.14*	9.7±0.11 10.6±0.13 12.7±0.14 13.6±0.20 14.5±0.22** 15.0±0.23 15.5±0.22*
2nd experimental	1 30 60 90 120 150 180	70±0.89 82±0.68 93±0.63* 107±0.63** 113±0.84*** 119±0.87*** 124±1.18**	69±0.60 79±1.02 87±0.73* 90±0.73** 96±1.11** 99±0.95** 102±0.87**	72±1.17 86±0.93 97±0.68 107±1.07 115±1.21** 121±1.33** 127±0.86**	9.7±0.12 10.6±0.09 12.6±0.07 13.7±0.15* 14.5±0.21** 15.1±0.29* 15.6±0.30*
With the adaptive technology of maintenance					
Control	1 30 60 90 120 150 180	71±0.93 81±1.08 90±1.07 104±0.89 106±0.63 110±1.30 119±1.61	69±0.73 78±1.24 84±0.87 86±0.97 90±1.34 94±1.07 97±1.44	74±0.68 84±0.98 94±1.33 103±1.44 110±1.38 116±1.28 122±1.41	9.9±0.09 10.5±0.12 12.6±0.13 13.0±0.18 13.5±0.23 14.4±0.25 14.7±0.29
1st experimental	1 30 60 90 120 150 180	70±0.97 83±1.03 94±0.80* 106±0.51* 112±0.89*** 119±1.18*** 124±1.36*	69±0.93 80±1.16 87±1.26 90±1.39* 95±0.92* 98±1.10* 102±1.24*	75±0.86 88±1.36 98±1.44 108±1.07* 116±1.24* 120±0.98* 127±1.16*	9.9±0.16 10.7±0.15 12.9±0.17 13.7±0.20* 14.5±0.17** 15.2±0.15* 15.7±0.20*
2nd experimental	1 30 60 90 120 150 180	73±1.20 84±1.05 94±1.14* 109±1.02** 115±1.21*** 118±1.46** 125±1.30*	70±0.84 82±1.33 87±1.14* 91±1.02** 96±1.11** 99±1.39* 103±1.58*	73±0.93 88±1.24 99±1.21* 109±1.30* 117±1.16** 122±1.32** 128±1.22*	9.8±0.15 10.8±0.11 12.9±0.16 13.7±0.17* 14.6±0.21** 15.4±0.24* 15.7±0.27*
Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.					

Table 5 – Hematological profile of calves

Group of animals	Age, days	Hemoglobin, g/l	Red blood cells, $\times 10^{12}$/l	White blood cells, $\times 10^{9}$/l
With the traditional technology of maintenance				
Control	1	102±1.63	7.52±0.18	8.26±0.50
	15	97±2.60	7.34±0.21	8.64±0.54
	30	101±2.97	7.50±0.17	9.06±0.49
	60	105±1.11	7.72±0.14	8.54±0.38
	90	103±1.05	7.80±0.19	7.62±0.34
	120	102±2.35	7.16±0.16	7.08±0.44
	150	105±2.22	7.40±0.24	6.74±0.49
	180	106±1.58	7.62±0.22	6.98±0.53
1st experimental	1	100±2.11	7.36±0.19	8.22±0.61
	15	93±1.82	7.42±0.25	8.52±0.63
	30	104±5.78	7.78±0.13	9.36±0.59
	60	109±1.16*	8.22±0.17*	8.76±0.30
	90	112±1.57**	8.54±0.17*	7.84±0.29
	120	115±1.66**	8.42±0.19**	7.32±0.17
	150	117±1.71**	8.70±0.21**	6.88±0.34
	180	115±1.41**	8.88±0.35*	7.12±0.41
2nd experimental	1	103±1.92	7.24±0.20	8.54±0.63
	15	102±1.96	7.58±0.24	8.64±0.69
	30	108±1.05	7.88±0.25	9.70±0.73
	60	113±1.16**	8.28±0.18*	8.78±0.68
	90	118±1.56***	8.72±0.20*	7.86±0.51
	120	122±1.81***	8.44±0.17***	7.46±0.25
	150	122±1.58***	8.84±0.33**	7.02±0.16
	180	121±1.16***	9.06±0.37**	7.14±0.35
With the adaptive technology of maintenance				
Control	1	107±0.81	8.08±0.07	9.20±0.60
	15	104±2.06	8.26±0.18	9.38±0.67
	30	108±2.96	8.28±0.06	8.10±0.56
	60	110±1.93	8.44±0.12	7.70±0.46
	90	111±1.76	8.54±0.19	7.06±0.40
	120	111±2.02	8.06±0.31	6.50±0.18
	150	114±1.94	7.78±0.27	6.28±0.22
	180	117±2.24	7.80±0.21	6.24±0.25
1st experimental	1	105±1.21	7.94±0.13	8.76±0.53
	15	105±2.42	8.00±0.24	7.76±0.70
	30	115±3.03	8.50±0.07*	7.24±0.50
	60	119±2.13*	8.82±0.19	7.02±0.47
	90	122±1.52**	9.16±0.20	6.84±0.62
	120	124±2.44**	9.20±0.30*	6.44±0.37
	150	125±2.30**	9.10±0.37*	6.40±0.35
	180	128±2.39*	9.04±0.38*	6.38±0.37
2nd experimental	1	108±0.91	7.74±0.25	8.90±0.69
	15	110±1.98	8.46±0.14*	7.46±0.70
	30	119±2.40*	8.64±0.14*	7.88±0.43
	60	124±2.03**	8.84±0.12*	7.24±0.39
	90	127±1.87***	9.46±0.27*	6.92±0.59
	120	130±2.77***	9.46±0.30*	6.30±0.30
	150	130±2.07***	9.18±0.34*	6.34±0.31
	180	132±2.56**	9.40±0.43*	6.08±0.29

Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

6, 5 and 6, 1.0 and 1.0 (P<0.05-0.01) respectively. Changes in the morphological composition of blood against the background of intramuscular injection of biologics can be characterized as an increase in the protective-adaptive responses of the animal organism to the action of stress factors.

Consequently, the use of polystim and PV-1 for growing calves under the conditions of traditional and adaptive technologies contributed to the live weight gain of these animals, activating assimilatory processes. At the same time, their forage energy was mainly spent on increasing body weight, while in control (without using biostimulants) it was mainly used to ensure homeostasis of the body temperature under the conditions of low ambient temperatures.

When growing calves under the conditions of traditional technology, the data of hematological parameters (table 5) after injection of polystim and PV-1 were higher than in the control: the number of erythrocytes - by 0.28 - 1.30 and 0.38 - 1.44x1012/l, the concentration of hemoglobin is 3–13 and 7–20 g/l, and in experimental animals grown in light-type premises - by 0.22-1.32 and 0.36-1.60x1012/l, 7–13 and 11 - 19 g/l (P<0.05-0.001), respectively. The data obtained indicate that intramuscular injection of polystim and PV-1 stimulated the hematopoietic function of calves.

The content of total protein (table 6) in the blood serum of calves of the 1st and 2nd experimental groups during the observation period was significantly higher than in the control (with the traditional technology) by 3.6 - 7.6 and 4.2 - 8.1 g/l (P<0.05-0.01). In light-type premises, they were higher by 3.1 - 3.4 and 2.4 - 4.1 g/l (P>0.05), respectively, than with traditional technology. The use of biologics smoothes negative changes in protein metabolism, with a slight decrease in the level of total protein and an increase in the globulin fraction of the protein.

The level of albumins in the blood serum of young stock of the 1st and 2nd experimental groups was also significantly higher than in the control group: with the traditional technology of maintenance, starting from the age of 60 days and until the end of the observation period - by 2.4 - 4.9 and 2.9 - 6.0 g/l, and when grown in light-type premises from 30 to 180 days old - by 2.9 - 5.6 and 3.0 - 7.1 g/l (P<0.05 - 0.001), respectively.

The concentration of α- and β-globulin protein fractions in the blood serum of calves from the control and experimental groups varied throughout the observation period, i.e. these changes did not have a definite pattern, and the difference between the obtained data was unreliable.

The most variable fraction of total protein is γ-globulin, the significant fluctuations of which in experimental animals can be explained as follows: the relatively high level of γ-globulins at the beginning of the experiments is the result of their entry into the body with colostrum; the decrease in γ-globulins at 150 days of age is due to the onset of a transition period, when calves were completely transferred from milk to vegetable feeding. The transition was accompanied by some inhibition of the immunobiological reactivity of the growing organism. The increase in the content of γ-globulins was subsequently the result of the developing immunobiological activity of the organism.

The content of the γ-globulin protein fraction in the serum of the experimental animals during the entire observation period was higher than in the control. In animals of the 1st and 2nd experimental groups grown under the conditions of traditional technology, the concentration of the γ-globulin protein fraction exceeded the control data by 2.2 - 4.2 and 3.1 - 5.7 g/l, and in the rooms of light type - by 4.2 - 8.4 and 4.2 - 10.0 g/l, respectively (P<0.05-0.001).

The data of biochemical studies of the blood of calves indicate that intramuscular injection of polystim and PV-1 activated the production of albumin as a plastic material and γ-globulin - the humoral link of the organism's non-specific resistance.

Biostimulants activated in the body buffer systems, the exchange of glucose, total calcium and inorganic phosphorus (table 7). Although the level of carotene in the blood serum increased under the influence of these drugs, there was no significant change in the metabolism of provitamin A. The difference in the stimulating effect between polystim and PV-1 has not been established.

In calves grown under conditions of traditional technology with the use of biostimulants, there were significantly higher: the phagocytic activity of white blood cells by 3.4 - 6.4 and 4.2 - 9.6%, lysozyme plasma activity - 1.6 - 4.6 and 1.8 - 5.4%, bactericidal activity of blood serum - 2.2 - 5.4 and 3.2 - 7.2% and the number of immunoglobulins - by 1.7 - 3.9 and 2.9 - 5.8 mg/ml (P<0.05-0.001), respectively. When keeping animals in light-type premises, the data of the same parameters were higher - by 3.8 - 9.8 and 4.8 - 11.8%, 2 - 4.7 and 1.9 - 6.1%, 1.2 - 9.1 and 3.3 - 8.5% and by 3.0 - 5.1 and 5.1 - 9.1 mg/ml (P<0.05-0.001), respectively (table 8).

Table 6 – Dynamics of total protein and its fractions

Group of animals	Age, days	Total protein, g/l	Protein fraction, g/l			
			albumins	α-globulins	β-globulins	γ-globulins
With the traditional technology of maintenance						
Control	1	61.9±0.96	25.2±1.48	14.9±1.07	11.7±0.93	10.1±0.74
	15	62.3±1.34	24.3±1.05	10.4±1.65	10.5±1.82	17.1±0.62
	30	63.6±0.41	25.9±0.72	11.4±1.25	6.8±0.77	19.5±0.82
	60	63.1±0.40	22.9±0.84	9.4±1.08	10.9±0.35	19.8±0.85
	90	64.3±0.45	23.4±0.90	9.9±1.08	9.7±0.76	21.3±0.94
	120	68.9±0.63	24.2±0.99	9.6±0.82	12.9±0.93	22.1±0.86
	150	68.8±0.89	25.5±1.09	10.2±0.74	11.8±0.81	21.3±0.86
	180	69.7±0.98	26.3±0.95	9.4±0.98	12.9±0.93	21.1±0.73
1st experimental	1	60.8±1.65	24.7±0.74	13.9±1.41	10.1±1.06	12.0±1.00
	15	64.2±1.42	26.1±0.88	7.5±0.96	9.3±1.13	21.3±0.89**
	30	65.7±0.82	28.4±0.53*	6.0±0.31	6.0±0.62	25.3±0.94**
	60	64.9±0.64*	26.1±0.56*	5.2±0.36	5.3±0.49	28.2±0.98***
	90	68.5±1.61*	27.5±0.69**	4.5±0.53	7.4±0.83	29.1±1.68**
	120	69.4±1.00	28.9±0.57**	5.9±0.66	6.7±0.68	27.9±0.92**
	150	69.4±0.78	30.7±0.80**	6.3±0.79	5.8±0.65	26.7±0.94**
	180	70.4±0.92	31.9±0.70**	5.8±0.71	5.7±0.68	26.9±0.99**
2nd experimental	1	62.1±0.90	26.2±1.01	15.3±1.30	9.3±1.03	11.3±0.99
	15	65.3±0.97	26.9±0.71	7.8±0.94	9.5±0.95	21.3±0.52***
	30	66.5±1.04*	28.9±0.86*	6.6±0.56	5.2±0.75	25.8±0.65***
	60	67.1±0.80**	28.1±0.59**	4.3±0.52	4.9±0.85	29.8±0.51***
	90	67.4±0.84*	29.0±0.57***	5.9±0.61	5.1±0.75	27.4±0.67***
	120	71.0±0.55*	31.3±0.28***	7.8±0.66	4.4±0.81	27.5±0.75**
	150	70.6±0.84	31.8±0.69**	8.2±0.69	3.8±0.67	26.8±0.84**
	180	71.6±1.99	32.4±0.91**	7.7±0.91	4.4±0.81	27.0±0.97**
With the adaptive technology of maintenance						
Control	1	61.9±0.96	25.2±1.48	14.9±1.07	11.7±0.93	10.1±0.74
	15	62.3±1.34	24.3±1.05	10.4±1.65	10.5±1.82	17.1±0.62
	30	63.6±0.41	25.9±0.72	11.4±1.25	6.8±0.77	19.5±0.82
	60	63.1±0.40	22.9±0.84	9.4±1.08	10.9±0.35	19.8±0.85
	90	64.3±0.45	23.4±0.90	9.9±1.08	9.7±0.76	21.3±0.94
	120	68.9±0.63	24.2±0.99	9.6±0.82	12.9±0.93	22.1±0.86
	150	68.8±0.89	25.5±1.09	10.2±0.74	11.8±0.81	21.3±0.86
	180	69.7±0.98	26.3±0.95	9.4±0.98	12.9±0.93	21.1±0.73
1st experimental	1	60.8±1.65	24.7±0.74	13.9±1.41	10.1±1.06	12.0±1.00
	15	64.2±1.42	26.1±0.88	7.5±0.96	9.3±1.13	21.3±0.89**
	30	65.7±0.82	28.4±0.53*	6.0±0.31	6.0±0.62	25.3±0.94**
	60	64.9±0.64*	26.1±0.56*	5.2±0.36	5.3±0.49	28.2±0.98***
	90	68.5±1.61*	27.5±0.69**	4.5±0.53	7.4±0.83	29.1±1.68**
	120	69.4±1.00	28.9±0.57**	5.9±0.66	6.7±0.68	27.9±0.92**
	150	69.4±0.78	30.7±0.80**	6.3±0.79	5.8±0.65	26.7±0.94**
	180	70.4±0.92	31.9±0.70**	5.8±0.71	5.7±0.68	26.9±0.99**
2nd experimental	1	62.1±0.90	26.2±1.01	15.3±1.30	9.3±1.03	11.3±0.99
	15	65.3±0.97	26.9±0.71	7.8±0.94	9.5±0.95	21.3±0.52***
	30	66.5±1.04*	28.9±0.86*	6.6±0.56	5.2±0.75	25.8±0.65***
	60	67.1±0.80**	28.1±0.59**	4.3±0.52	4.9±0.85	29.8±0.51***
	90	67.4±0.84*	29.0±0.57***	5.9±0.61	5.1±0.75	27.4±0.67***
	120	71.0±0.55*	31.3±0.28***	7.8±0.66	4.4±0.81	27.5±0.75**
	150	70.6±0.84	31.8±0.69**	8.2±0.69	3.8±0.67	26.8±0.84**
	180	71.6±1.99	32.4±0.91**	7.7±0.91	4.4±0.81	27.0±0.97**

Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

Table 7 – Biochemical profile of blood serum of calves

Group of animals	Age, days	Alkali reserve, V % CO_2	Glucose, mmol/l	Total calcium, mmol/l	Inorganic phosphorus, mmol/l	Carotene, mg/%
With the traditional technology of maintenance						
Control	1	55.8±0.80	4.78±0.37	2.86±0.12	2.26±0.12	0.37±0.07
	15	51.4±0.51	3.68±0.42	2.68±0.15	2.04±0.11	0.32±0.06
	30	51.0±0.32	3.20±0.30	2.30±0.10	1.84±0.15	0.33±0.04
	60	52.2±0.37	2.72±0.23	2.16±0.11	1.90±0.09	0.28±0.06
	90	51.8±0.37	2.78±0.25	2.24±0.16	1.88±0.07	0.31±0.03
	120	53.0±0.63	2.84±0.20	2.32±0.12	1.74±0.12	0.33±0.03
	150	52.6±0.75	2.56±0.22	2.28±0.14	1.66±0.15	0.33±0.03
	180	54.0±0.71	2.38±0.27	2.22±0.12	1.52±0.12	0.35±0.05
1st experimental	1	56.6±0.51	5.08±0.32	2.80±0.15	2.22±0.15	0.35±0.04
	15	53.4±0.60*	4.46±0.40	2.74±0.16	2.16±0.12	0.34±0.07
	30	52.2±0.20*	4.34±0.33*	2.62±0.13	1.90±0.13	0.35±0.06
	60	54.0±0.63*	3.64±0.22*	2.52±0.12	2.06±0.13	0.37±0.08
	90	52.8±0.20*	3.62±0.26*	2.66±0.07*	2.16±0.07*	0.37±0.04
	120	53.8±0.49	3.80±0.14**	2.76±0.10*	2.30±0.09**	0.38±0.05
	150	54.2±0.66	3.30±0.18*	2.76±0.13*	2.06±0.10	0.41±0.04
	180	54.4±0.68	3.36±0.38	2.68±0.16*	1.82±0.09	0.43±0.07
2nd experimental	1	55.2±0.66	4.52±0.26	2.76±0.09	2.30±0.16	0.37±0.06
	15	53.2±0.37*	4.40±0.27	2.74±0.08	2.22±0.14	0.34±0.04
	30	52.4±0.51*	4.30±0.25*	2.66±0.09*	1.96±0.16	0.36±0.05
	60	54.6±0.51**	3.82±0.31*	2.58±0.12*	2.16±0.05*	0.36±0.05
	90	53.4±0.51*	3.32±0.26	2.74±0.12*	2.24±0.10*	0.39±0.04
	120	54.6±0.24*	3.58±0.29	2.78±0.07*	2.38±0.12**	0.41±0.03
	150	55.2±0.97	3.16±0.31	2.86±0.17*	2.12±0.14	0.42±0.03
	180	55.2±0.92	3.34±0.37	2.74±0.10*	1.86±0.13	0.42±0.05
With the adaptive technology of maintenance						
Control	1	55.8±0.80	4.78±0.37	2.86±0.12	2.26±0.12	0.37±0.07
	15	51.4±0.51	3.68±0.42	2.68±0.15	2.04±0.11	0.32±0.06
	30	51.0±0.32	3.20±0.30	2.30±0.10	1.84±0.15	0.33±0.04
	60	52.2±0.37	2.72±0.23	2.16±0.11	1.90±0.09	0.28±0.06
	90	51.8±0.37	2.78±0.25	2.24±0.16	1.88±0.07	0.31±0.03
	120	53.0±0.63	2.84±0.20	2.32±0.12	1.74±0.12	0.33±0.03
	150	52.6±0.75	2.56±0.22	2.28±0.14	1.66±0.15	0.33±0.03
	180	54.0±0.71	2.38±0.27	2.22±0.12	1.52±0.12	0.35±0.05
1st experimental	1	56.6±0.51	5.08±0.32	2.80±0.15	2.22±0.15	0.35±0.04
	15	53.4±0.60*	4.46±0.40	2.74±0.16	2.16±0.12	0.34±0.07
	30	52.2±0.20*	4.34±0.33*	2.62±0.13	1.90±0.13	0.35±0.06
	60	54.0±0.63*	3.64±0.22*	2.52±0.12	2.06±0.13	0.37±0.08
	90	52.8±0.20*	3.62±0.26*	2.66±0.07*	2.16±0.07*	0.37±0.04
	120	53.8±0.49	3.80±0.14**	2.76±0.10*	2.30±0.09**	0.38±0.05
	150	54.2±0.66	3.30±0.18*	2.76±0.13*	2.06±0.10	0.41±0.04
	180	54.4±0.68	3.36±0.38	2.68±0.16*	1.82±0.09	0.43±0.07
2nd experimental	1	55.2±0.66	4.52±0.26	2.76±0.09	2.30±0.16	0.37±0.06
	15	53.2±0.37*	4.40±0.27	2.74±0.08	2.22±0.14	0.34±0.04
	30	52.4±0.51*	4.30±0.25*	2.66±0.09*	1.96±0.16	0.36±0.05
	60	54.6±0.51**	3.82±0.31*	2.58±0.12*	2.16±0.05*	0.36±0.05
	90	53.4±0.51*	3.32±0.26	2.74±0.12*	2.24±0.10*	0.39±0.04
	120	54.6±0.24*	3.58±0.29	2.78±0.07*	2.38±0.12**	0.41±0.03
	150	55.2±0.97	3.16±0.31	2.86±0.17*	2.12±0.14	0.42±0.03
	180	55.2±0.92	3.34±0.37	2.74±0.10*	1.86±0.13	0.42±0.05

Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

Table 8 – Nonspecific resistance of calves

Group of animals	Age, days	Phagocytic activity, %	Lysozyme activity, %	bactericidal activity, %
With the traditional technology of maintenance				
Control	1	28.0±1.64	5.3±0.32	26.7±1.14
	15	35.4±1.50	8.2±0.45	28.9±1.21
	30	44.2±1.11	12.3±0.49	35.2±0.94
	60	43.8±1.39	13.8±0.60	45.3±0.78
	90	50.2±1.59	16.2±0.58	51.3±0.69
	120	53.0±1.70	18.3±0.72	57.0±0.87
	150	51.8±2.15	19.2±0.76	53.6±1.03
	180	56.6±1.57	19.3±0.77	55.5±0.98
1st experimental	1	27.2±1.39	4.8±0.44	25.9±1.15
	15	38.8±1.36	9.8±0.50*	33.2±1.22*
	30	48.4±1.33*	14.0±0.51*	39.7±1.41*
	60	50.2±1.46*	17.2±0.85*	50.5±0.96**
	90	53.6±1.29	19.5±0.86*	56.7±1.03**
	120	57.2±1.07	21.0±0.87*	60.4±0.84*
	150	58.2±1.85	23.4±0.97**	56.7±1.04
	180	61.4±2.04	23.9±0.74**	57.7±1.09
2nd experimental	1	26.2±1.24	5.0±0.52	26.1±1.37
	15	40.0±1.31*	10.0±0.45*	33.1±1.36*
	30	51.2±1.71**	14.6±0.66*	40.2±1.34*
	60	53.4±2.09**	18.7±0.83**	51.3±0.99**
	90	56.8±2.13*	20.8±0.59***	58.5±0.71***
	120	58.8±1.83*	23.1±0.77**	61.7±0.77**
	150	60.6±1.78*	24.4±0.86**	58.1±1.29*
	180	60.8±1.65	24.7±0.85**	58.7±1.42
With the adaptive technology of maintenance				
Control	1	26.2±1.70	5.2±0.30	27.5±1.00
	15	36.6±1.03	9.1±0.38	30.7±1.02
	30	45.0±1.05	14.3±0.45	39.5±0.92
	60	42.6±1.33	15.8±0.70	47.2±0.66
	90	51.4±0.81	17.4±0.66	54.5±1.17
	120	53.8±1.24	19.8±0.47	60.9±0.85
	150	52.6±1.33	20.6±0.53	56.6±0.59
	180	57.2±1.24	20.1±0.51	58.5±0.58
1st experimental	1	25.8±1.02	5.2±0.42	28.3±1.07
	15	41.8±1.24*	11.1±0.49**	36.1±1.32*
	30	50.2±1.24*	17.2±0.62**	45.4±1.31**
	60	52.4±1.44**	19.4±0.73**	56.3±1.18***
	90	55.2±1.02*	21.6±0.85**	60.7±1.00**
	120	57.8±1.02*	22.7±0.40**	63.8±0.83*
	150	59.0±1.41*	24.6±0.65**	58.8±0.71*
	180	62.2±1.80	24.8±0.79**	59.7±0.76
2nd experimental	1	25.6±1.21	5.6±0.53	27.2±1.31
	15	41.4±0.93**	11.0±0.45**	35.6±0.67**
	30	51.8±1.66**	17.4±0.57**	45.1±0.49***
	60	54.4±2.09**	20.6±0.58***	55.7±1.20***
	90	57.8±1.77*	23.5±0.80***	63.3±0.98***
	120	59.4±1.69*	24.6±0.78***	64.8±0.72**
	150	61.2±1.53**	25.6±0.68***	61.2±0.72**
	180	62.2±1.50*	25.8±0.85***	61.8±0.56**

Note: * $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

The dynamics of immunoglobulins in the blood serum of young stock with the indicated content technologies is shown in figures 1 and 2.

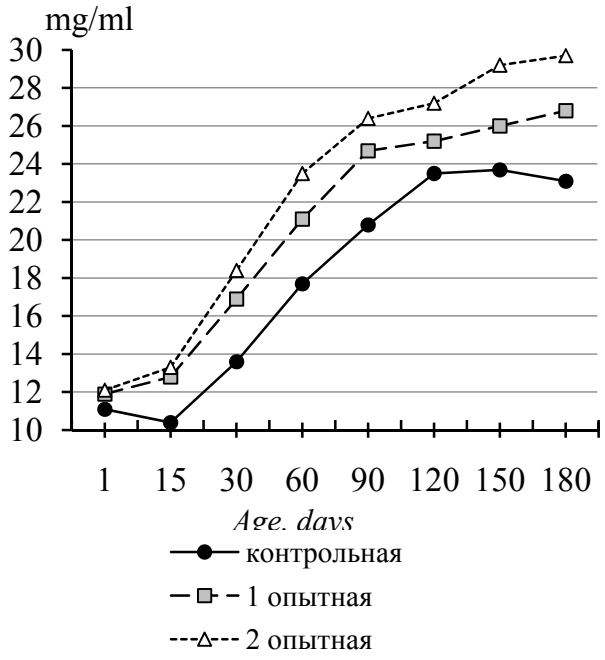

Figure 1 – The content of immunoglobulins in the blood serum of calves with traditional technology

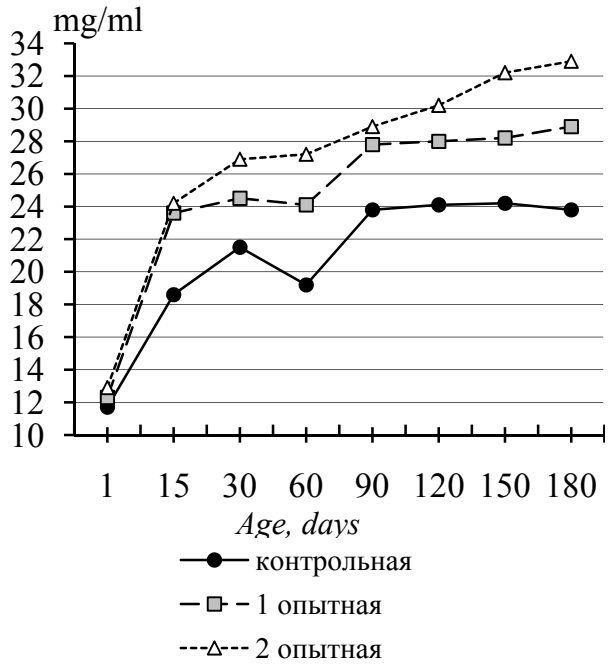

Figure 2 – The content of immunoglobulins in the blood serum of calves with adaptive technology

From these data, it can be seen that the number of immunoglobulins in the serum of calves grown using biostimulants was significantly higher: in the conditions of the traditional technology - by 1.7 - 3.9 and 2.9 - 5.8 mg/ml, and with maintenance in light-type rooms - by 3.0 - 5.1 and 5.1 - 9.1 mg/ml ($P<0.05$-0.001), respectively.

The results of the conducted investigations indicate that polystim and PV-1 activated cellular and humoral factors of nonspecific resistance of calves. The stimulating effect was higher in PV-1 compared to polystim, especially in light-type rooms under conditions of low ambient temperature.

Biogenic amines play a significant role in the implementation of emergency adaptation of the organism. At the same time, their ratio in the blood not only reflects, but also determines the state of the vegetative-humoral-hormonal system.

The established dynamics of bioamines in blood structures (platelets, neutrophils, lymphocytes and plasma) indicates that an adequate release of catecholamines from places of deposition occurs in calves under stress.

The level of catecholamines in animals of the experimental groups was higher than in the control group, especially in the first 60 days of life. The results of these studies indicate an increase in metabolic processes with the aim of additional energy production during cold stress. At the age of 120, 150 and 180 days old in calves, relative stabilization of the concentration of catecholamines in the blood structures was noted, which in the control group was 29.5-30.8 c u, in the 1st experimental one - 28.9 - 32.0 and in the 2nd experimental group - 28.9 - 33.8 c. u. of fluorescence.

After injecting biostimulants into calves, we identified a response from the serotonergic system to the activation of the sympathetic nervous system. This was observed at the age of 30 days of animals as a result of cold stress and was accompanied by a decrease in the concentration of serotonin in the blood, aimed at enhancing the processes of assimilation and restoration of energy expenditure in the body. In the 60-day-old animals, an increasing need of the body for serotonin was observed, associated with the prevention of enhanced energy expenditure. At the same time, an increase in serotonin level occurred, which should be evaluated as a compensatory reaction of the body in response to a relatively high concentration of catecholamines in the same period, expressing the possibility of its transition from the anxiety stage to the stress resistance stage. The increased competitiveness of serotonin with respect to catecholamines, which was most characteristic at the end of the experiment, indicates stabilization of the stress reaction, as evidenced by the relative harmony in the functional activity of the sympatho-adrenal and serotonergic systems.

We found that the dynamics of histamine in blood structures mainly reflected the nature of changes in the activity of catecholamines, which probably indicates a synchronous functional activity of the sympatho-adrenal and histaminergic systems of the body under the conditions of cold stress.

As a result of the veterinary and sanitary assessment of carcasses of young stock, it was established that in the experimental animals they were with a dry crust and a pale pink color. The place of their slaughter was uneven, saturated with blood more intensively than in other places of the carcass. The consistency is dense, elastic, with a finger pressing on the surface of the meat, a dimple was formed, which quickly form ed up. The muscles in the slaughter are slightly moist and did not leave a wet spot on the filter paper, had a light red color. There was no blood in them and in the blood vessels. Small vessels under the pleura and peritoneum did not show through. The surface of the incision of the lymph nodes is light gray. The broth prepared from this meat is transparent, fragrant, on its surface, there is an accumulation of large drops of fat.

Biochemical parameters of meat of young stock of the control, 1st and 2nd experimental groups grown in the premises with the traditional technology had the following values: meat pH - 6.16±0.01, 6.08±0.02 and 6.10±0.01, amino-ammonia nitrogen - 1.13±0.00, 1.09±0.02 and 1.16±0.01 mg, respectively. When growing animals in light-type premises, they were: 6.05±0.01, 5.92±0.01 and 5.87±0.00, 1.23±0.01 mg, 1.27±0.02 and 1.16±0.01 mg, respectively. In the meat samples of animals of the compared groups, the reaction to peroxidase was positive, and with blue vitriol - negative.

The content of cadmium, arsenic and mercury in the samples of meat from different groups of animals was not detected. The lead level in the meat samples of the control group of young stock with traditional and adaptive growing technologies was 0.05 and 0.04 mg/kg, of the first experimental one was 0.05 and 0.03 and of the second experimental one was 0.04 and 0.04 mg/kg. At the same time, the concentration of zinc in samples of meat from animals of the control and experimental groups was 17.3 and 18.9 mg/kg, 19.1 and 18.5, 18.6 and 17.9 mg/kg, respectively.

From the results of the abovementioned studies, it can be concluded that the meat of experimental animals did not differ in organoleptic, biochemical, and physicochemical properties, which indicates its biological usefulness and ecological safety.

Histomorphological studies have established that the drugs did not cause abnormalities in the morphology of the tissues of internal organs.

Thus, intramuscular injection of polystim and PV-1 to calves when grown in dispensaries and calves (under traditional technology) and in individual houses and pavilions (according to adaptive technology) under the conditions of low temperatures has activated adaptogenesis, hemopoiesis, cellular and humoral factors of nonspecific resistance, has improved postnatal development and increased the safety of calves, as well as has ensured the biological usefulness of meat.

Based on the veterinary and sanitary assessment of beef, it was established that the organoleptic, biochemical and spectrometric indicators of bull meat, grown against the background of intramuscular injection of polystim PV-biopreparations, did not significantly differ from those in control and corresponded to the requirements of the Technical Regulations of the Customs Union “On food safety” CU TR 021/2011 and Technical Regulations of the Customs Union "On the safety of meat and meat products" CU TR 034/2013, which indicates the safety of the tested preparations and good quality of meat carcasses.

Conclusion. Intramuscular administration of polystim and PV-1 to calves when growing in prophylactorium and calf houses (under traditional technology conditions) and in individual houses and pavilions (with the adaptive technology) under conditions of low temperatures, activated adaptogenesis, hematopoiesis, cellular and humoral factors of nonspecific resistance, improved postnatal development and increased the safety of calves, as well as ensure the biological usefulness of meat. The meat of experimental animals did not differ in organoleptic, biochemical, and physicochemical properties, which indicates its biological usefulness and ecological safety. Histomorphological studies have established that the preparations did not cause abnormalities in the morphology of the tissues of internal organs.

Based on the results of the research work on enhancing adaptogenesis and realizing the bioresource potential of calves with traditional and adaptive growing technologies, we recommend intramuscularly injecting them with polystim and PV-1 at a dose of 3 ml at 1-2- and 5-6-days old. At the same time, the growing of calves with the adaptive technology ensures their more active growth and development and realizes the bioresource potential than in the conditions of the traditional technology.

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ДӘСТҮРЛІ ЖӘНЕ БЕЙІМДЕЛУ ТЕХНОЛОГИЯСЫ ЖАҒДАЙЫНДА БҰЗАУЛАРДЫҢ АДАПТОГЕНЕЗ ЖӘНЕ БИОРЕСУРС ӘЛЕУЕТІНІҢ БЕЛСЕНДІЛІГІ

Аннотация. Дәстүрлі технологияда өсіру және жеңіл түрдегі қора-жайда бейімделу технологиясы жағдайында (дербес үйшіктер және ашық алаңдағы дүңгіршектер) полистима и ПВ-1 - заманауи биологиялық пәрменді демдеуіштердің бұзаулардың өсуіне және дамуына, жас малдардың ет сапасына әсері алғашқы рет зерттелді. Аталмыш биологиялық пәрменді демдеуіштердің қоршаан орта температурасының төмендеуіне, белок-көмірсу-витамин алмасуына, буферлік жүйеге, қан айналым органдарына мал организмінің төзімділігінің артуына және бейімделу жүйесінің белсенділігіне әсері айқындалды. Сыналған препараттар бұзаулардың өсуін және дамуын үдетті, азық қорыту жолдарының және тыныс алу органдарының ауыршаңдығын төмендетті. Қысқы кезеңде жеңіл түрдегі қора-жайда және дәстүрлі технология бойынша бұзауларды полистима и ПВ-1 көмегімен өсіргенде организмнің түрлі ауруларға өзгеше қарсылығының гуморалдық және жасушалық түзету факторларының мүмкіндігі тәжірибе жүзінде дәлелденді. Бұзауды әр түрлі жағдайда өсіруге байланысты организмнің симпато-адреналин, серотонинергия и гистаминергия жүйелерінен болған қарсы реакция қан құрамындағы биоамин жолақтарының белсенділігінің жоғарлағандығын көрсетті. Демдеуіші пәрменді препараттар енгізілген малдардың ет сапасы органолептикалық, биохимиялық и физико-химиялық көрсеткіштері бойынша демдеуіші препараттарды қолданбаған нәтижелермен салыстырғанда өнімнің экологиялық қауіпсіздігі және биологиялық толыққұндылығынан айырмашылық болмағындығы жөнінде деректер куәландырады.

Түйін сөздер: бұзау, дәстүрлі технология, бейімделу технологиясы, демдеуші заттар, бейімделу, өсу, даму, ет сапасы.

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АКТИВИЗАЦИЯ АДАПТОГЕНЕЗА И БИОРЕСУРСНОГО ПОТЕНЦИАЛА ТЕЛЯТ В УСЛОВИЯХ ТРАДИЦИОННОЙ И АДАПТИВНОЙ ТЕХНОЛОГИЙ

Аннотация. Впервые изучено влияние биологических стимуляторов нового поколения – полистима и ПВ-1 на рост и развитие телят в условиях традиционной технологии выращивания и в помещениях облегченного типа адаптивной технологии (индивидуальные домики и павильоны на открытой площадке), а также на качество мяса молодняка. Установлена возможность активизации адаптивных процессов и повышения устойчивости организма таких животных под влиянием указанных биостимуляторов к пониженным температурам среды обитания по белково-углеводно-витаминному обмену, функции кроветворных органов и буферной системе. Испытанные препараты активизировали рост и развитие телят, снижали заболеваемость респираторных органов и желудочно-кишечного тракта.

Экспериментально доказана возможность коррекции клеточных и гуморальных факторов неспецифической резистентности организма телят с помощью полистима и ПВ-1 в зимний период при выращивании по традиционной технологии и в помещениях облегченного типа.

Выявлена активизация биоаминного спектра компонентов крови вследствие проявления ответных реакций со стороны симпато-адреналовой, серотонинергической и гистаминергической систем организма телят в зависимости от разных условий выращивания.

Качество мяса животных, которым вводили биостимуляторы, не отличалось по органолептическим, биохимическим и физико-химическим показателям от полученных без использования стимулирующих препаратов, что свидетельствует о его экологической безопасности и биологической полноценности.

Ключевые слова: телята, традиционная технология, адаптивная технология, биостимуляторы, адаптация, рост, развитие, качество мяса.

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APPLICATION OF THE TERM "SELF-GOVERNMENT": RUSSIAN, SOVIET AND YUGOSLAVIAN EXPERIENCE

Abstract. Research objective is the historical and legal research application of the term "local self-government" in the legislation of the Russian Empire, the Russian Soviet Federative Socialist Republic, the Union of Soviet Socialist Republics, the Russian Federation and the Socialist Federal Republic of Yugoslavia.

The content of legal history of local self-government in the Russian Empire, RSFSR, USSR, the Russian Federation and Yugoslavia (the provisions on the peasants who left serfdom of the Russian Emperor Alexander II 1861, The Decree of Soviet of People's Commissars of RSFSR about Establishment of the Commissariat on Self-government of 1917, Letter of the People's Commissariat for Internal Affairs of RSFSR "About the Organization of Self-government" 1917, Constitution of the USSR 1977, Law of the USSR of "About the General Principles of Self-government and Local Economy in the USSR" 1990, Constitution of RSFSR 1978, Constitution of the Russian Federation 1993, Constitution of the Socialist Federal Republic of Yugoslavia 1974 and Federal Laws of the Russian Federation "About the General Principles of Self-government in the Russian Federation" 1995 and 2003) and the works of legal scientists are studied using the historical legal method and synthesis.

It is noted that as the self-government is activity, not absolutely to call this institute the fundamental principle of the organization of society, state. More logical as a basis of the constitutional system to consider obligation of functioning and security of local government in this connection it is necessary updating of the Russian legislation.

Keywords: self-government; local government; zemstvo self-government; peasant self-government; local Soviets; noble self-government; Yugoslavian self-government; small city unit; small territorial unit.

Introduction. The local self-government is the level of the public power, closest to the population, and ensures harmonious functioning of local authorities and maximum vitality of local communities.

Methods. The content of legal history of self-government in the Russian Empire, the Russian Soviet Federative Socialist Republic, the Union of Soviet Socialist Republics, the Russian Federation and the Socialist Federal Republic of Yugoslavia (the Provisions on the Peasants Who Left Serfdom, the Decree of Soviet of People's Commissars of the RSFSR about Establishment of the Commissariat on Self-government, Constitution of the USSR 1977, Constitution of the Russian Federation 1993, Constitution of Yugoslavia 1974 and modern Russian federal laws) and the works of legal scientists using the historical legal method and synthesis are studied.

Results. The term "self-government" was used in Russia before the October revolution in various contexts. For example, regarding the organization of power in the annexed Finland, speaking about the "traditional order of self-government" [1], "peasant self-government" [2] was underlined, which was not part of the Zemstvo self-government. At the turn of XIX – XX centuries it acted since acts adopted in 1861 after the abolition of serfdom [3]. The program on peasants, emerged from serfdom, from December 19, 1861, assigned the status of public bodies of rural and township governance (village and parish gatherings, the mayor, the municipal officers "parish rule" and the peasant volost court, as well as other "necessary": a special tax collectors, custodians, grain stores, etc.) (Chapter 2, 3) [4], which is traditionally called «peasant self-government».

In addition to peasant self-government, noble self-government functioned autonomously from the Zemstvo self-government in the Russian Empire. Due to land reforms of the XIX century, noble self-

government was separated from local government. But representatives of this class played an important role in local government, holding positions in Zemstvo.

In this regard, comparing modern local self-government with the Zemstvo self-government, we must not forget that the latter was significantly different from the modern organization of local government. Also, the system of Zemstvo self-government extended to the level of provincial, equivalent to modern subjects of the Russian Federation, which is not observed in the current system of local self-government. The problem of fragmentation of the system of local authorities in the late XIX century - early XX century in the Russian Empire was very relevant and you can find many scientific papers published in this period on the creation of "small urban unit", that is, the urban district in which the population owns the affairs of local government [5]. A similar problem existed in rural areas, the question of the formation of a small Zemstvo unit was discussed, the argument against this was the judgment about the impossibility to eliminate class contradictions within the parish [6].

During the Soviet period of development of Russia was built a unified system of public authorities, including local. In December 1917, the Commissariat for local self-government was established "to unite the activities of all urban and Zemstvo institutions" [7], and in fact-to eliminate these institutions. A few days later, a letter was issued by the People's Commissariat for Internal Affairs, according to which "all the former local authorities... volost government and others should be replaced by respectively the regional, provincial and district, district and parish councils of w.[orker], s[oldier], p.[easant] and agricultural labourers' deputies" [8].

The Institute of local self-government was not recognized by Soviet ideologists and legislators, therefore, it was on the periphery of Soviet scientific research in relation to the territorial organization of local government in USSR until the 1990s. As noted by O. E. Kutafin, in the years of Soviet power, the concept of "local self-government" for a long time was strongly rejected as a product of the theory and practice of bourgeois municipalism. It was believed that the functions of each local Soviet, which is part of the system of state authorities of the country, are not limited to solving local issues and affairs. While each local Soviet combines the management of local affairs with participation in solving national problems, in the formation of the state will of the people [9]. A well-established point of view is the opposition of the modern period of the organization of local power in the Soviet period of development of the state [10].

Traditionally, in modern scientific and educational works in relation to the history of local self-government, Soviet works of the 1920s are mentioned, where “local self-government” was still mentioned in relation to Soviet reality, but with an emphasis on the class approach. For Example, L. A. Velikhov, noting that Marxist literature has little to do with the theory of state law and it does not meet the definitional formula of self-government, defined it from the point of view of Marxism as public administration of any range of local affairs, formed through the election of authorized persons from the ruling class of the local population [11]. Indeed, this scientist was one of the last to use such concepts as commune, community, municipality and municipalization [12].

Since the 1930s, the official Soviet doctrine prevailed, according to which, in the Soviet system, local government is not opposed to public authorities [13]. The state power as a whole became self-government, and local self-government became the state power [14]. As terms in the field of organization of local power began to be used such as " local bodies of government ", "local Soviet", "executive committees", "workers" and "voters" [13].

In the 1960s, the issue of transition to Communist self-government was considered primarily from the point of view of the death of the state, development, change and transformation of its functions and bodies [15]. The problem of universal involvement of all people in management of public affairs was considered as a task of creation of Communist self-government. Communist public self-government had to be formed on the basis of Soviets, trade unions and collective farms, which will change accordingly and merge into a single organization of self-government [16]. As examples of reducing the "paid" state apparatus and its replacement by the public, the creation of public departments of trade, culture and other district executive committees, the introduction of the post of public police officer [17] were cited. Local self-government was also considered as an expression of the real sovereignty of the people, exercising control over the state and the affairs of society directly or as its representatives, provided that the people are the only source of power and the subject of state property (national heritage) [18].

In the late 1960s – early 1970-ies in the Socialist Federal Republic of Yugoslavia began to take shape "a holistic local government system of the united labour", which has attracted the attention of Soviet scientists in the 1980-ies [19]. In this period of time, such attention could only be on the social order of the Central Committee of the Communist Party of the Socialist Yugoslavia, from which it can be concluded that the study of the Yugoslav experience of self-government was considered by the leaders of USSR, at least as a way to assess the Soviet reality, and as a maximum - a model for the possible modernization of the Soviet social system. Therefore, the Yugoslav model of "socialist self-government" can be considered as one of the alternatives to the social development of Soviet society in the early 1980s, which was not in demand for the leaders of the USSR. In Yugoslavia, at that time, the concept of socialist "self-government" was based on "socialist self-governing industrial (or socio-economic) relations" [20]. In the "Basic principles" of the introductory section of the Constitution of the Socialist Federal Republic of Yugoslavia, it was stated that «the peoples of Yugoslavia ... have established ... the Socialist Federal Republic of Yugoslavia, in which ... they exercise and maintain ... socialist social relations based on the self-government of workers, and the protection of the socialist system of self-government» [21]. Since the Yugoslav model of socialist self-government was enshrined in the Constitution, and in the Soviet Union, a similar system in the case of its adoption would be enshrined in the Constitution, i.e. it is the subject of constitutional and legal research.

Yugoslav self-government in state-owned enterprises, was at that time much more developed than in the USSR. The self-government structure of the Yugoslav enterprise consisted of a working Council, an elected governing body with decisive powers; a Board elected by the working Council from among its members, which was its operational executive and subsidiary body. The Director, other executors and the administrative staff were executors of the will of the self-government bodies [19].

However, the term "self-government" appeared in Soviet legislation much later. The first Soviet law where the term "local self-government" appeared, was the Law of USSR "General Principles of Local Self-government and Local Economy in USSR" 1990, which established that this type of self-government is carried out within the boundaries of administrative-territorial units, and as the primary territorial level of local self-government - the village Soviet, the village (district), the city (district in the city) (PP. 2 and 3 art. 2). The Constitution of USSR 1977 (art. 145) the term "local self-government" was introduced later by the law of the USSR "On Amendments and Additions to the Constitution (Basic Law) of the USSR in Connection with the improvement of the System of Public Administration" 1990.

The Law of RSFSR "On Amendments and Additions to the Constitution (Basic Law) of RSFSR in Connection with the Reform of Local Self-Government" 1991 for the first time in the history of RSFSR in its Basic Law was introduced the term "local self-government": the name of the section VII of the Constitution of RSFSR 1978, "Local Bodies of State Power and Administration in the Russian Federation" was replaced by "Local Self-government in the RSFSR". In art. 138 of the Basic Law of RSFSR local self-government was positioned as carried out by the population in areas, cities, towns, rural settlements through local Soviets of people's deputies, governing bodies – local administration, local referendums, meetings (gatherings) of citizens, other territorial forms of direct democracy, as well as bodies of territorial public self-government of the population and ensuring independent solution of all issues of local importance by citizens through bodies elected by them or directly, implementation of decisions of higher bodies of state power adopted within their competence, based on the interests of the population, on the basis of material and financial resources assigned to self-government bodies. The same act was repealed art. 151 of the Constitution of the RSFSR of 1978 according to which departments and managements of executive committees submitted both to Soviets and their executive committees, and higher bodies of public administration.

Chapter 8 (section 1) of the Constitution of the Russian Federation 1993 is called "Local self-government", the content of this term was disclosed not by the Basic law, but by Federal Law of the Russian Federation "About the General Principles of Self-government in the Russian Federation" 1995 and law of 2003 of the same name.

Article 2 of the Law "About the General Principles of Self-government in the Russian Federation" 1995 established that local self-government in Russia is an independent activity of the population, recognized and guaranteed by the Constitution of the Russian Federation, and under its own responsibility, to resolve issues of local importance directly or through local self-government bodies based on the

interests of the population, its historical and other local traditions, and that local self-government as an expression of the power of the people is one of the foundations of the constitutional system of the Russian Federation. In art. 1 of the Law "About the General Principles of Self-government in the Russian Federation" 2003 local self-government is understood as one of the foundations of the constitutional system of Russia, which is recognized, guaranteed and implemented throughout the territory of the Russian Federation, as well as the form of exercise of power by the people, ensuring within the limits established by the Constitution of Russia, federal laws, and in cases established by this laws, – laws of subjects of the Russian Federation, independent and under the responsibility the decision by the population directly and (or) through local governments of questions of local value proceeding from interests of the population taking into account historical and other local traditions.

It should be noted that local self-government, if it is an activity, is not exactly called a fundamental principle. It is more logical as a basis of the constitutional system to consider the mandatory functioning and guarantee of local self-government in the Russian Federation. In this regard, it is necessary to adjust the text of part 1 of article 1 of the Law "About the General Principles of Self-government in the Russian Federation" 2003, in which local self-government is declared one of the foundations of the constitutional system of Russia.

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«ӨЗІН-ӨЗІ БАСҚАРУ» ТЕРМИНІН ҚОЛДАНУ: РЕСЕЙЛІК, КЕҢЕСТІК ЖӘНЕ ЮГОСЛАВИЯЛЫҚ ТӘЖІРИБЕ

Аннотация. Зерттеудің мақсаты – Ресей империясы, Ресей Кеңес Федеративті Социалистік Республикасы, Кеңестік Социалистік Республикалар Одағы, Ресей Федерациясы және Югославия Социалистік Федеративті Республикасының заңнамасында «жергілікті өзін-өзі басқару» терминін пайдаланудың тарихи-құқықтық зерттеуі.

РКФСР, КСРО, Ресей Федерациясы және Югославиядағы жергілікті өзін-өзі басқару тарихының құқықтық аспектілері тарихи-құқықтық әдіс пен синтездеу әдісімен зерттелді (1861 ж. Ресей императоры II Александрдың басыбайлы құқықтан шыққан шаруалар туралы ережесі;1917 жылғы РКФСР Халық Комиссариаты Кеңесінің Жергілікті өзін-өзі басқару Комиссариатының қаулысы; РКФСР-дың Ішкі Істер Халық Комиссарының «Жергілікті өзін-өзі басқару ұйымы туралы» 1917 жылғы хаты, КСРО-ның 1977 жылғы Конституциясы, «Жергілікті өзін-өзі басқарудың жалпы принциптері туралы» Заңы, 1978 ж. РКФСР Конституциясы, 1993 ж. Ресей Федерациясының Конституциясы, Югославия Социалистік Федерациясының 1974 жылғы Конституциясы және Ресей Федерациясындағы «Жергілікті өзін-өзі басқарудың жалпы принциптері туралы» Федералдық заңдары (1995 және 2003 жж.) және заңгер-ғалымдардың еңбектері.

Мақалада жергілікті өзін-өзі басқару жеке қызмет болғандықтан, бұл мекемені қоғамды немесе мемлекетті ұйымдастырудың іргелі қағидаты деп атауға болмайтындығы айтылады. Конституциялық тәртіптің негізі ретінде жергілікті өзін-өзі басқарудың жұмыс істеуі мен кепілдігі туралы міндеттемені қарау дұрысырақ, сондықтан Ресей заңнамасын түзету қажет.

Түйін сөздер: өзін-өзі басқару; жергілікті үкімет; Земство өзін-өзі басқару; шаруа өзін-өзі басқару; жергілікті кеңестер; ақсүйектер; Югославияның өзін-өзі басқару; шағын қалалық бөлімше; шағын земство бөлімшесі.

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ПРИМЕНЕНИЕ ТЕРМИНА «САМОУПРАВЛЕНИЕ»: РОССИЙСКИЙ, СОВЕТСКИЙ И ЮГОСЛАВСКИЙ ОПЫТ

Аннотация. Целью исследования является историко-правовое исследование применение термина «местное самоуправление» в законодательстве Российской империи, Российской Советской Федеративной Социалистической Республики, Союза Советских Социалистических Республик, Российской Федерации и Социалистической Федеративной Республики Югославия.

С применением историко-правового метода и синтеза исследованы правовые аспекты истории местного самоуправления в Российской империи, РСФСР, СССР, Российской Федерации и Югославии (Положение

Российского Императора Александра II о крестьянах, вышедших из крепостной зависимости, 1861 г.; Декрет Совета Народных Комиссаров РСФСР об учреждении Комиссариата по местному самоуправлению 1917 г.; Письмо Народного комиссариата внутренних дел РСФСР «Об организации местного самоуправления» 1917 г.; Конституция СССР 1977 г.; Закон СССР «Об общих началах местного самоуправления и местного хозяйства в СССР»; Конституция РСФСР 1978 г.; Конституция РФ 1993 г.; Конституция Социалистической Федеративной Республики Югославия 1974 г. и Федеральные законы «Об общих принципах местного самоуправления в Российской Федерации» 1995 и 2003 гг.) и труды ученых-юристов.

В статье отмечается, что поскольку местное самоуправление является деятельностью, то не совсем называть данный институт основополагающим принципом организации общества, государства. Логичнее в качестве основы конституционного строя рассматривать обязательность функционирования и гарантированность местного самоуправления, в связи с чем необходим корректировка российского законодательства.

Ключевые слова: самоуправление; местное самоуправление; земское самоуправление; крестьянское самоуправление; местные советы; дворянское самоуправление; югославское самоуправление; мелкая городская единица; мелкая земская единица.

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SOCIO-POLITICAL DEVELOPMENT OF THE ALTAI-SAYAN REGION IN 1919–1924

Abstract. The aim of the study is to analyze the socio-political development of the Altai-Sayan region in 1919–1924.

We used methods of analysis, synthesis and comparison. We have studied the institutions of society and the state, the situation of indigenous peoples and social groups in the Altai-Sayan highlands, the events of the civil war and the transition to a new economic policy based on the works of historians.

The idea that the activities of the Soviet government were widely supported by the local population with minimal resistance from the exploitative elite of the indigenous peoples of the Altai-Sayan was criticized. There are examples of the fact that terror against the indigenous population of Altai, Khakassia and Shoria by the representatives of the Soviet authorities, former red partisans and immigrants caused active armed resistance.

It is concluded that the policy of the Soviet government in the period under review caused strong opposition both from the right-wing parties and right-wing forces of non-socialist orientation, as well as the local, especially indigenous, population of the Altai-Sayan region. The weakening of the policy of "military communism", the restoration of elements of the market economy, an attempt to solve the "national issue", allowed to stabilize the socio-political situation in the region.

Key words: authoritarianism, revolution, civil war, military communism, repressions, new economic policy, society, state, indigenous peoples, Russia, Siberia, Altai, Shoria, Khakassia.

Introduction. The development of social and political processes in the Altai-Sayan highlands, including Khakassia, in 1919-1924, was characterized as the increase of political struggle. The reasons for this were the events related to the measures of the Soviet power and the Bolshevik party aimed at strengthening its power in the region, as well as the attempt of opponents of the Bolsheviks to continue armed confrontation with them in the new conditions.

Results. During the period under review, the authoritarian political regime in Soviet Russia was formed. This policy was carried out by the new government contrary to the opinion of the majority of the population. Forces resisting the Communist policy pursued against local residents were supported by a significant part of the indigenous population and the Russian Cossacks in Minusinsk and Achinsk districts of the Yenisei province, Kuznetsk district of the Tomsk province and in Biysk district of the Altai province. In addition, it should be noted about a wide range of political forces that fought the Bolsheviks in our region at this time: anarchists, right and left-wing Socialists-Revolutionaries, people's socialists and monarchists as well [1, 4, 5, 8].

Having restored their power in Siberia after the defeat of Kolchak, the Communists began to form a management system in the form of revolutionary committees, and then the Soviets. Active implementation of the policy of "military communism" began: coercive measures were widely used against the local population, a policy of "decossackization" was carried out; "food", "forage", "raw materials" and other types of "tax assessment" were collected. In fact, all this resulted in an open robbery of the local population by food groups, composed, as a rule, of workers of various industrial enterprises, primarily fields and mines, widely represented in the region [4, 5].

At the same time, Soviet authorities start a creation and restoration of permanent and emergency enforcement agencies: All-Russian Extraordinary Commission agencies, and then the State Political Directorate, revolutionary tribunals, workers and peasants' militia, mopping-up detachment forces. The former red guerrillas, who played a significant role in the overthrow of the Kolchak regime in Siberia and in the region, continued to actively operate there [6].

The political situation in the Altai-Sayan territory was complicated in 1919-1924 due to the strengthening of the Bolsheviks' struggle against representatives of political parties and groups, both socialist and anti-socialist orientation. In addition, the political situation was aggravated by the growth of interethnic confrontation between the indigenous and foreign population of the region [2, 6, 7].

The representatives of the Russian peasantry and the Cossacks, Altaians, Khakasians and Shorians were against the Bolsheviks in the South of Siberia, on the territory of Altai-Sayan highlands. In a number of villages, volosts and districts there was a creation of rebel groups to fight the Soviet regime. The reasons for this were the events related to the measures of Soviet power aimed at creating a one-party political regime and modernization of the country in the spirit of Marxist-Leninist ideology. According to the Bolsheviks, it was necessary either to destroy or oust from the limits of Russia everything "obsolete" and "inhibiting the movement of the country to a "bright future".

The refusal of the active part of the Altai-Sayan population to submit to the policy of military communism, carried out by representatives of the Soviet power without taking into account the peculiarities of the cattle-breeding and hunting type of the economy of the indigenous population, led to the intensification of hostilities and caused both a mass migration of the population outside Soviet Russia or withdrawal to the mountain taiga area, and the creation of rebel groups, actively resisting the policy of the Soviet power [4, 5].

Anti-Bolshevist forces, having lost the Soviet power in an open civil war, decided to use the controversy between the peoples of Altai-Sayan and the Communist regime. For this purpose, among the local population, authoritative leaders were selected, former Kolchak officers were sent to rebel groups, bases for these groups with stocks of weapons, uniforms and ammunition were created in remote areas. As a result, the Altai-Sayan region in this period became the scene of a fierce armed struggle against the Soviet regime [5, 7].

In many ways, the actions of the Siberian figures of the anti-Bolshevik movement (ataman Semenov, baron Ungern, Solovyov, Kaigorodov, etc.), fall into the same scheme as the actions of their associates in European Russia. All this resulted in the withdrawal of anti-Soviet forces from the political and industrial centers of the region to remote or border areas, as well as the creation of a base for the armed struggle against the Bolsheviks, especially in the North, in areas controlled by the Soviet authorities.

The groups opposing the Bolsheviks had an extensive network of their supporters throughout the Altai-Sayan territory during this period. However, the new government also began to create a network of informants and secret employees, carried out a constant collection of operational information about the moods of various social groups in the region. On the basis of the collected information, the Soviet authorities adjusted the policy towards the local population or individual national and social groups [5, 6, 8].

Discussion. Thus, the policy of the Soviet government during the period under review led to strong opposition from representatives of right-wing parties of the democratic wing of the social revolutionaries, the Mensheviks and the people`s socialists and right-wing forces of non-socialist orientation of the bourgeoisie, the white officers and leaders of the Cossacks. The combined efforts of these forces, as well as the harsh repressive policy of the Bolsheviks against the local, primarily indigenous, population of the region, caused the continuation of the civil war in the Altai-Sayan region and in Siberia as a whole. Siberian peasantry in a significant majority in this period was set against the Soviet regime. The irritation of the rural population was caused by the re-creation of the workers of food groups for the withdrawal of food from the peasantry, which was a significant layer of the population of the Altai-Sayan region. Cossacks, Russian peasants-longtimers, Altaians, Shortians and Khakassians were also dissatisfied with the reduction of their land plots in favor of immigrants from the Western regions of Russia [1, 3, 4, 7].

In addition, the indigenous population of Altai-Sayan didn`t agree on restrictions on their right to self-determination. The representatives of Soviet power, the former red partisans and the settlers implemented a real terror against the indigenous population of Altai, Khakassia and Shoria, which caused armed resistance of the peoples of Altai-Sayan, which continued even after the period under review, but on a

smaller scale [5, 7]. The previous approach, widespread in Soviet historiography, (about the broad support of the activities of the Soviet government by the local population) is not confirmed by the analysis of historical sources [9].

The weakening of the policy of "military communism", the restoration of elements of market economy, the attempt to solve the "national issue", the negotiations of the representatives of the Soviet authorities with the leaders of the rebel groups, the announcement of Amnesty to the participants of anti-Soviet armed groups allowed to stabilize the socio-political situation in the region and move to the "peaceful construction" of socialism in Soviet Russia [3, 4, 5].

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1919–1924 ЖЫЛДАРЫ САЯН-АЛТАЙДЫҢ ӘЛЕУМЕТТІК-САЯСИ ДАМУЫ

Аннотация. Зерттеудің мақсаты Саян-Алтай өңірінің 1919–1924 жылдардағы әлеуметтік-саяси дамуын талдау.

Талдау, синтездеу және салыстыру әдістерін пайдалана отырып, біз қоғам мен мемлекеттің институттарын, Саян-Алтай жазығының аумағында байырғы халықтар мен әлеуметтік топтардың жағдайын, азаматтық соғыс оқиғаларын және тарихшылардың жұмыстарына негізделген жаңа экономикалық саясатқа көшуді зерттедік.

Кеңес үкіметі қызметін Саян-Алтайдың байырғы халықтары пайдаланатын элитадан минималды қарсылықпен жергілікті тұрғындар кеңінен қолдайтыны туралы идеяны сынға алды. Кеңестік үкімет өкілдері, бұрынғы Қызыл партизандар мен жер аударылған адамдар өкілдерінің Алтай, Хакасия және Шорияның байырғы тұрғындарына қарсы террорға қарсылық көрсеткеніне мысал келтіріледі.

Совет үкіметі қаралған кезеңде оң жақтық партиялардың өкілдері мен социалистік емес бағдарлаудың оң күштерінің өкілдері, сондай-ақ Саян-Алтай аймағының жергілікті тұрғындары, негізінен байырғы халықтары тарапынан күшті оппозицияны тудырды. «Соғыс коммунизмі» саясатының әлсіреуі, нарықтық экономиканың элементтерін қалпына келтіру, «ұлттық мәселені» шешуге әрекет жасау аймақтағы әлеуметтік-саяси жағдайды тұрақтандыруға көмектесті.

Түйін сөздер: авторитаризм, революция, азаматтық соғыс, соғыс коммунизмі, репрессия, жаңа экономикалық саясат, қоғам, мемлекет, байырғы халықтары, Ресей, Сібір, Алтай, Шория, Хакасия.

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СОЦИАЛЬНО-ПОЛИТИЧЕСКОЕ РАЗВИТИЕ САЯНО-АЛТАЯ В 1919–1924 гг.

Аннотация. Целью исследования является анализ социально-политического развития Саяно-Алтайского региона в 1919–1924 гг.

С применением методов анализа, синтеза и сравнения изучены институты общества и государства, положение коренных народов и социальных групп на территории Саяно-Алтайского нагорья, события периода гражданской войны и перехода к новой экономической политике на основе трудов ученых-историков.

Подвергнута критике идея о том, что мероприятия Советской власти были широко поддержаны местным населением при минимальном сопротивлении со стороны эксплуататорской верхушки коренных народов Саяно-Алтая. Приведены примеры того, что террор в отношении коренного населения Алтая, Хакасии и Шории со стороны представителей Советской власти, бывших красных партизан и переселенцев вызывал активное вооруженное сопротивление.

Сделан вывод, что политика Советской власти в рассматриваемый период вызвала сильную оппозицию как со стороны представителей правых партий и правых сил несоциалистической ориентации, а также местного, прежде всего коренного, населения Саяно-Алтайского региона. Ослабление политики «военного

коммунизма», восстановление элементов рыночной экономии, попытка решения «национального вопроса», позволили стабилизировать социально-политическую обстановку в регионе.

Ключевые слова: авторитаризм, революция, гражданская война, военный коммунизм, репрессии, новая экономическая политика, общество, государство, коренные народы, Россия, Сибирь, Алтай, Шория, Хакасия.

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HISTORICAL-WORLD OUTLOOK BASES OF FUNCTIONAL-PLANNING STRUCTURE OF THE AHMED YASAWI MAUZOLEUM

Abstract. The Mausoleum of Khoja Ahmed Yasawi is located in the city of Turkestan, Kazakhstan. The mausoleum is a vivid example of medieval monuments, and it was built over the grave of the Turkic poet and Sufi preacher Ahmed Yasawi at the end of the 14th century by the order of Emir Timur. To date, many researchers have put forward different ideas about the mausoleum. The plan, functions of the premises, ornament and the decoration of the structure show the characteristics of the Sufi tariqa of Yasawiya, based on the traditional Turkic worldview. This article will examine the historical and philosophical foundations and functional purpose of the plan and architecture, and as the order of location of the mausoleum's premises. In addition, an analysis of insufficiently researched functions and names of the building's premises, as well as their continuity from the point of view of the pre-Islamic religious beliefs of the Central Asian peoples and the concept of Islam is conducted. Evidence is provided that the worldview concepts of this period are a factor that has been reflected in the architecture of the Middle Ages.

Keywords: Khoja Ahmed Yasawi Mausoleum, Kazakhstan, Turkestan, Mausoleum Architecture, Room, Function, World view.

Introduction. The art of building monuments of architecture over graves is a fairly common type of construction among the Turks of the Islamic world. The Arabic word "turba", meaning "earth", is used to refer to tomb monuments built on the graves of the deceased (Önkal1996: 1). The tradition to erect a building over the grave is very common in Central Asia.

Of particular importance is the fact that the vast plains of Central Asia have become a place from where the Turks first entered the world arena. The city of Turkestan became one of the most significant centers of the Southern regions of Central Asia and Kazakhstan. The location of the region on the Great Silk Road gave birth to a rich historical and cultural heritage due to active trade, spiritual, cultural and scientific ties. There are many monuments in the region that make up an important part of the world cultural heritage, therefore the city of Turkestan is defined as the spiritual center of Kazakhstan.

The tradition of erecting structures over the graves of the deceased, which existed among the Turks of Central Asia in the pre-Islamic period, was partially preserved even after the adoption of Islam. Despite the fact that the building of monuments on graves contradicts the concept of Islam, starting from the 9th century the building of tomb structures on graves was resumed. The first such monument was the mausoleum of Kubba as-Sulabiya, erected in the name of Caliph Muntasyr in the period of the Abbasids at the end of the IX century (Yetkin 1984: 71).

The founder of the Karakhanid state (960-1211) – Satuk Bugra Khan, was the first to convert to Islam. The son of Satuk Bugra Khan – Harun Bugra Khan declared Islam the official religion of the state in 960 (Barthold 1963: 315-316-318). Since the 10th century, despite the fact that the Turks have converted to Islam, the tradition of erecting the mausoleums has continued, because the notion of "to save in memory the graves of great people" has become widespread among the population. Together with this concept, the construction of tombs of various forms began in accordance with local conditions, new

beliefs and traditions. Along with simple tombstones on the graves of famous people, the monuments were begun to build. The spread of the tradition of building mausoleums can be seen in the states of the Karakhanids, Ghaznavids and Seljukids.

In Khorasan and Turkestan since the X century the construction of tombs was increasingly common. The construction of mausoleums is XII and XII centuries in Azerbaijan, Iran, Uzbekistan, Kazakhstan and Kyrgyzstan was widespread.

This tradition was continued in the period of Emir Timur. Historical sources show that Emir Timur provided significant support to thinkers, representatives of Turkic, Persian and Arab culture and art in the territories subordinate to him.

By order of the Emir Timur in Samarkand, the palace, madrasah and mosque Bibi-hanym were built, as well as the complex of Shahi Zinda, and around the city the gardens and palaces of Bag-i Baland, Bag-i Bekhisht, Bag-i Davlatabad, Bag-i Dilkusho, Bag-i Jahonnamo, Bag-i Maydan, Bag-i Nav, Bag-i Chinar and Bag-i Shamol were arranged. In the territory of Kazakhstan, the most famous building of Emir Timur was the mausoleum of Khoja Ahmed Yasawi (Figure 1, 2, 3, 4). Khoja Ahmed Yasawi made conditions for the successful spread of Sufism among the people of Kazakhstan and Central Asia, the Caucasus and Anatolia.

The monument, as a unique example of architectural art, is included in the UNESCO World Heritage List. The majestic forms of the mausoleum make an unforgettable impression on visitors.

In this article, we will review the plan and functions of the Khoja Ahmed Yasawi mausoleum premises in the city of Turkestan, Kazakhstan, as well as study the historical and philosophical concepts of their names, conduct a study of the religious philosophical worldview as a factor reflected in the architecture of the mausoleum.

Materials and methods. Khoja Ahmed Yasawi's life story, as well as his mausoleum, is found in the works of some historians, geographers-travelers, orientalists, archaeologists and experts in the field of architecture. Many of the monumental buildings built during the reign of Emir Timur (1370-1405), turned into ruins and only Khoja Ahmed Yasawi's mausoleum in Turkestan was preserved almost in its original form.

Specialists studying the architecture of the buildings of the city of Turkestan, first of all pay attention to their common typological purpose. However, there is no consensus on this issue. M.Ye. Masson, L.Yu. Mankovskaya, G.A.Pugachenkova, A.A. Ivanov and others call this structure a mausoleum, whereas M.S. Bechchurin, P.N. Akhmerov, N.I. Veselovsky, A.A. Semenov is considered his mosque, T.K. Bassenov – a memorial complex, and V.L. Voronina, B.T. Tuyakbaeva, A.N. Proskurin and others – khanaka, that is, the Sufi abode. However, each of these names show only one of the functions of this amazing complex, but does not disclose and does not cover all the rituals and activities held in this place.

The basic written information about the construction of the tomb is presented in the book Sharaf ad-Din Yazdi Zafar-name (The Book of Victories). According to Sharaf al-Din Yazdi (Sharaf al-Din Ali Yazdi 2008), the construction of the building was carried out for the development of the local Sufi community, in addition, the facing brick found in the process of studying the early structure, as well as the presence of rooms for Sufi ritual ceremonies in the mausoleum, allow to conclude that this monument played an important role in spreading the Sufi teachings of Yasawi. At the same time, if we agree with those who claim that this is a khanaka, then this building should be called an inn for dervishes (Barthold 1963: 119). However, such a characterization of the building would be incomplete, since it does not show its significance as the center of the Sufi order of Yasaviya (Basilov 1975: 163).

The first researchers of the monument N.I. Veselovsky and S. Mallitsky conditionally considered it the memorial complex and called it the mosque, saying that the term "... is convenient in its universal understandability and acceptance" (Kalmykov, 1910: 91). The works of A.D. Kalmykov in this field are an important work on the typological classification of the architecture of Central Asia. And according to this typological classification, the monument studied by us refers to mosques.

In the works and reference materials published in the Soviet period (The General History of Architecture, Universal History of Art, History of Art of the Peoples of the USSR, Great Soviet Encyclopedia, etc.), the monument is presented as a mausoleum or a memorial complex. Since the 80-ies of the last century, some architects and archaeologists began to call it "hanaka." In a work written jointly by B.T. Tuyakbaeva and A.N. Proskurin (Tuyakbaeva, Proskurin 1989: 106-116.), the monument is

defined as a khanaka. The evolution of similar structures was historically formed in the territory of Maverannahr, for example – the mausoleum of Muhammad Basharo. Despite the fact that there are all the components allowing to call it khanaka, it is not called this way. J.S. Trimingham describes the khanaka as follows: "In the center of it there is a courtyard (ka'a or sahn). On its both sides there is a covered arcade (rivak) with rooms (halva or taback, singular - tabacka). On the right or on the left there is the central hall, where social life is concentrated, and collective rituals were sent. The hall was almost always simple. Usually, above the mihrab, the name of the founder of the hanaka and the saying of the confession of faith (Shahada) are written (Trimingham 1989: 58). If we agree with this description, then it fully corresponds to the monument we are examining. There are many different views on the functional identity of the name of the monument (mosque, tomb, mausoleum, hanaka, memorial complex), whereas in this article we are perhaps the first to conduct a study that determines the historical and philosophical foundations of its premises and their arrangement

The fact that various ideas regarding the definition of the monument's general function can lead to incorrect assumptions and conclusions, it becomes necessary to analyze the historical and philosophical foundations of the functional architecture of the monument and the plan for its construction. The definition of the world outlook and the premises designation will provide an opportunity to give a precise conclusion on the typological function of the structure.

We have taken our own methods of analysis and evaluation in accordance with the peculiarities of the content of sources on the research object presented in the article. Particular attention was paid to such approaches as comparison, forecasting and analysis, focused on disclosing the content of scientifically formulated events and facts, data and information concerning the history and architecture of the monument.

Kazakh historical science, institutionally formed in the Soviet period, could not go beyond the framework of only one scientific methodology. Since our past was viewed only through the prism of social history, it became an impersonal, inferior science that attached importance only to economic facts. In the studies there was no independent discussion of historical processes and events, and even simple historical realities were not revealed. To eliminate these shortcomings, in our study it was decided to abandon modernism based on comprehensive, universal theories, and to use the methods of poststructuralism alien to ideologies and authoritative paradigms, as well as the instability of changes and the multidirectional nature of scientific research (Isaev, Tursun, Zhandarbek, Jetibaev, Suleymenova, Dinasheva 2016).

Functions of premises and their historical and philosophical foundations. The mausoleum of Ahmed Yasawi is one of the largest structures in Central Asia, possessing the most impressive, preserved to this day tiled dome. The width of the building is 46.5 m, and the length is 62.5 m. The outwardly symmetrical, compact plan includes 35 halls and rooms of various sizes (figure 5), connected by 8 corridors, passages and ladders. In the building there is a zhamagatkhana (public hall), kabirkhana (burial vault), large and small aksarays (meeting rooms), kitapkhana (library), kudykkhana (well room) and several rooms for travelers and pilgrims. The volumetric-spatial composition of the mausoleum is constructed in accordance with the portal-dome construction scheme located along the longitudinal axis of the main volumes at the portals of the public hall and tomb. The axis oriented to the North-West of the structure in accordance with the designation represented in the scientific literature can be conditionally called the Northern (Mankovskaya 1962: 95).

The connecting link of the architectural and planning composition is the central room – zhamagatkhana or public hall (figure 5). Here the dervishes congregated for carrying out dervishes' rituals – zikr. The name of the room is mentioned in the book of Sharaf ad-Din Yazdi "Zafar-name" (Sharaf al-Din Ali Yazdi 2008). However, in the drawing of 1905 the room is called "kazandyk", that is, the place where the cauldron (kazan) is placed (figure 6). In this form, this name later entered the scientific literature.

Zhamagatkhana is a large square hall covered with a dome, the side of which is 18.2 m and the height is 36 m. The walls of the rooms are 7.2 m in length, 13.5 m high, the niches have different depths: in the South (entrance) - 3,7 m, in the North - 6,4 m, and from the sides (East and West) - 0,8 m. On the sides of the zhamagatkhana there are dervish cells (in two floors).

The fact that the zhamagatkhana is located in front of the kabirkhana, and the dervish cells – in its immediate vicinity, indicates that the hall was intended for visits and group rituals – zikrs, which, in turn,

is one of the principles of Sufism. Moreover, the building of the mausoleum on the grave of the saint is a continuation of the pre-Islamic tradition of the Türks (worshiping the spirits of ancestors) embraced by the Sufi Yasaviya (Barthold 1963: 116). One of the signs of this tradition is the installation of a huge cauldron for water (figure 3) – "sakei" in the middle of the main hall. This tradition corresponds to the holiday of the ancient Saka Massaget tribes – "sakei", dedicated to the spirits of ancestors (Ancient authors about Central Asia, 1940).

The tomb of Khoja Ahmed Yasawi – kabirkhana (located on the central axis of the building) completes the composition (figure 7). In the monument inscriptions this premise is mentioned under several terms. On the Northern facade it is written as "murkat" (grave). Above the entrance to the tomb there is an inscription: "This sacred tomb – "raudat "(the garden of worthy ones) was built by order of the Emir Timur Kuragan". The inscription on the cauldron states: "... this place for drinking water ... was ordered to build by Emir Timur Kuragan on Shawwal 20, 801..... for the tomb of Sheikh Ahmed Al-Yasawi" (Ivanov 1981: 68-69.) The term "Raudat" is translated as a "burial vault" or "mausoleum". However, if you translate directly from the Arabic language, it is a "garden". Here the word "garden" means the spotless purity and it can be assumed that the meaning "paradise garden" is used in relation to the tomb.

The founder of the Dervish direction in Sufism, where this concept existed, is the contemporary of Ahmed Yasawi – Abd Al-Kadir Giliani (date of death 1166), in whose teachings there are ways in which "the doors of hell will be closed for the people and the doors of paradise will be opened" (Barthold 1963 : 117). Therefore, the place where Ahmad Yasawi's soul, the kabirkhana, has rest, is called the "Paradise Garden". In accordance with this, the room is decorated with carefully selected images. In the center of the room, reminiscent of the “plus” sign, there is a tombstone, covered with serpinatinite in the form of snake, to which three ladders lead. There are no inscriptions on the tombstone itself. The room is covered by a double dome; its height from floor to ceiling is 17 meters, and outside – 28 meters.

Under the metal construction of the Northern wall and under the niche of the bearing foundation of the Northern side of the kabirkhana, the fragments of walls dating from the XII century were found. They are built of burnt bricks in a checkered pattern, and they have facing in the form of flowers. The fact that the fragments of the very first walls were found at the North side, and the South-West corner lies inside the walls, indicates that the first building was located slightly apart from the tomb of Ahmed Yasawi and performed the function of not the burial vault, but the place of visits by the pilgrims. This information shows that the Northern portal used to be a place for visits and was outside. This idea is confirmed by the words of Fazlullah ibn Ruzbihan Isfahani, who arrived here in 1509 (914) with a pilgrimage mission together with Sheibani Khan: "Having put on himself the ihram of worshiping the grave of the Holy Khoja and answering" I obey" the God's call, he (Sheibani Khan - Auth.) made a (ritual) detour around that kaaba from a pure heart ... Outside of the domed building, on the edge of the Western (Northern) sufa, which is located at the threshold of the grave, he gave the honor sitting down, and the readers of the words of God began to read decently reciting" (Fazlallah ibn Ruzbihan Isfahani 1976: 142).

The entire architectural composition of kabirkhana is located on the central axis of the building, which indicates that the tomb performed an important ideological role. For example, in the temples it is an altar, in palaces – a throne, and at the Turkic-Mongolian peoples this place was called "tore". In the monastery of the Sufis, this place is given to the grave of the sheikh, the spiritual leader of the religious community. The fact that Emir Timur was building the mausoleum just above the tomb of Ahmed Yasawi is confirmed by the inscriptions on the cauldron and the doors of the tomb (Akhmerov 1886.). Among the Eastern peoples, the discipline formed in the structural relations between members of the family, clan, tribe and military formations, and the order of state leadership became not just a tradition, but the way of thinking. This principle is reflected in the Qur'an, where it is said that people fall into three groups in the afterlife: prophets "who deserve trust" are "among the first", righteous on the right side and sinners on the left side (Koran 1963 : 329). Taking this principle into account, a group of premises adjacent to the kabirkhana (the mosque and large aksaray) was given special significance. So, the kitchen and the well are located at the feet of the sheikh. To the right of the kabirkhana there is the mosque, library, kitchen, and to the left there is the large aksarai, small aksarai and the well. That is, the priority is given to the right side. To the right of the kabirkhana there is the third most important place of the monument – the mosque (figure 5).

Figure 1 – Mausoleum of Khoja Ahmed Yasawi. South side

Figure 2 – Mausoleum of Khoja Ahmed Yasawi. South-East side

Figure 3 – Mausoleum of Khoja Ahmed Yasawi. North-East side

Figure 4 – Mausoleum of Khoja Ahmed Yasawi. The North-East side

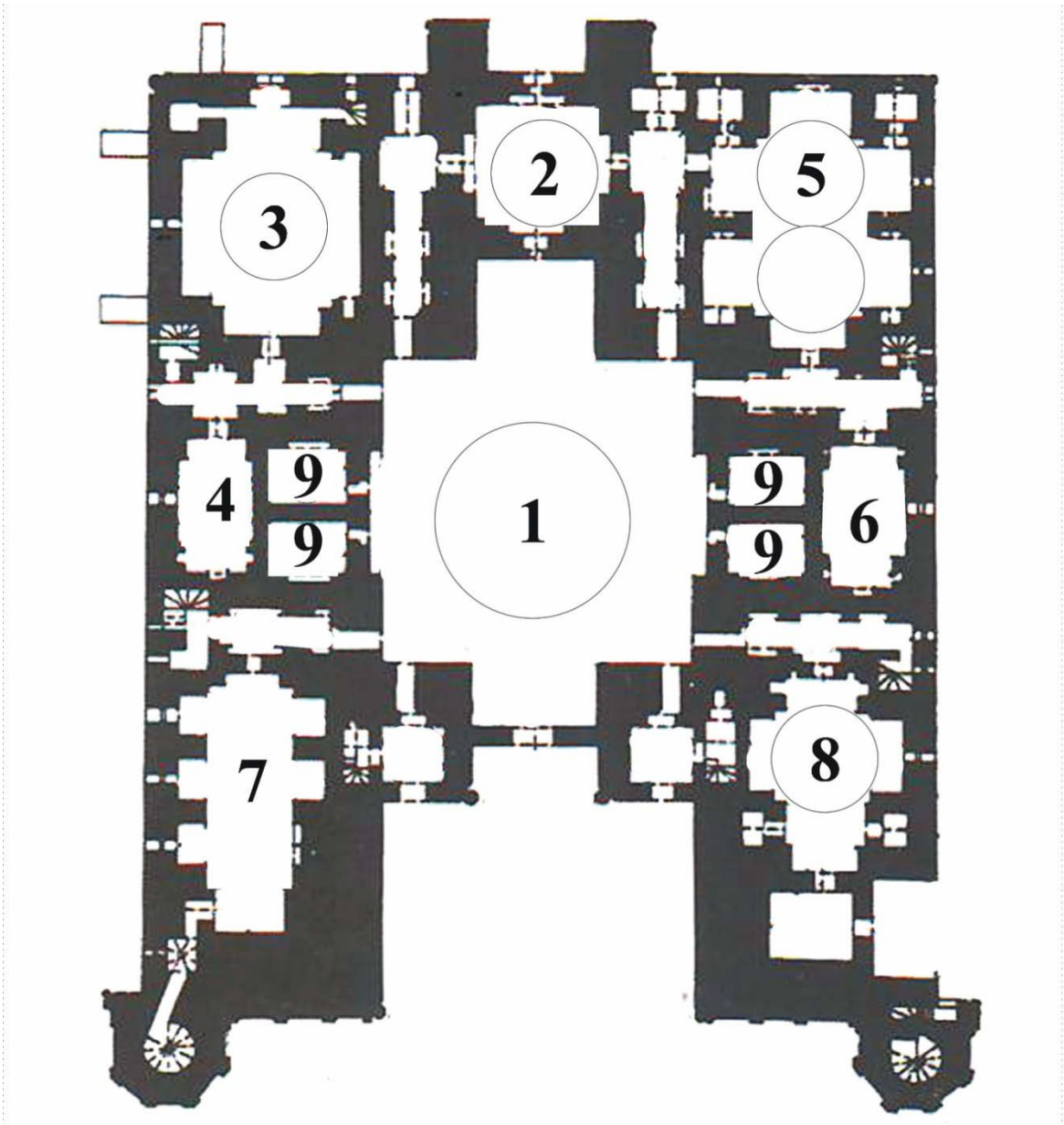

Figure 5 – Plan of the 1st floor:
1 - zhamagatkhana; 2 - tomb; 3 - mosque; 4 - kitaphana (library); 5 - large aksaray;
6 - small aksaray; 7 - askhana (kitchen); 8 - kudukhana (well); 9 - hujras (cells)

In the drawing-scheme of 1905 this room is called a small mosque. (Materials of the expedition of the Russian Committee for the Study of Central and Eastern Asia, sent in 1905 to Turkestan for taking archaeological measurements of the mausoleum of Khoja Ahmed Yasawi and its details. - State Hermitage. Department of the East., Inv. No. No.K-Y-375.). However, in the building there are no other premises called the mosque. Therefore, it would be wrong to call a general hall a mosque because there is no mihrab – a niche in the wall of the mosque that shows the direction to the Sacred Mecca, and therefore this room can not be a mosque.

The mosque is one of the most decorated halls of the building. On the walls, 11.5 m high and 2.3 m thick, there are niches. Above, the room is covered with a dome with several columns. On the Western wall, more precisely in the South-East, a mihrab is installed (Figure 8), it decorated with facing tiles with embossing using epigraphy. Just like in the kabirkhana, the floor of the room is covered with green ceramic tiles. The mosque is decorated with fragments of wall inscriptions more than other rooms. At the

Figure 6 – Kazan located in zhamagatkhana (public hall)

Figure 7 – Tomb

Figure 8 – Mihrab

same time, this is one of the lightest rooms in the building. In addition to two large windows in the niches there are small gaps, the rays from which are reflected on the facing tile and give the dome a unique colorful appearance. A direct corridor links the mosque and the library. This room was called a library in the 1905 drawing diagram.

The fact that the room still has old books, shows that it has not lost its functional purpose. There are two manuscript Qur'ans, one of which dates back to the 12th century, and the other to the 17th century. In addition, there is a Waqf letter, specially written by Emir Timur for this monument (Divaev, 1901.) This and other letters and documents were thoroughly studied by the staff of the Academy of Sciences of the Kazakh SSR in 1978.

The library is located to the South of the mosque. Its dimensions are 4.5x5.2 m. It is slightly widened due to two niches, 6 m high. On the balconies located above the niches, you can go through the corridor at the second floor, directed from North to South. The room is closed by a system of hexagonal shield-

Figure 9 – Well

same time, this is one of the lightest rooms in the building. In addition to two large windows in the niches there are small gaps, the rays from which are reflected on the facing tile and give the dome a unique colorful appearance. A direct corridor links the mosque and the library. This room was called a library in the 1905 drawing diagram.

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The library is located to the South of the mosque. Its dimensions are 4.5x5.2 m. It is slightly widened due to two niches, 6 m high. On the balconies located above the niches, you can go through the corridor at the second floor, directed from North to South. The room is closed by a system of hexagonal shield-shaped arches and is lit with a window on the West wall and pole holes in the dome. In the niche at the entrance there is a small stove, that is, this room was intended not only for storing books and documents, but also for conducting training sessions. This can be proved by the chapter of the Waqf charter, where the distribution of the Waqf incomes is indicated: "for the satisfaction of those who learned the holiest sayings of the Almighty God set forth in the Holy Qur'an, the Karias, who read on the grave on Thursdays and Mondays after the peace of the purest soul of the holder of the banner of the religion of Islam, the most pious of the saints , the blessed great Khodja Ahmed Yasevi - Khazret-Sultan ... "(Divaev, 1901.).

The work on decorating the premises was completed only in zhamagatkhana, kabirkhana and mosque, whereas in the libraries these works were practically not carried out. However, apparently, it was assumed that other rooms were planned to decorate.

In accordance with its function, other premises were located to the left of the Karsharkhana, among which the large aksaray (hall for solemn events). Until now, the function of this room, as well as the room, located next to it – a small aksaray, is not quite clear. The tombstones installed in these two rooms with simple inscriptions (Figure 5) make it clear that they were tombs for khans and rulers. (Barthold 1963: 183). The study of the inscriptions on the plates showed that none of them was erected during the construction of the mausoleum (Akhmerov 1886.). The tombstones of Abulkhair Khan (died in 1468),

Rabiya Sultan Begim (died in 1485), Yessim Khan (died in 1797), Abylai-Khan (died in 1781) have no relation to the inner parts of the mausoleum. As you know, the grave of Khan Abulkhair is located not far from Sygnak. Fazlallah ibn Ruzbihan writes about this as follows: "the safe and sound (Sheibani Khan) settled down with the august entourage in the town of Sygnak ... In the morning of the day of sacrifice, his high-ranking khan's majesty deigned to perform the obligatory religious ceremonies at the radiant grave of his majesty, the late Abul Khair -Khan "(Fazlallah ibn Ruzbihan Isfahani 1976: 139). The mausoleum of the granddaughter of Emir Timur and the wife of Khan Abulkhair, Rabia Sultan Begim, is built in Turkistan, 60 meters from the mausoleum of Ahmed Yasawi. Near the necropolis there are the graves of Khan Zhangir (died in 1652), Yessim Khan (died in 1797), Ablai Khan (died in 1781). However, after the tombstones fell, they were transferred inside the mausoleum. It is known that the grave of Rabia Sultan Begim was preserved until 1895 (Semenov 1926: 130), and the grave of Khan Abulkhair (the Blue Mausoleum) lasted until the beginning of the 20th century (Castagne 1911: 58). It is safe to say that almost all the gravestones were moved inside the monument later. According to the plan of 1905, out of 20 plates only 3 were in the Western half of a large aksaray, the rest were distributed in the corridor connecting the Karsharkhan and the mosque, and in the zhamagatkhana. In the same plan, there were no tombstones in the small aksaray, so there is no evidence that inside the monument there was a special room that fulfilled the function of the khans tomb.

Further, it is established that this room was intended for different conventions, gatherings and meetings. During the construction of the monument, Emir Timur was here for some time and spent his time in the Mausoleum of Tuman-aka, where he solved various state affairs and exercised judicial power, as there is reliable information about it (Barthold 1963: 183). Thus, Emir Timur adhered to the Turkic-Mongolian tradition to solve "... various inter-tribal conflicts, tensions and emergencies" next to the grave of the great man (Castagne 1911: 58). This suggests that establishing a "peace" next to the kabirykhana's premise is a reflection of the worldview principle, originating in ancient times. The notion that the spirit of the deceased takes care of the living is often expressed in the inscriptions on the graves of the saints: "When you are in desperation because of (contemporary) circumstances, seek help from those lying in the graves" (Barthold 1963: 116), and this notion was widely adopted and worded in the Sufi schools. The presence of a room that served as an aksaray (meeting room) completely coincides with Sufi beliefs.

The fact that these rooms were used for meeting guests and settlement of various importance questions, is confirmed by Fazlallah ibn Ruzbihan (he writes about it during his visit to Turkestan in 1509): "... in that sacred monastery of the saints and the abode of the world of friends, where I had to stop ... , shaykh al-Islam Shaikh Shamsaddin Muhammad Mahim-shaikh, a descendant of Ahmed Yasavi, read to him the book of Imam Muhia as-sunna al-Bagavi "Luminaries". Sheikh was listened by his disciples, ulama, mufti of the Turkestan region, travelers and people living at the mazar". "... For twenty brilliant days, I was honored to be in the neighborhood of this soul-raising place, in solitary prayer and a pious conversation in the congregation where I taught and studied myself, completely giving up everything else" (Fazlullah ibn Ruzbihan Isfahani 1976: 140-141).

Along with this, the functional plan-drawing of the room shows its civic orientation. This is a simple two-storey hall with walls 6.2 x 10.2 m, it has two doors, one leads to kabirkhana, and other one - to the small aksaray. The walls have six arches their size is 4x2.5 m and the height is 7 m. At walls there are seat places. On the walls, at the height of the doors, there are niches that serve as shelves. On the Southern arch the dimensions of these niches are 1.5x1.5 m, and they are slightly larger than the others. They were intended for large objects and things.

On the North-East side there is an utility room. In the South, on the sides of the front door there are two stoves. Large aksaray is intended for long-term residence of guests. This proves that the room could not be a burial vault for the khans. Behind the niche there is a corridor (after the separation of rooms), which is a natural extension of the North-Eastern cell and the small aksaray. It leads to the second floor. The hall is covered with two domed arches, and on its North and East facades there are three large windows. In addition, lighting is carried out through small holes. Decoration works in the room were not conducted.

A small aksaray is located behind the corridor (Figure 5). It can be assumed that this room was intended for selected, most respected guests, or served as a chancery in the conference room. The dimensions of the room are 4.5x5.2 m, it is slightly enlarged by the niche at the entrance, 4x1.5 m size and the

niche opposite the entrance 3.5x2 m size. Behind the niches there are balconies of the second floor. The overlapping of the hall repeats the overlapping of the library.

In the South-Eastern part of the monument there is a kitchen in the form of a refectory. The function of this room is described in the seventh paragraph of the document: "Every week on Mondays and Fridays from two and a half batman (batman is a measure of weight, varying depending on the place and time in the range from 8 to 16 poods (Masson 1930) of wheat and two batman of meat, with the right amount of salt and the necessary firewood, to prepare a dinner of "halim Aba" in the building of the greatest sultan of the saints Azret Sultan, let Allah illumine his soul, for the Karia (readers who learned the Holy Qur'an by heart), for those who make "dhikr", i.e. glorifying the name of Allah the Creator, as well as the local poor, infirm people, orphans and moussafites. Also, about 100 batman of wheat, turned into flour, are to be consumed daily for baking bread, for feeding the aforesaid feeble and poor people "(Divaev, 1901). The feast in honor of the deceased was widely spread among the Turks.This ritual has survived among the peoples of Central Asia, from the ancient times leading the nomadic way of life.

For example, in Strabo's work "Geography" it is said that among the Massagets "the most honorable death was death from old age, after the death of a man they slaughter a lamb and give food" (Ancient authors about Central Asia1940: 22). The cult of ancestral worship, which played one of the main roles in the belief system of the ancient steppe Turks, retained its significance among the Kazakhs after the spread of Islam. According to the ancient Türkic beliefs, the spirit is eternal. After the spirit leaves the body, death enters into it, that is why people worship great people, read prayers in honor of their ancestors and sacrifice. Respect for an ancestor is one of the manifestations of faith in the "right of the fathers". Asian Huns, Tabgashi and Turks made sacrifices to the spirits of the fathers near sacred caves, and all memories related to their ancestors were considered sacred [Kafesoglu 1989: 291]. According to Herodotus exactly the same tradition existed among the Isedones (Ancient authors about Central Asia1940: 19-20). The tradition to give food near the burial place, which came from ancient tribes, found its continuation in Sufism, which explains to us the presence and functions of the kitchen located inside the mausoleum.

The kitchen is a long hall 6.2 x 12 m. The hall is slightly enlarged with help of niches in the walls. The height of the niches is 6 m. An arched corridor passes over the niches at the top of the hall. The ceiling of the kitchen was replaced during the repair work of 1910 (Tuyakbaeva, Proskurin 1985: 68-69). Entrance to the kitchen is arranged through the Northern part of the corridor. During the restoration work behind the tower of the Western facade there was found a knocked out hole, which was supposedly the second entry point to the kitchen. The hall is illuminated through the windows at the first and second floors at the West side. Works on the decoration of the kitchen were not conducted. Just like the lavatory found in the area of the building's Western facade during the excavation in 1958, the warehouse for storing firewood, wheat, and the oven were located in the monument's outer zone. The placement of two furnaces with pipes here shows the subsequent functions of this room.

In the South-Eastern part of the building there is a well (Figure 8). It can be accessed from the Northern corridor. The height of the dome is 16 m, the length of the walls is 6.3 m, the hall is like a plus sign. On the walls there are niches measuring 4.5x2 m and an arch measuring 4.5x3 and 3.5x2 m. In the Southern niche of the room there are two economy premises (1.8x3 m). On the South axis of the hall there is a well in the form of a ring with a diameter of 0.8 m. According to the data of 1905, the water was at the depth of 3.5 m.

The first information about the well belongs to the sixteenth century. Fazlallah ibn Ruzbihan Isfahani, after visiting the monument to Ahmed Yasawi, wrote: "... and its deep well is the beginning of the Salsabil source, which allows to taste a rest drink to the people wandering in the valley of fatigue" (Fazlallah ibn Ruzbihan Isfahani 1976: 141). In addition, the presence of well can be understood from Point 5 of the letter issued by Emir Timur: "With this noble grave there must be two people working as water-carriers and sweepers appointed from local residents, and these people must be able to perform this work impeccably and without fault, being there irretrievably and taking care of their business "(Divaev, 1901.). Thus, the well supplied the kitchen and provided the drinking water for kazan, which was in the center of the zhamagatkhana – the public hall. The presence of water source in the mausoleum was a vital necessity for the public functioning of all its premises.

So, we know the reason why there was a need to dig a well inside the building. If we turn to the worldview aspect of this fact, the presence of a well here is not accidental. Khoja Ahmed Yasawi, in his

"Hikmets", calls Saint Khyzyr his father (Wisdom of Hazrat-Sultan Arifin-Khoja Ahmed-Yasawi.) - Collection of materials for statistics of the Syrdarya region, 1856.) V.V. Barthold, in the legend of Khizir, describes him as follows: "In Sufi theology, Khyzyr is the ruler of water and the patron of culture" (Barthold 1963: 115-116). The pre-Islamic beliefs of the Turks, connected with water and land, originate in antiquity. As evidence, one can give an example of the fact that the Saka tribes had a tradition of burying the dead near rivers, canals or springs (Pantusov 1897.), while the Kazakhs had graves "on the ground ... next to the water" (Castagne 1911: 78). The concept of water as a source of life is connected with the human spirit, existing in the Islamic-Sufi school, it had a direct impact on the color gamut of the architecture of the 10th-12th century, and, having lost its significance for a short time, it was revived again after the Sufi school acquired state significance in the period of Timur's reign. Therefore, blue color, according to V.L. Voronina, first appeared in the architecture of Central Asia and the Far East on the outer parts of the building structures as an ornament, showing a stylized image of the boat (Voronina 1977: 90).

Speaking about the historical and worldview factor in the art of Timur's period, which reveals the revival of pagan images and signs, it should be noted that the appearance of these motifs under Timur is a natural phenomenon, since the clan he originated from embraced the Islam quite late, only shortly before the birth of Timur .

Conclusion. The monument of Khoja Ahmed Yasawi built on the orders of Emir Timur, but not completed, has all the characteristics of its own and the earlier period. Here, the synthesis of ancient Turkic-Islamic traditions and Iranian architecture was manifested.

Having studied the architectural plan and functional composition of the monument to Khoja Ahmed Yasawi, we have an opportunity to make a conclusion about it, as a cultural, spiritual and religious complex of the Sufi school. In this structure, there is a direct relationship between Islamic Sufi concepts and pre-Islamic religious beliefs, which went on to coexist continuously in the life of nomadic tribes. The concepts specified by us, strongly influenced the formation of architectural principles of monuments during the period of Emir Timur’s reign, and this proves that the ideological aspect was one of the main factors reflected in the architecture of that period. Thus, there arises the need for an objective examination of the architectural art and artistic works of Central Asia of that period. First of all, this is very important for the restoration and decoration of monuments, because the art of a certain period, we can say, reflects the worldview and philosophy of this period.

While Khoja Ahmed Yasawi, through his works and pupils, made conditions for the spread of Sufism among the Turkic peoples of Kazakhstan and Central Asia, Turkey and the Caucasus, we can say with certainty that the monument built in his honor had a strong influence on preserving the features of the traditional worldview and philosophy in the process of spreading his teachings.

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АХМЕТ ЯСАУИ ЕСКЕРТКІШІ ФУНКЦИОНАЛДЫҚ-ЖОСПАРЛЫ ҚҰРЫЛЫМЫНЫҢ ТАРИХИ-ДҮНИЕТАНЫМДЫҚ НЕГІЗДЕРІ

Аннотация. Қазақстанның Түркістан қаласында Қожа Ахмет Ясауи ескерткіш ғимараты бар. Мавзолей бүкіл шығысқа аты белгілі көне түркі ақыны, суфизмді уағыздаушы Ахмет Ясауи бейітінің үстіне XIV ғасырдың соңында Әмір Темір тарапынан тұрғызылған сәулет өнерінің көрнекті ескерткіші болып табылады. Бүгінгі күнге дейін көптеген зерттеушілер ғимараттың функционалдық қызметі туралы әртүрлі пікірлер білдірді. Құрылыс жоспары, безендірілуі, бөлмелер қызметі дәстүрлі түркілік дүниетанымға негізделген йасауи сопылық бағытының ерекшелігін көрсетеді. Бұл мақалада ғимараттың жоспары, бөлмелерінің орналасу реті, сонымен қатар, архитектуралық функционалдық қызметтері мен тарихи дүниетанымдық негіздері қарастырылады. Сондықтан, жеткілікті түрде зерттелмеген ғимарат бөлмелерінің функциялары мен атаулары ислам діні Орта Азия халықтары арасына таралғанға дейінгі діни сенімдер және исламдық түсі-

ніктермен сабақтастықта талданады. Дүниетанымдық түсініктердің темірлік кезең архитектурасында бейне түзуші фактор болғандығы дәлелденеді.

Түйін сөздер: Ахмет Ясауи ескерткіші, Қазақстан, Түркістан, сәулет өнері, бөлме, функция, дүниетаным.

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ИСТОРИКО-МИРОВОЗРЕНЧЕСКИЕ ОСНОВЫ ФУНКЦИОНАЛЬНО-ПЛАНИРОВОЧНОЙ СТРУКТУРЫ МАВЗОЛЕЯ АХМЕДА ЯСАВИ

Аннотация. В Казахстане, в городе Туркестан находится Мавзолей Ходжи Ахмеда Ясави. Мавзолей является ярким примером средневековых памятников, который построен над могилой тюркского поэта и суфийского проповедника Ахмеда Ясави вконце XIV в. по приказу эмира Тимура. До сегодняшнего дня многими исследователями были выдвинуты разные идеи касательно мавзолея. План, функции помещений, украшения и декор строения показывают особенности суфийского тариката Ясавия, основанного на традиционном тюркском мировоззрении. В данной статье будут рассмотрены историко-мировоззренческие основы и функциональное назначение плана и архитектуры, порядка расположения помещений мавзолея. Помимо этого, проводится анализ недостаточно исследованных функций и наименований помещений здания, а также их преемственность с точки зрения доисламских религиозных верований среднеазитаских народов и концепции ислама. Приводятся доказательства того, что мировоззренческие понятия указанного периода являются фактором, отобразившимся в архитектуре эпохи средневековья.

Ключевые слова: Мавзолей Ходжи Ахмеда Ясави, Казахстан, Туркестан, Архитектура мавзолея, Помещение, Функция, Мировоззрение.

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AN ANALYSIS ONA ZÜMRÜDÜANKA FOLK TALE*

Abstract. Zümrüdü Anka folk tale is one of the most famous and common fantastic tales in Turkey. In the tale there are some miraculousnesses such as fantastic journeys under and over the ground, giants, and talking animals. Zümrüdü Anka folk tale which can be seen in many parts of Turkey and came into being as a result of documentation study in Muğla district will be reviewed by the perspective of folk tale reseacher Max Lüthi. Zümrüdü Anka tale and narrative styles of its co-texts will be examined in terms of "unidimensionality", "superficiality", "notional taste", "exclusion and dependence on everything", "dignification and embracing the world" items while considering their transitivity, similarity and difference. Unidimensionality in the folk tales reveals a world we are accustomed to. In the folk tale world, every person and event in the tale are welcome naturally by the tale listeners. In the folk tales there is not a deepening in terms of place, time, soul and psychology. These notions are expressed superficially. This superficiality enables the tale to be far from reality, thus, makes its style notional. Folk tale figures are not dependent on anything. They are on their own. They don't have an inner world or time concept. Two events which are apparently independent from each other can in fact be dependent invisibly. Every important stage in human life appears in a folk tale, so does every human characteristic such as achievement, betrayal, jealousness etc. Protagonist of the folk tale is praised and sublimed in an exaggerative way. The way of taking away the meaning of figures and things is a means of dignification. And this lets protagonist embrace the world. Zümrüdü Anka folk tale derived from Muğla is an example that reflects the sentiments of M. Lüthi. This study will pay attention to motives ranging from dignifying in unidimensionality to embracing the world and characteristics of disappearing and ongoing motives along with their interior and exterior structure. Application of structural understanding in folk tales that M. Lüthi presented will be examined by an eclectic method.

Key words: folktale, Zümrüdü Anka, miraculousnesses, analyse, Max Lüthi.

Introduction. A great many of researchers and scholars have made researches about folk tales using with various methods before. Among them, there have been sorted studies made on the external structure by (Seyidoğlu, 2006; Günay, 1975; Arslan, 1998), on motif structure by (Sakaoğlu, 2002; Alptekin, 2001; Şimşek,2001), and on internal structure by (Yavuz, 2002; Önal, 2006). The new ones of such studies have been adding day by day.

According to Max Lüthi, who studied European folk tales in terms of style, folk tales are made up of five sections of which can be gradable as "Unidimensionality", "Superficiality", "National Taste", "Exclusion and Dependence on Everything" and "Dignification and Embracing the World". In this study, Zümrüdü Anka (ZA) folk tale compiled in Muğla district will be evaluated from the point of view of M.Lüthi.

1. Unidimensionality. It's probable to mention about many creatures which are admitted to have been belonged to the other world such as giants, fairies and mysterious animals in folk tales. Creatures and animals that have seen fairly ordinary initially start to talk suddenly and show mysterious peculiarities. The old men and the women whom the protagonist comes across forthe first time give him magical presents or the advice he needs without any reason.

A protagonist, also, come across with the creatures belonging to the under ground and accepts the objects or ideas given by them readily. Sometimes fights with them, makes agreements and keeps on his way as if nothing has happened (Lüthi, 1996b: 148).

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Unidimensionality in the folk tales reveals a world with which we acquainted. Every person and event in the folk tale world are regarded as natural profoundly by the tale listeners. Events seem to have taken place abreast and interbeddedly. Physics and metaphysics are almost interbedded.

In ZA folk tale this unidimensionality is seen. The protagonist is seemed to have talked both with animals and the mysterious creatures during the tale [(T)B211.3.10]. ZA bird helps him [(T)B469.11], however, it asks for some certain amount of (40 leather bottles)meat and water (40 leather bottles) [H18] while it is taking him to the earth from underground [B296, B350, F101.6]. This wish of the ZA bird is provided by a Sultan/Padishah owing to the gratitude he feels fort he protagonist in certain co-texts [N836]. The moment they are about to reach the earth meat is over and the protagonist gives meat from his calf [B322.1]. ZA bird finds out that this is human meat, keeps it under its tongue secretly and gives it back to the protagonist when they reach the earth. Then he gets the meat and attaches it on to his calf and he keeps walking as if nothing has happened.

The protagonist, in one of the other part of the folk tale, comes across with giant [F.531.6.2.6]. He talks to the giant, even fights and beats him [F102.1, F610, F628.2.3, L10, L312].The nascensy of the adventures of protagonist, who himself is a human, with mysterious creature ZA bird and the giant is natural in folk tale dialectic.

A person contemplates over the occasions s/he encounters in daily life and tries to reveal the secret of them. Yet, the protagonist doesn't bring out/show his astonishment, fears and defeats even though he experiences more fantastic and extraordinary occasions than those of the daily life. He can deal with the drawbacks he faces with magic feathers [D991] given to him. Then he almost forgets this magic object.

In ZA folk tale, two feathers are given to the protagonist, when he makes touch these feathers to each other, two rams turn up. One of them is the one to take him to the earth, while the other is the one to take him to the underground. Having got the animals in with them, those feathers leave the tale andare not mentioned again.

The main reason for which the protagonist goes to a summit of a far away mountain is, most probably, to have been saving of the sultan's daughter or the things needed to save her are available there. It's not the wonder or nor the wish to learn that leads the protagonist to the summit. He merely acts out the role given to him like an actor. He has neither time concept, nor has a temperament to be astonished at the mysterious happenings. Geographical differences have mostly been lived through in order to be able to express the spiritual discretenesses. As in most mythic texts, epics and legends, the protagonist, too, may goto different bourns and travel from the earth to underground.

In ZA folk tale, the protagonist rides the black ram and goes underground [F80, F96, F98]. He doesn't astonish, dread and react to this situation since he is deprived of the entire splendid feelings to him, everthing is in the same dimension (Lüthi, 1996b: 148-149).

In this folk tale, too, all the incidents taken place have been prograssing on asole line, and both the real and the surreal thing have been seen in one dimension.

2. Superficiality. In the folk tales, there is no deepening in the dimension of place, time, soul and psychology. These notions are verbalised superficially. This superficiality enables the tale to be far from the reality. Tale reveals the sentimental world through external (the second or third level) events and spiritual world by way of external factors in due course (Lüthi, 1996a: 84).

Folk tale at times tells about villains, but there is no grudge and vengeance in these tales. The protagonist himself almost never punishes his opponent. This is mainly the duty of the second level characters or creatures. The engagement and marriage are told in the tales, but sentimental values such as love and affection are not fallen with. The protagonist is aware of the other humanistic phenomenons such as war and death in daily life, but his ideas on this reality are not stated. It's usually avoided to describe the sentiments in the tales. Protagonists have not only the reality of the inner world, at the same time they are deprived of an environment, too (Lüthi, 1996a: 87).

The protagonists don't have the characteristics of a feature/personality. They are mostly come in view asfigures. Notably, there are no details about the second level characters are presented. Despite the fact that all the interest and attention has focused on the first level character in ZA folk tale, it has been seen that any spiritual or psychological detail, even about the protagonist, is not indicated. Folk tale definitely overleaps/ignores/passes over the spatial, secular, moral and psychological relations (Lüthi, 1996a: 89). Sentimental relations and events that may happen in real life are mentioned superficially within the tale.

In ZA folk tale, sultan has three sons. They respectively follows the giants who demages the garden. However, the eldest and the middle son of sultan can not cope with the giant. The youngest son goes after the giant fearlessly [G410]. While he is going down the well, the rope he has been tied up is cut by his

elder brothers [K963] and he falls down to an another world, in other words, he is deceived and betrayed by his brothers [K1931.4, K2211]. In another context, the protagonist disappears, in the meantime, his father is about to marry the girl whom he is fallen in love. He ranges/ (reaches) the wedding [K2246.1, N681] and marries the girl himself. Whwn considered from this point of view, it may be regarded as he has been deceived by his father.

The youngest son of the Sultan has to leave his hometown and live in an another world. He confronts with various problems and circumstantes, but he doesn't acts in a certain manner or abreacts. He doesn't long for his hometown, have a spite against his brothers and reflect a feeling of hatred. In the ZA tale, as in other folk tales, a concrete expression regarding what the protagonist has lived through in his inner world is not stated.

3. Notional Style. When the texts are dealt in respect to form and context, a symbolist narration is the question in the folk tale texts to which they are throught to have belonged the primitive era or in primitive societies that the form becomes prominent (Gennadiy, 1984: 30). There is no depth and detail in these narrations. Even the names of the persons don't appear most of the time such as the youngest son of Sultan and the daughter of the underground Sultan.

On one hand superficiality enables the tale to be far from the realities, on the other hand certain figures and objects are diverged from each other with sharp lines and color differences. Folk tale figures (characters) change the place in which they are throughout the tale and events has taken place in the meantime are expressed without using an intense description.In the same way, the traits and qualities of a single person or an event are not stressed in the tale. By this way, events are provided to progress swiftly (Oruç, 2000: 223).

Everthing forenamed within the tale is presented in an exact coherence. The creatures we encounter in the ZA tale are similar to this, too. The giant living underground [F531.6.2.6], the youngest son of the Sultan, the sons of the Sultan [P30], Sultan and his son [P223].

The contrasts that are taking place in the tale such as miracles, bans, the good-the bad, the rich-the poor, and repetitions support the precise and constant form of the tale. At the same time, the repetitions made at certain intervals virtually cut the folk tale into sections in itself, which increases the didactic quality of the folk tale. The being on one line and by depending on this the realization of the motion, accordingly, the events, is the basis and prerequisite of notional taste (Oruç, 2000: 224).

The events are in the foreground in the folk tales. In the ZA folk tale, many characters, events and motion which are connected to each other have been explained on a single line. This narration is a distinctn one of which gives the chain of events rather than detailed descriptions and psychoanalysis. A great many of events and actions related to them are presented respectively in coherence.

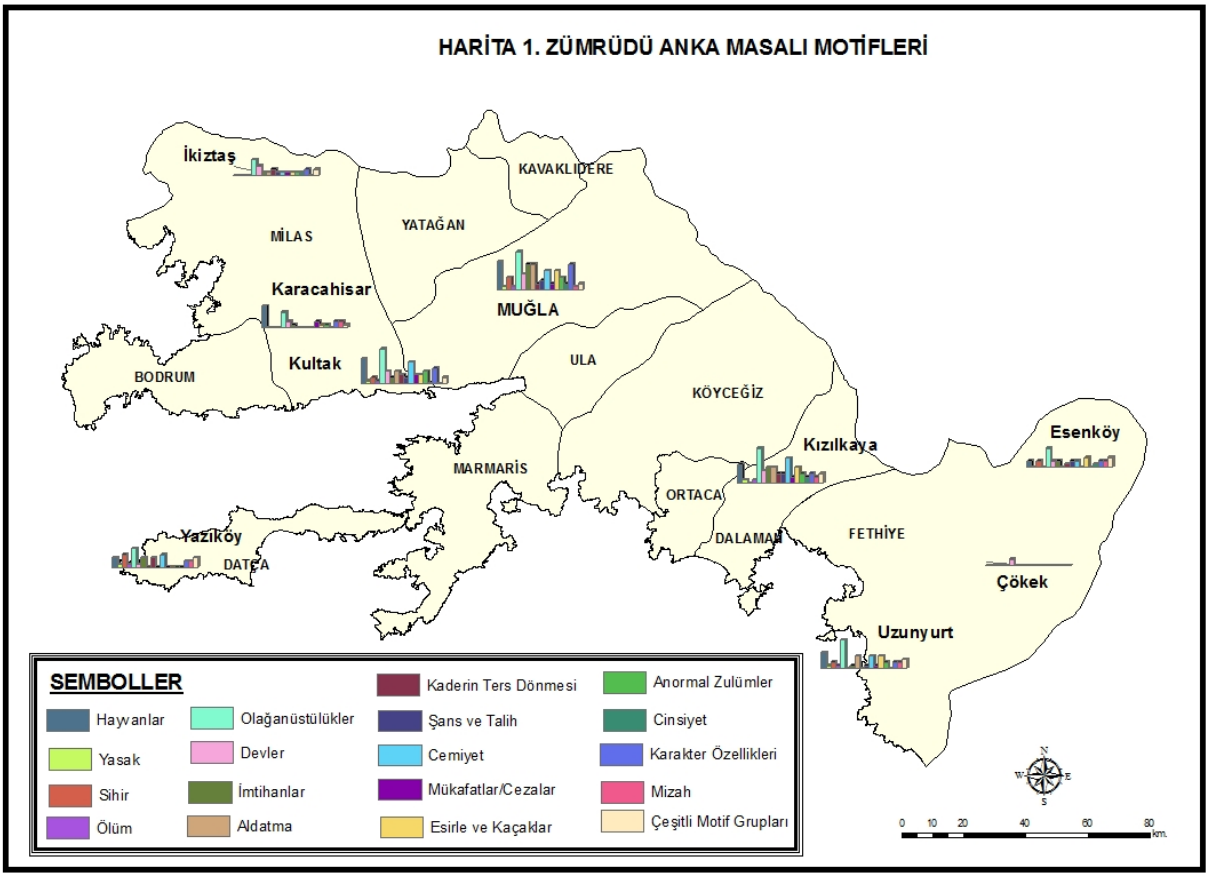
4. Exclusion And Dependence On Everything. Folk tale figures are not dependent on anything, they appear as self- existent characters or creatures. They have no an inner world or time concept. Folk tale characters may contact to each other whenever they want or break up with each other ant time because of this reason. Two events which are apparently independent of each other can virtually be dependent invisibly (Oruç, 2000:225-226).

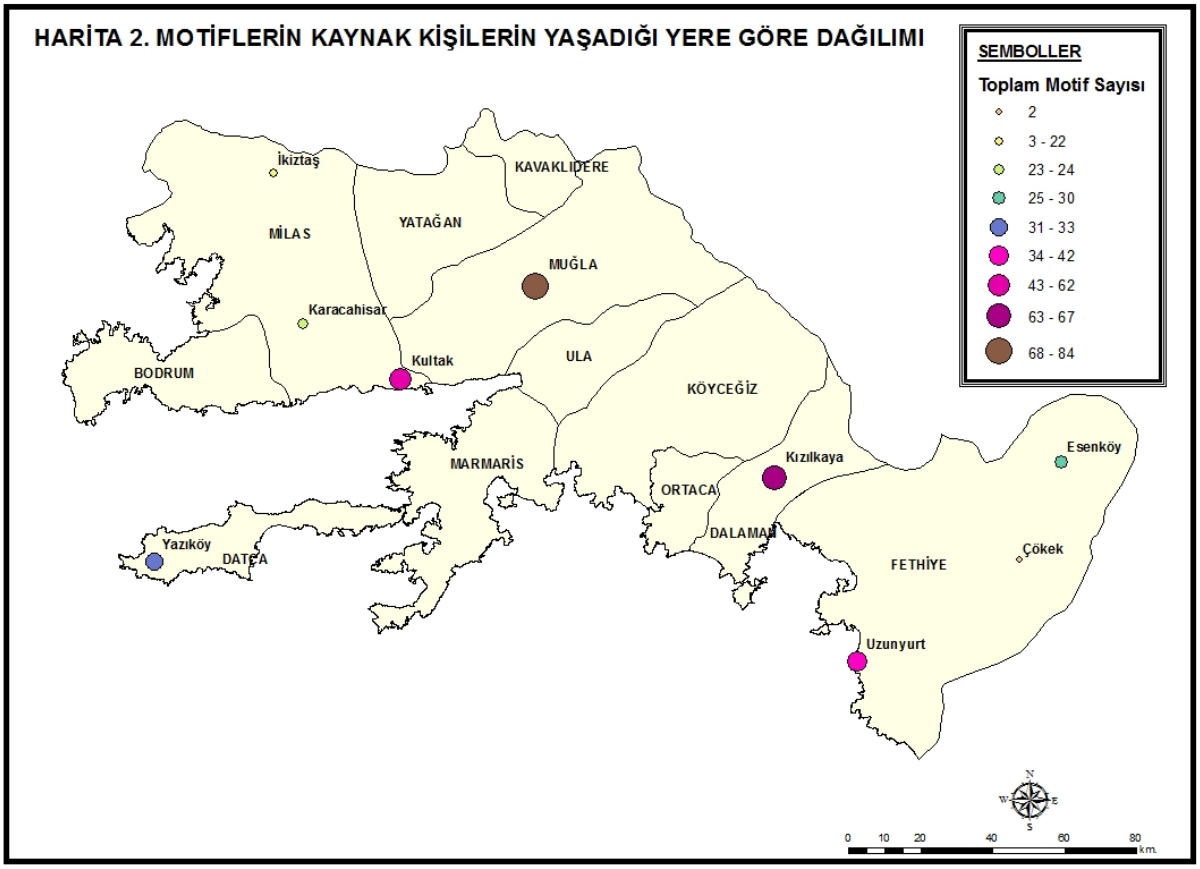
The protagonist is both dependent on everything and every event and independent of all the people and events. There is no dependence on terms of such as motherland, nation, religion and belief. He turns back to his country when required. He gets involved in the events taking place there and he can leave there abruptly and may enbark on a new adventure. It doesn't matter how much time has passed in between.

In the ZA folk tale, the protagonist lives underground for a long time [F80]. He mounts to the earth at the back of ZA [F101.3] and returns his previous life suddenly [F101]. The effects of the time passed b yor the change of place have neither influenced the protagonist, nor those around. Namely, the protagonist has been alienated from everthing he has suddenly and may be able to turn back his previous life without having any hesitation. Nothing has been said with regard to how much time has passed or whether he has got here or not.

5. Dignification And Embracing The World. Protagonist of the folk tale is dignified and purified by having been alienated from the reality. The taking away of the meaning of figures and the things is ameans of dignification, which lets the protagonist embrace the world (Oruç, 2000: 226-227).

Moreover, all the important stages of human life appear in tales, so do the sentiments such as birt, wedding, death, success, jealousy, and so on. Almost all of these elements take their place in the life or adventure of protagonist superficially when necessary.


HARİTA 1. ZÜMRÜDÜ ANKA MASALI MOTİFLERİ
İkiztaş
KAVAKLIDERE
MİLAS
YATAĞAN
Karacahisar
MUĞLA
Kultak
ULA
BODRUM
KÖYCEĞİZ
Kızılkaya
Esenköy
MARMARİS
ORTACA
Yazıköy
DALAMAN
FETHİYE
DATÇA
Çökek
Uzunyurt
SEMBOLLER
Hayvanlar
Olağanüstülükler
Yasak
Devler
Sihir
İmtihanlar
Ölüm
Aldatma
Kaderin Ters Dönmesi
Şans ve Talih
Cemiyet
Mükafatlar/Cezalar
Esirle ve Kaçaklar
Anormal Zulümler
Cinsiyet
Karakter Özellikleri
Mizah
Çeşitli Motif Grupları
0 10 20 40 60 80 km.


HARİTA 2. MOTİFLERİN KAYNAK KİŞİLERİN YAŞADIĞI YERE GÖRE DAĞILIMI
SEMBOLLER
Toplam Motif Sayısı
2
3 - 22
23 - 24
25 - 30
31 - 33
34 - 42
43 - 62
63 - 67
68 - 84
İkiztaş
KAVAKLIDERE
MİLAS
YATAĞAN
MUĞLA
Karacahisar
Kultak
ULA
BODRUM
KÖYCEĞİZ
MARMARİS
Kızılkaya
Esenköy
ORTACA
Yazıköy
DALAMAN
FETHİYE
DATÇA
Çökek
Uzunyurt
0 10 20 40 60 80 km.

ZÜMRÜDÜ ANKA MASALI MOTİFLERİ									
Derleme Yapılan Kaynak Kişiler / Toplama Yapılan Kaynak	Cavit Aker	Durali Akçakaya (Dalaman)	Hüseyin Akyürek (Milas)	Fethi Köle (Fethiye)	Ali Kocadurmuş (Datça)	Cevdet Tekelioğlu (Fethiye)	Abdullah Kara (Milas)	Hatice Akar (Milas)	Mustafa Güngör (Fethiye)
B. Hayvanlar	B184.6 (T) B211.3.10 B296 B322.1 B350 (T)B469.11 B542.1.1 B552 B.872	(T) B211.3.10 B296 B350 (T)B469.11 B552 B.872	B184.6 (T) B211.3.10 B296 B322.1 B350 (T)B469.11 B542.1.1 B.872	B296 B322.1 B350 (T)B469.11 B872	B322.1 B542.1.1 B872	B296 B872	B184.6 (T) B211.3.10 B296 B322.1 B350 (T)B469.11 B.872	--	--
	9 Motif	6 Motif	8 Motif	5 Motif	3 Motif	2 Motif	7 Motif	0 Motif	0 Motif
C. Yasak	C755	C755	C755	C755	C755	--	--	--	--
	1 Motif	1 Motif	1 Motif	1 Motif	1 Motif	0 Motif	0 Motif	0 Motif	0 Motif
D. Sihir	D950 D981.1 D991 D2131	--	D991 D2131	D950 D981.1	D950 D981.1 D991 D2131	D950 D981.1	--	--	--
	4 Motif	0 Motif	2 Motif	2 Motif	4 Motif	2 Motif	0 Motif	0 Motif	0 Motif
E.Ölüm	E226	E226	E226	E226	E226	--	--	--	--
	1 Motif	1 Motif	1 Motif	1 Motif	1 Motif	0 Motif	0 Motif	0 Motif	0 Motif
F.Olağanüstü-l ükler	F80 F96 F98 F101.3 F101.6 F102.1 F150 F531.6.2.6 F628.2.3 F718 F970 F980	F80 F90 F96 F101.6 F102.1 F150 F531.5.7 F531.6.2.6 F610 F628.2.3 F718	F80 F96 F98 F101.3 F102.1 F531.6.2.6 F610 F628.2.3 F718 F980 F1068	F80 F96 F101.3 F102.1 F531.5.7 F531.6.2.6 F628.2.3 F718 F811	F80 F96 F101.3 F102.1 F531.6.2.6 F811	F80 F101.3 F.531.6.2.6 F628.2.3 F718 F811	F80 F98 F101.3 F531.6.2.6 F628.2.3	F531.5.7 F531.6.2.6 F610 F628.2.3 F718	--
	12 Motif	11 Motif	11 Motif	9 Motif	6 Motif	6 Motif	5 Motif	5 Motif	0 Motif
G.Devler	G11.6 G312 G410 G535 G550	G11.6 G410 (T)G443 G550	G11.6 G312 G410 G550	--	G550	G312 G550	G11.6 G550	G312 G535 G550	G312 G550
	5 Motif	4 Motif	4 Motif	0 Motif	1 Motif	2 Motif	2 Motif	3 Motif	2 Motif
H. İmtihanlar	H18 H83 (T)H119.3 (T)H122 H355 H506 H1242 H1471	H11.1 H18 H83 H355 H506	H506 H1471	H18	H18 H506 H1471	H18 H83	H18	H506	--
	8 Motif	5 Motif	2 Motif	1 Motif	3 Motif	2 Motif	1 Motif	1 Motif	0 Motif
K. Aldatma	K963 K1334 K1836.5 K1931.2 K1931.4 K1935 K2211 K2246.1	K963 K1836.5 K1931.4 K1935 K2211	K963 K1836.5 K1935 K2246.1	K963 K1931.4 K1935 K2211	--	--	--	K1836.5	--
	8 Motif	5 Motif	4 Motif	4 Motif	0 Motif	0 Motif	0 Motif	1 Motif	0 Motif
L. Kaderin Ters Dönmesi	L10 L13	L10 L162 L312	L10 L13 L312	--	L10 L162 L312	L312	--	L162 L312	--

	2 Motif	3 Motif	3 Motif	0 Motif	3 Motif	1 Motif	0 Motif	2 Motif	0 Motif
N. Şans ve Talih	N681 N773 N836	N681 (T)N726 N773	N681 N773	N681	--	(T)N726 N836	--	N681	--
	3 Motif	3 Motif	2 Motif	1 Motif	0 Motif	2 Motif	0 Motif	1 Motif	0 Motif
P. Cemiyet	P10 P30 P40 P251.5.3 P251.6.1 P252.2	P10 P30 P40 P233 P251.5.3 P251.6.1 P252.2 P441	P10 P30 P40 P251.5.3 P251.6.1 P412 P441	P30 P40 P251.5.3 P251.6.1	P30 P40 P251.5.3 P251.6.1	P10 P40	--	P40	--
	6 Motif	8 Motif	7 Motif	4 Motif	4 Motif	2 Motif	0 Motif	1 Motif	0 Motif
Q. Mükafatlar/ Cezalar	Q10 Q93	Q10 Q93	Q10 Q93 Q570	Q93	--	--	Q10 Q93	Q10	--
	2 Motif	2 Motif	3 Motif	1 Motif	0 Motif	0 Motif	2 Motif	1 Motif	0 Motif
R. Esirler ve Kaçaklar	R11.3 R41.3.4 R111.1.1 R111.1.4 R111.2.1.1 R.141	R11.3 R41.3.4 R111.1.1 R111.2.1.1 R.141	R41.3.4 R.111.1.1 R.141	R.41.3.4 R.111.1.1 R111.2.1.1 R141	--	R41.3.4 R111.1.1 R141	R111.1.1	R.111.1.1	--
	6 Motif	5 Motif	3 Motif	4 Motif	0 Motif	3 Motif	1 Motif	1 Motif	0 Motif
S. Anormal Zulümler	(T)S21.6 S.146.1 S.262.1 S562	(T)S21.6 S.146.1 S.262.1	(T)S21.6 S.146.1 S.262.1 S562	(T)S21.6 S146.1	--	--	S262.1	S262.1	--
	4 Motif	3 Motif	4 Motif	2 Motif	0 Motif	0 Motif	1 Motif	1 Motif	0 Motif
T. Cinsiyet	T68 T102	T68 T102	--	--	--	T68.1	--	T68.1	--
	2 Motif	2 Motif	0 Motif	0 Motif	0 Motif	1 Motif	0 Motif	1 Motif	0 Motif
W. Karakter Özellikleri	W26 W28 W32 W33 W45 W131 W136 W154	W32 W33 W34	W28 W32 W33 W35 W121	W32 W33	W32 W33	W32 W33	W32 W33	W32 W33	--
	8 Motif	3 Motif	5 Motif	2 Motif	2 Motif	2 Motif	2 Motif	2 Motif	0 Motif
X. Mizah	X942	X942 (T)X1275	--	X942 (T)X1275	X942 (T)X1275	X942 (T)X1275	X942 (T)X1275	--	--
	1 Motif	2 Motif	0 Motif	2 Motif	2 Motif	2 Motif	2 Motif	0 Motif	0 Motif
Z. Çeşitli Motif Grupları	Z71.1 Z.71.12	Z71.1 Z71.12 Z71.12.0.2	Z71.1 Z71.12.0.2	Z71.1 Z71.12 Z71.12.0.2	Z71.1 Z71.12 Z71.12.0.2	Z71.1 Z71.12 Z71.12.0.2	Z71.1	Z71.1 Z71.12	--
	2 Motif	3 Motif	2 Motif	3 Motif	3 Motif	3 Motif	1 Motif	2 Motif	0 Motif
TOPLAM MOTİF SAYILARI	84 Motif	67 Motif	62 Motif	42 Motif	33 Motif	30 Motif	24 Motif	22 Motif	2 Motif

In the ZA folk tale, the youngest son of the Sultan reaches the wedding whwn his beloved is about to have been getting married to somebody else [K2246.1]. He has also been betrayed by his brothers owing to their jealousy. His elder brothers cut the rope which has been tied up his waist [K2211] and bring about his falling down to the well.

Notwithstanding the fact that the things happened to the protagonist create an impression of improbability in the real life thanks t oto the miraculousnesses, indeed, it stems from narration of the fundamental problems of the humanity symbolically in folk tale texts. By this way, the protagonist who has been alienated from the reality by taking away it reflects the reality in a sense. He has been dignified for his influence on the events and embraces the reality, accordingly the world, with the actions he has carried out in the course of the tale.

Conclusion. The ZA folk tale, known in most of the cities of Turkey, collected from some of the written sources and compiled from the various districts and villages of Muğla has been dealt pursuant to Max Lüthi's views. In consequence of this research, it has been found out that the five article by which M. Lüthi mentioned have been seen in ZA tale. Although they are appeared to have been different from each other, as it is understood from the aforementioned explanations, when the narration program of the folk tale followed, each of these articles cause the nascensy of the other. Hence/Therefore, folk tale one of the significiant narration texts of mankind history ongoing from the primitive times to modern ones, is a narration genre which is closely related to the reality of life. Besides, it's a genre far from the details, on the contrary it tells about motion and events, which enables it survive. With its abstract notional taste, too, it sometimes urges the imagination of the reader or the listener, and enhances him/her. The educational function of folk tales has virtually been underlined with these views.

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ЗУМРУДУ АНКА ХАЛЫҚ ЕРТЕГІСІНЕ АБСТРАКТ АНАЛИЗ

Аннотация. Зумруду Анка (феникс) халық ертегісі - Түркиядағы ең танымал әрі кең таралған ертегілердің бірі. Ертегіде жер үсті мен жер асты арқылы жасалған керемет саяхат, алып великандар мен сөйлей алатын жануарлар секілді бірнеше таңғажайыптар бар. Түркия мемлекетінің көптеген аймақтарында табылатын және Мугла ауданының деректерін жинау барысында ортаға шыққан Зүмрүд Анка халық ертегісі Макс Люти, халық ертегілерінің зерттеушісі, тарапынан қаралатын болады. Зүмрүд Анка ертегісінің хикаясы мен әңгімеленуі транзитивтілігі, ұқсастығы мен айырмашылықтарын негізге ала отырып, «бірөлшемділік», «үстірттік», «шартты талғам», «ерекшелік және барлық заттарға тәуелділік», «ар-намыс және әлемді қамту» терминдері арқылы зерттелетін болады. Халық ертегілеріндегі бірөлшемділік біз үйреніскен әлемді ашықтайды. Халық ертегілеріндегі әрбір адам немесе оқиға, сөзсіз ертегі тыңдаушылары арқылы қабылданады. Халық ертегілерінде орын, уақыт, рух және психология тұрғысынан тереңдік болмайды. Бұл түсініктер ертегілерде үстіртін, жеңіл қаралады. Осы жеңіл қарау арқылы ертегі шыншылдықтан алыстап, стилін шартты етуіне мүмкіндік жасайды. Халық ертегілерінің кейіпкерлері ешнәрседен тәуелді болмайды. Әрқайсысы өз бетінше түрлі бейнеледе бола алады. Олар үшін ішкі әлем мен уақыт түсінігі болмайды. Бір-біріне тәуелді болмаған екі оқиға, мүмкіндігінше бір-бірлеріне әсері болмай не көрінбеуі мүмкін. Жетістіктер, сатқындық, қызғаныш және осы секілді адамгершілік сипаттар мен адам өмірінің маңызды кезеңдері халық ертегілерінде көрсетіледі. Халық ертегісінің басты кейіпкеріне асырып мақтаулар қолданылады. Сандар мен зат мағыналарын алып тастау болса - ар-намыс негізіне жатқызылады. Осы қыры арқылы басты кейіпкерге әлемді жаулауына мүмкіндік туады. Мугла аймағынан алынған Зүмрүд Анка халық ертегісі, М.Лютидің сезімін жеткізуші мысал болып есептелінеді. Бұл зерттеу жұмысы ар-намыс пен бірөлшемділіктен бастап, әлемді жаулау мен жойылған сипаттама және қазіргі себептермен аяқтай келе, сонымен бірге ішкі және сыртқы құрылым мен мотивтерге басты мән бере отырып жасалынады. М.Люти көрсеткен халық ертегілеріндегі құрылымдық түсініктің қолданылуы эклектика тәсілі арқылы қаралатын болады.

Түйін сөздер: халық ертегісі, Зүмрүд Анка, кереметтілік, анализ, Макс Люти.

Mehmet Naci Önal, Aysun Dursun

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АБСТРАКТ АНАЛИЗ НА НАРОДНОЙ СКАЗКЕ ZÜMRÜDÜ ANKA

Аннотация. Народная сказка Зюмруду Анка (Zümrüdü Anka/Феникс) - одна из самых известных и распространенных сказок в Турции. В сказке есть некоторые чудеса, такие как фантастические путешествия под землей и над землей, великаны и говорящие животные. Народная сказка Зюмруду Анка, которую можно увидеть во многих частях Турции и которая возникла в результате изучения документации в районе Мугла, будет рассмотрена исследователем народных сказок Максом Люти. Повесть о сказке и повествовании Зюмруду Анка в ее со-текстах будет рассмотрена в терминах «одномерность», «поверхностность», «условный вкус», «исключение и зависимость от всего», «достоинство и охват мира» с учетом их транзитивности, сходство и отличие. Одномерность в народных сказках раскрывает мир, к которому мы привыкли. В мире народных сказок каждый человек и событие, естественно, приветствуются слушателями сказки. В народных сказках нет углубления с точки зрения места, времени, души и психологии. Эти понятия выражены поверхностно. Эта поверхностность позволяет сказке быть далекой от реальности, что делает ее стиль условным. Народные сказочные персонажи не зависят ни от чего. Они сами по себе. У них нет внутреннего мира или

понятия времени. Два события, которые, не зависят друг от друга, по-видимому, могут фактически быть незаметными. Каждый важный этап в жизни человека проявляется в народной сказке, как и каждая человеческая черта, такая как достижение, предательство, ревность и т.д. Главный герой народной сказки преувеличивается и восхваляется. Способ убрать значение цифр и вещей - это средство достоинства. И это позволяет главному герою охватить мир. Народная сказка Зюмруду Анка, полученная из Мугла, является примером, который отражает чувства М. Люти. Это исследование будет обращать внимание на мотивы, начиная от достоинства в одномерности и заканчивая охватом мира и характеристиками исчезающих и текущих мотивов, а также их внутренней и внешней структурой. Применение структурного понимания в народных сказках, которые представил М. Люти, будет рассмотрено эклектичным методом.

Ключевые слова: народная сказка, Зюмруду Анка, чудесность, анализ, Макс Люти.

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Hüseyin Akyürek	1939	Kultak Village / Milas	Primary School Graduate	Farmer
Mustafa Güngör	1932	Çökek Village / Fethiye	Illiterate	Carpenter
Abdullah Kara	1926	Karacahisar Village / Milas	Primary School Graduate (3 Years)	Farmer
Hatice Kara	1968	İkiztaş Village / Milas	Primary School Graduate	Housewife
Ali Kocadurmuş	1942	Yazı Village / Datça	Primary School Graduate	Farmer
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Cevdet Tekelioğlu	1940	Esen Village / Fethiye	Primary School Graduate	Retired

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CULTURAL VALUES OF GREAT SILK WAY: PAST AND FUTURE

Abstract. This paper considers cultural monuments along the Great Silk Road and actualization of the experience of these objects. Face-to-face methods were used and analyzed to determine the current state of cultural monuments preservation and related folkloric narratives. Historical and archaeological monuments of the Great Silk Road belonging to the Turkestan region have long been the subject of interest, and certain scientific findings have been accumulated, but the peculiarity of its cultivation and it has not been the subject of special research. The methodological base of this paper is the results of surveys from experts and population of Turkestan city. Also in the family as the primary organization of the society a number of recommendations have been made for the further development of national ideas in the spiritual and social consciousness of Kazakhstani people.

Keywords: Great Silk Road, cultural monuments, myths, survey.

Introduction. It should be noted, that in the issue of historical heritage in the Silk Road network on the territory of Kazakhstan there is sufficient potential for the gradual development of tourism zones. This is a reference book, which has a historical and cultural weight and is a symbol of the genetic memory of the Kazakh people. Member of the UN, UNCTAD and UNESCO transnational project on restoration of the ancient historical route of Silk Road, at the crossroads of ancient caravan routes, located in the heart of Eurasia [1].

In the article, "The Seven Wonders of Great Steppe" published by the Head of our State Nursultan Nazarbayev on Nov. 21, 2018 clearly marked the seven outstanding historical achievements of the Great Steppe Civilization. The essence of the concept of space and time in national history, ancient culture in the Great Steppe, animal style, golden man, the cradle of the Turkic world, the Great Silk Road, apple and tulips are also among the common ideas in the article, observation of views and the formation of consciousness at the level of state ideology. In this article, the scope of research involves the selection of examples of folk narratives in the past millenium - the accumulation of fairy-tales, legends, epics and myths, and the Great Silk Road, which contributed significantly to the socio-cultural influence of the Eurasian people to determine the coherence of science and to introduce it into scientific circulation consistently [2].

It is true that this requirement is not merely for the culturologists, historians, or literary critics and archaeologists, but rather as a society. Commenting on the article of the Head of State, Akberen Yelgezek, the First Deputy Chairman of the Kazakhstan Writers Union said, "... peasants, who have to work together, are opening up the gold mine. It is clear that, the great work which will be done to invent our history lets revive the historical consciousness, historical memory, and will allow the past to look at the great works of our great ancestors" [3].

The concept of "Silk Road" appeared in the second half of the 19th century. The first European Venetian merchant Marco Polo for the first time reached the border of the Chinese Empire called these caravan routes "Silk". In 1877, the term "Great Silk Road" was acquainted with the scientific revolution in the fundamental work of German researcher Ferdinand Rietgofen [4]. Since then, this name has a special importance in research, as it plays a major role in world culture. Academician N. N.Negmatov pointed out that, by the Silk Road the process of globalization of the early Middle Ages, values, goods and achieve-

ments of the old world were available to other parts of the continent. The relevance of the topic and the interest in the theme of the Silk Road are associated with the possibility of re-activation and re-use for society development. Ancient and medieval traditions in the 19th century, caravan roads of Central Asia, including the Great Silk Road, have been continuing since the beginning of economic and cultural relations of the region [4].

The main content of the Great Silk Road is the conclusion that there is a rapprochement and mutual enrichment of countries, peoples and civilizations. A brief overview of such issues as cities and holy places along the Silk Road, legends about the people's memory, historical monuments to them, as well as the treasures of the Kazakh steppes, highlands and fertile valleys, extending from Europe to Asia and vice versa our values along the Great Silk Road show that each other's cultures are mutually reinforcing and enriching each other in the cities of East and West, Asia and Europe. "As the result of mutual relation between settlers and nomadic tribes, they were able to create a stunning culture of pearl in the ancient culture of humanity" [6].

First of all, in modern interpretation, cultural heritage is defined as a manifestation of tradition, which, in essence, contributes to past and present meaning. If we carry out the historical and cultural interpretation of this concept, it means that inheritance follows the "roots" and that it has a special spiritual value, leaving behind its mark for many centuries. It came out of the ordinary, day after day, forever [7]. De Castro ignores the time aspect of the information contained in the definition of this concept in the Monteriro Culture Declaration. In understanding the researcher, heritage is a special form of unifying and transmitting the total spiritual experience of mankind. De Castro Monteiro clearly shows two of his heritage: spiritual (linguistic, ideals, traditions) and material (museum, archive, library fund, archaeological monuments, architecture, science and art, monuments, buildings, ensembles, unique landscapes, human and nature joint works, modern structures of certain values in terms of history, art or science [8].

The phenomenon of cultural heritage is a dynamic system of elements and levels of socio-cultural interaction. The components of this system include: subject (object) and subject, preservation mechanisms and forms, functions, boundaries and levels. Object of cultural heritage can be spiritual and material. Inaccurate, i.e. within the cultural and spiritual heritage are as followings:

- Folklore, folk traditions and customs;
- Religious heritage - places of worship, images, beliefs and past experiences;
- Intellectual heritage - folk sources of philosophical, ethical and scientific traditions of the past;
- Aesthetic heritage - literature, theater, music, etc.

Through cultural heritage of folklore products such as fairy tales, myths, legends, the problems of the genealogy and identity of Kazakh people, their cognitive perspectives, and their comprehensive study of cultural heritage programs, have become popular in science.

The comprehensive study of the monuments along the Great Silk Road on the territory of Kazakhstan has been carried out from the second half of the 19th century to the present day. These historic monuments and their legends are written by ancient and medieval historians, geographers, monks, and writers in the Turkestan, Shauzar, Otrar and Turkestan provinces. One of them used to write in the region, used to write, the other used the lyrics, while the others used previously written works [9].

We consider that the complexity and capacity of Kazakh folk tales, myths and legends is a positive aspect for the study of cultural heritage sites along the Silk Road. Any folklore fragment describes the core of the worldview, the concept of morality, and the ethical traditions of the people. Folklore works show that philosophical thought is based on the concepts of different developmental stages as things that are based on life. "The legendary story tells about the well-known concept of the era, the behavior of the hero based on the behavior of the character, the names of the land, the nature, and the peculiarities of the animal. All this is, probably, the source of the folklore work, which means a source of recognition for its social environment" [10]. Folklore cognition reflects the peculiarity of the people's consciousness, and it empowers the power and awareness of the world that it has acquired its secrets. Famous scientist academician of the Kazakh people Alkei Marghulan also writes, "Even the psalms of the last century, all of which have been materialistic, have sung the historical facts and historical stories. According to the Macedonian writer Maqdisi, Talas (Taraz), Zhetysu, was the most beautiful city, with its gardens, squares and gates from all sides of the city. Zemarh, Ambassador of the King of the Roman Empire, also wrote about this remarkable city of Talas. But these cities have been ruined and collapsed over many centuries,

and have been become as only a folk tale in the country" [11]. Whatever the place of the Kazakh land, earth-water, mountain-horses are sacred, sanctified, or said as "signs saved from their ancestors". Such acknowledgment of consciousness determines the people's historical memory and powerful tradition.

Materials and methods. Mechanisms for the study of the observed phenomena are often dependent on the type of society (civilization), but in general the following variants can be distinguished: unconscious - conscious; custom; regulatory, moral and axiological; education and training; scientific heritage, artistic and creative, information and codex, etc.

Cultural heritage conservation forms may be are verbal and non-verbal, material and spiritual, conservative and creative, protective or prohibited, etc

Cultural heritage functions, first of all: - reproductive (reproduction); - creative (culture development); - axiological (cultural phenomena and filling with human values); - existential; - ethical (tolerance, respect for other nations).

Results and discussians. Social survey questions were as following:

- Study of cultural values, orientation of experts and their influence on formation of national ideas;
- evaluation of cultural policy of Kazakhstan;
- studying the main issues of preservation of cultural heritage along the Great Silk Road;
- research of key expert opinions;
- assessment of activity of the main subjects of cultural policy of Kazakhstan;
- analysis of future prospects of cultural heritage preservation.

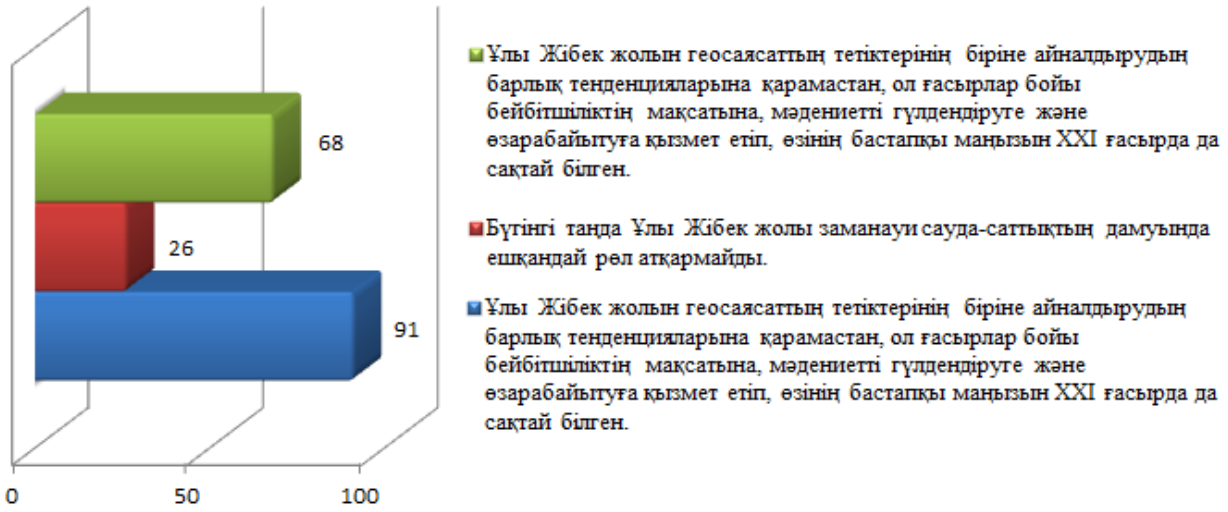

Figure 1 – Analysis of social survey questions

The following results were obtained in the analysis of sociological survey results. Respondents were divided into three groups:

- The first (optimist-idealists) - full-fledged dialogue, intercultural exchange, support for enrichment of Western and Eastern cultures (about 50% or 91-96 experts);
- the latter (materialists) - supporters of unique architectural complexes and monuments restoration aimed at developing countries in the Central Asian region (one third of all respondents or 64-68 experts);
- The third (pessimists) - those who do not believe in the possibility of rebuilding the Great Silk Road, but understand that ancient architecture can contribute to the development of religious tourism in Central Asia (about 12% or 22-26 experts).

Results. In the opinion of optimists, despite all the tendencies of the Great Silk Road transformation into one of geopolitics mechanisms, it has served for the purpose of peace, culture and prosperity for centuries, preserving its original significance in the 21st century. Besides, the international project "Great Silk Road" for Kazakhstan will create conditions for the establishment of a full-fledged dialogue between East and West cultures. The art, culture and science of the Turkic world are very closely connected with it.

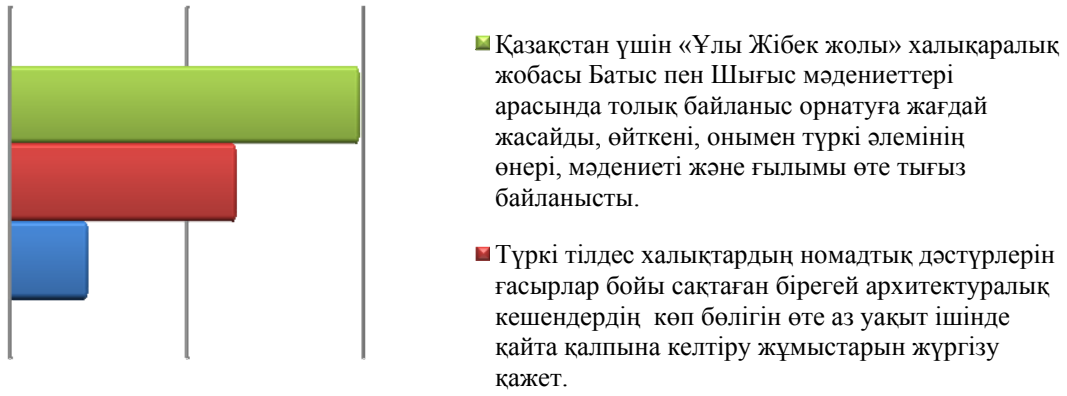

Figure 2 – Analytical Indicators of Urgent Issues of Cultural Monuments preservation along the Great Silk Road

According to materialists, the Great Silk Road should be revived as it is Kazakhstan, Turkmenistan, and Uzbekistan etc., undoubtedly, will contribute to the development of developing countries. One of the key conditions for the successful development of Central Asian countries region is the process of intercultural exchange between East and West. The transit position of the Central Asian region plays an important role. If the famous western researcher S. Huntington considered his point of contact with the diversity of civilizations and cultures as the source of civilizations conflict, the ancient Silk Road history has always been an opportunity for cultural exchange, exchange of trades, and peaceful resolution of such events. The values of western civilization based on prejudice, competition, and contradiction are evident from these. The difference between eastern civilization and western values is that they are always based on harmony, creativity, judgment. Cultural heritage of the countries of the Central Asian region is a certain layer of peaceful coexistence of western and eastern civilizations. That is why the cultural heritage of the Great Silk Road is of special value to the researchers.

Therefore, experts in the second group believe that the most part of unique architectural complexes of nomadic traditions of the Turkic peoples, preserved for centuries in the shortest possible time, should be restored (modernized).

According to pessimists, today the significance of the Great Silk Road is not as old as the development of modern trade. In addition, experts in the third group believe that the cultural and historical heritage of the international transcontinental project on tourism revival in the Great Silk Road has certain geopolitical potential.

Experts say that “the cultural heritage of the Great Silk Road” is primarily intended to comprehend archaeological materials (about 50% or 96 experts) and monuments (about 25% or 47 experts).

In the opinion of experts, there are some issues in the implementation of the cultural policy:

- Culture, language, etc. Management requires a good quality of civil servants (10% of respondents). There is an acute shortage of culinary experts, they are exchanged by experts in various fields, lawyers, economists, historians, humanitarian specialists and journalists. Such a scene is observed in many museums of Turkestan region, there is acute shortage of culinary specialists, even lack of experienced guides, which are mainly replaced by historians. These incidents are complicated by the development of religious tourism, the constant flow of foreign tourists and meeting their needs. In such cases, cultural protection of monuments and even the attention of the international community can be challenging.

- Bureaucratic barriers in the field of protection of historical monuments, obstacles to the full implementation of cultural and political politics, etc. One third of the experts believe there are issues.

- Another third of the experts believe it is necessary to increase funding for the protection of cultural heritage objects. There are state and international funding sources for cultural heritage objects. The International UNESCO organization also included the Mausoleum Akhmed Yassawi Mausoleum on its list of precious historical monuments.

For the development of national ideas in Kazakhstan, a number of values are of a higher significance (in decreasing order):

- Education (138 votes);
- Family and work (116 voices of experts),
- Religion (111 votes of experts),
- Friendly (108 voices of respondents),
- Health (104 votes).

Obviously, for the development of national ideas for the most important values, we can add education, family institution and mutual understanding, trust and tolerance between different 130 ethnic groups in Kazakhstan. This is because in the family as the primary organization of this society, it is possible to create favorable conditions for the further development of national ideas in spiritual and social consciousness of Kazakhstani people in the spiritual revival of cultural heritage. As "national ideas", experts understand the national identity, the preservation of cultural heritage, national consciousness, spiritual values, national spiritual sources, national folklore, nationality, people's meaning. In addition, according to experts, the degree of implementation of national ideas promotes the level of protection of historical monuments (about 60% of the opinion or 118 experts' answers).

The main content of the Great Silk Road is the conclusion that there is a rapprochement and mutual enrichment of countries, peoples and civilizations. If we give a brief overview of such issues as cities and holy places along the Silk Road, legends about the people's memory, historical monuments to them, as well as the treasures of the Kazakh steppes by Baipakov's words, "… highlands and fertile valleys, extending from Europe to Asia and vice versa Our values along the Great Silk Road show that each other's cultures are mutually reinforcing and enriching each other in the cities of East and West, Asia and Europe. As a result of the interaction, settlers and nomadic tribes have been able to create a stunning culture of pearl in the ancient culture of humanity" [12-13].

Conclusion. From the point that it is possible to realize the state program "Rebirth of Historical Centers of Great Silk Road" as well as the other programs of the development of the historical-cultural heritage and development of the tourism industry in the country, undistinguishable by the improvement of the historical objects in the Kazakh part of the Great Silk Road, with the exception of the international status. In addition to the current infrastructure for development of historical and cultural tourism, the entire tourist routes in the path of history, culture and history of the museum, the creation of their own unique museum profile, extensions and restoration of the existing objects. The following are the results of the research period for the results of the following investigated exits:

- in countries along which the Great Silk Road passed, a universal international master plaвn should be developed for the preservation and maintenance of the cultural heritage of the Great Silk Road;
- improve the qualitative composition of civil servants in the departments of culture, languages, etc. As there is an acute shortage of specialists in cultural studies, they are replaced by diversified specialists, lawyers, economists, historians, humanities scholars, and linguists;
- in this regard, I would like to recommend the higher educational institutions of the Turkestan region (the Ministry of Education and Science of the Republic of Kazakhstan) to open a new specialty 5B020400 –Culturology, for example, in Akhmet Yassawi International Kazakh-Turkish University. In Kazakhstan, this specialty is available only in a few universities: Ablai Khan Kazakh University of International Relations and World Languages, Al-Farabi Kazakh National University, Toraigyrov Pavlodar State University. Since the number of culturologists does not cover the needs of the cultural policy of Kazakhstan;
- in addition, given that these cultural experts are designed to meet the needs of foreign tourists and promote the development of international religious tourism and pilgrimage in the Turkestan region, one of the most important requirements of the time is the knowledge of two foreign languages (for example, English and Arabic, English and Turkish);
- To conduct a more stringent selection of applicants for vacancies in the regional, city and district departments of culture, language development. This may contribute to a better set of civil servants in the required specialties and profile;
- despite all the tendencies of turning the Great Silk Road into one of the levers of geopolitics, to preserve its original significance in the 21st century;

- for Kazakhstan, the international project “The Great Silk Road” will create conditions for establishing a full-fledged dialogue between the cultures of the West and the East, since the Renaissance of art, culture and science of the Turkic world is closely connected with it;

- that in a relatively short time it is necessary to restore a significant part of the unique architectural complexes, which have preserved the nomadic traditions of the Turkic-speaking peoples for centuries.

Unfortunately, we still lack joint programs and cooperations between the museum and tourist complexes already established in the republic, although they operate hand in hand all over the world and promote mutual development. This is especially important now, when the whole world contributes to the revival of the Great Silk Road and the ever-growing world interest in our country.

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ҰЛЫ ЖІБЕК ЖОЛЫНЫҢ МӘДЕНИ ҚҰНДЫЛЫҚТАРЫ: ӨТКЕНІ МЕН БҮГІНІ

Аннотация. Мақалада Ұлы Жібек жолы бойындағы мәдени ескерткіштер және осы объектілерді қастерлеу тәжірибесін өзектендіру мәселелері қарастырылған. Мәдени ескерткіштерді сақтаудың бүгінгі күйжайы және сонымен байланысты нарративті айқындау мақсатында face-to-face әдісімен пікіртерілім жүргізіліп, талданды. Түркістан өңіріне тиісті Ұлы Жібек жолы бойындағы мәдени ескерткіштер бұрыннан тарихшылар мен археологтардың қызығушылығын тудырып келеді, белгілі бір ғылыми нәтижелер жинақталған, алайда оның мәдени кодын қалыптастырудың, сақталуының ерекшелігі осы күнге дейін арнайы ғылыми зерттеудің пәні болмады. Осы мақаланың әдіснамалық базасын маман-мәдениеттанушылар мен тұрғындардан алынған пікіртерімнің нәтижелері құрайды. Сондай-ақ, қоғамның бастапқы ұйымы ретіндегі отбасында қазақстандықтардың әлеуметтік-саяси санасында мәдени мұраларды рухани қайта өрлетуде ұлттық идеяларды одан ары қарай дамытуға бірқатар ұсыныстар жасалған.

Түйін сөздер: Ұлы Жібек жолы, мәдени ескерткіштер, аңыз-әңгімелер, пікіртерім.

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КУЛЬТУРНЫЕ ЦЕННОСТИ ВЕЛИКОГО ШЕЛКОВОГО ПУТИ: ПРОШЛОЕ И НАСТОЯЩЕЕ

Аннотация. В статье рассматриваются проблемы сохранения и возрождения памятников культуры Великого шелкового пути. На основе социального опроса путем face-to-face проделан анализ текущего состояния и даны рекомендации по сохранению памятников культуры. Исторические и археологические памятники Великого шелкового пути, принадлежащие к Туркестанскому краю, уже давно вызывают интерес, и накоплены определенные научные знания, но однако, особенность формулировки и сохранения его культурного кода до сих пор не был предметом специальных исследований. Поэтому, методологической основой данной статьи являются результаты опросов экспертов и специалистов в области культуры. На основе которых был дан ряд рекомендаций по дальнейшему развитию национальных идей в духовном и общественном сознании казахстанцев.

Ключевые слова: Великий шелковый путь, памятники культуры, легенды, социальный опрос.

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SOME REMARKS ON THE DOCUMENTS ON THE HISTORY OF THE KHANATE OF KHIVA

Abstract. The article considers the archival documents containing information on the history of the Khanate of Khiva. The extant Khivan documents in their content and variety of factual material occupy an important place among the written sources of the Central Asian region. The materials of the fund "The Chancellery of Khivan Khan" were officially recognized by the Government of Uzbekistan as highly valuable. The authors of the article concluded that the Khivan archival documents are reliable sources for studying the history of the Qazaqs who lived in the territory of the Khanate. The documents, which contain data allowing the reconstruction of the foreign policy relations of the Khivan Khans with neighbouring states, including Qazaq zhuzes, have been preserved. The article was prepared within the framework of the grant of the Ministry of Education and Science of the Republic of Kazakhstan that finance the fundamental and applied research.

Key words: the Khanate of Khiva, the Chancellery of Khivan Khan, archival documents, foreign policy relationships, the history of Qazaqs.

Introduction. The funds of the Central State Archive of Uzbekistan contain unique documents created in Chaghatay and Persian languages. Among the archival documents we will mention the funds "Khivan khan's office", "Kushbegi's archival funds", "Documents of the khan's yasulbashi", "Collection of waqf documents", official and personal archival materials of individual khans, beks and spiritual dignitaries, archival funds of Qāzi courts. Particular attention should be paid to the tax books of the Khanate of Khiva. The materials of the fund "Khivan khan's office" have been officially recognized by the government of Uzbekistan as particularly valuable [1].

Among the documents of the Khivan chancellery, which are of interest for studying the history of the Qazaqs [2], should be highlighted the following:

- Documents on various types of land ownership and land registration;
- Documents on the collection of land tax;
- Documents on the collection of the tax on livestock;
- Documents on nomads carrying various duties.
- Official correspondence of Khivan high-ranking officials with officials of the Russian Empire in the 19th - the beginning of the 20th century;

Materials and methods. Emphasizing the enormous value of official documents, it is also necessary to note some problematic aspects in working with sources of this kind. In particular, the fragmentation - that is, on the basis of separate documents it is impossible to create an integral picture of historical events. Moreover, the "semantic subtext" of official documents in considerable cases creates an appearance, the interpretation of which does not always coincide with reality.

It should be noted that in such cases, the following tasks can serve as a basic solution:

- Comparative analysis of sources of a different kind and genre (cross-referencing);
- Overview of parallel and subsequent events;

Thus, only on the basis of a comparative analysis of the sources of a different genre and genus, one can achieve the set goal.

Results and discussion. In the 16th century, the territory of the Khanate of Khiva was divided into the specific domains of the relatives of the Supreme khan of the Chingisid clan. During the reign of Abu al-Gazi Khan (1643-1664), the ruling elite attempted to reorganize the khanate's management system. In Khivan historical works, information about ranks and positions in the khanate has been preserved. Under Abu al-Gazi Khan, there were 360 official positions, of which 32 were in the khan's court. Ranks of positions were established: 2 Shaykh al-Islām, 2 Qāzi, 1 Ra'is from descendants of Sa'id Atā, 1 Mutavali, 1 Nakib, 4 Atālyks, 4 Ināqs, 4 Mirābs, 4 Biys, 1 Parvanachi, 2 Akā, 2 Arbābs, 4 Chagatai Ināqs, 1 Vazir (Mehtar), 1 Kushbegi [3, 45].

During the period of the Khanate of Khiva, its own system of office work and special terminology was developed. With the strengthening of statehood in the khanate, the khan's chancellery expanded. Relying on the Muslim system of state administration that has been developed in the region, the Khivan khans established new norms of record keeping and a management system.

In the Khanate of Khiva, each separate department concentrated in their hands all documents relating to their activities. For example, the financial department was concentrating all financial documents of the state in its hands. The term treasury, *khazāna* was used to refer to the state money fund and the state archive of Khivan Khans. The term *fihrist* was used to indicate the records of cases and papers that were in the khan's office. A special register of tax records for each district was called *kitābcha*. The position of the responsible official for filling the *kitābcha* was called *mustaufi*. The chief treasurer of the state held the position of Mustaaf al-Mamālik.

At the beginning of the 19th century, with the advent of the new khanate dynasty, the process of consolidation the state and strengthening the central power began. If earlier the head of a clan or tribe came to Khiva with a tax collected by him at his own discretion, now the Khiva khans themselves began to establish the district's ability to pay and appoint their tax collectors there [4, 214]. During the reign of the first Kungrats, the administrative and management system of the state underwent significant changes. First of all, the reorganization affected the state apparatus, the number of established posts (three hundred and sixty) was increased to one hundred.

In the Khanate of Khiva, the fullness of administrative, legislative and judicial power was in the hands of the supreme ruler - Khan. The city of Khiva, the capital of the state, was under the direct control of the Khan. The administration of all khanate was conducted from the residence of the khan (*ark, urda*, *kurgan*, *qal'a*). During the reign of the Kungrat dynasty, the palace of Tāsh-hauli, became the main residence of Khivan khans. During the Kungrat dynasty, a new body was created in the system of state administration: the Oliy Kengash (Supreme Council) for solving issues of national importance.

In the absence of the supreme khan during military campaigns, Mehtar often remained in the capital to rule the country. Mehtar (vazir) - the post of one of the highest officials of the Khanate of Khiva. In the Khivan historical chronicles, Mehtar is also mentioned as the head of the entire civil administration of the khanate. The khan's office kept documents on land ownership. The document on land ownership was called "*Yād dāsht*". The original document on land ownership was confirmed by seals of persons on behalf of whom the document was drawn up and the stamps of witnesses.

The documents evidencing the division of land between nomadic tribes have been preserved. Including the documents of the withdrawal of land from individual clans, the division of land within the clans. The documents testify to the emergence of various conflicts between the tribes over the division of communal lands [5].

Archival documents on tax collection of salgut (land tax), records of petitions from Qazaqs and correspondence between Khiva officials on the establishment of the tax rate of salgut have been preserved. Information about the size of the salgut is different and contradictory. In the 19th century. nomadic tribes paid annually land tax "salgut-kesme", a pre-established size, regardless of the area of cultivated land and the size of the crop. The total amount of tax was determined in 20,000 small tillya (1 small tillya = 9 tenga). Salgut-kesme was collected by the Qazaq Biys, each from its own kin, and then handed over to the Khiva officials. The kins were divided into lower tax units - atlyks, which were obliged to supply one armed rider to the Khivan army. The records in the exercise books have been preserved, representing a kind of accounting documents that were submitted to the treasury along with the collected tax money by the official who was responsible for collecting this tax.

Archival documents on the collection of *zekat* (tax on livestock) from Qazaq tribes have been preserved [6]. The tax of *zekat* was collected by Khivan officials by territorial units. Zekat from the nomads, according to Khivan officials tax department of the 19th century, was an essential part of the income of the Khivan khan [7].

In the Khivan chronicles, the order of collecting zekat is described. In the main areas of the khanate, one of the highest Khiva officials of the first rank, duvanbiki, was responsible for collecting zekat. In other parts of the khanate, the zekat was gathered by second-rank officials appointed by the khan. At the disposal of the tax collectors were scribes or secretaries (divan), who led the books of accounting of the collected zekat. The money was accepted, apparently, both by the collectors themselves, and by their servants *divān*.

From the herds of nomads constantly living in the territory of the Khanate of Khiva, they were levied in the following order: for a head of cattle - 1 tenga, for one sheep - 1/5 of a tenga. From Qazaqs arriving from Ustyurt to summer pastures, they were charged: for a camel - 1 tenga, for a head of cattle - 1 tenga, for 40 sheep - 1 sheep, and for the next 100 sheep - 1 sheep [8]. However, there are other data on taxes. According to Russian prisoners who were in the khanate in the 1820s and 1830s, the Qazaqs wandering near Khiva “have to pay cattle tax: for one sheep - 25 kopeek, but they do not pay for a camel or horse. If anyone does not have money, he pays the livestock after assessment” [9].

The immediate collection of the zekat was directed by one of the mehrems, who was close to the khan, and, along with the clerk, travel all over the nomadic tribes. It was difficult to calculate the cattle of the nomads precisely, for this reason the tax for each tribe was determined annually by agreement with its aksakal (the representative of the clan). The annual collection of the zekat lay on the aksakals, who transferred a certain amount to the Khiva officials. Such a zekat was called kesme-zekat [10]. Only in separate and special cases, the collection of the zykat from the nomads was carried out by special khan officials sent to the tribes [8].

Notes on the record of a zekat show that there was a territorial unit called *kuren*. All herders, whose flocks were grazing in this territory, were attributed to the *kuren*, regardless of their tribal affiliation [11]. In the notes for the accounting of the zekat, the kurens are listed in the sequence in which they were visited by Khiva officials. Sometimes in the records are marked the day of departure of the zekat collectors from Khiva and the dates of their arrival in the kurens are marked. Tax collection began, usually in August, but sometimes also in July or in September.

Management of the nomadic and semi-nomadic population of the Khanate of Khiva was under the jurisdiction of the Kushbegi. To the position of Kushbegi, one of the highest officials of the Khanate, a representative of the tribal aristocracy was usually appointed. Also Kushbegi was responsible for the state of the military forces of the Khanate and participated in all military campaigns. Among the surviving documents of the khan's office about the nuker service, the military forces of the Khanate of Khiva, we note the materials on the military service of the nomads [12].

The head of the secret service of the Khivan khan was the Yasāulbāshi. In his charge were: the protection of khan, supervision of prisons, the storage of secret documents. The regular troops of the Khanate of Khiva were subordinate to the Yasāulbāshi. Mingbāshis were subordinated to Yasāulbāshi, and supervised Yuzbāshi, who supervised Unbāshi. During the military campaigns, Yasāulbāshi was responsible for organizing and timely training the troops. In peacetime, his function was to receive and examine petitions and complaints from the population [13, 283]. In his subordination there was a large staff of Yasāuls, who carried out special assignments at the court, in particular, delivered the orders of the Khan and high officials [3, 603].

Judicial power in the Khanate of Khiva was represented by Qāzis, whose competence included registration of various civil acts of the population, consideration of various disputable issues and their solution on the basis of the Sharia, adoption of appropriate decisions on complaints of the population. In each region, one to four Qāzis engaged in legal activity. In connection with the appointment of Qāzi, the post was issued by the khan’s *yarlyq*, in which khan’s decree determined the location, the region where the official was appointed. The population was charged with the obligation to obey him and address questions of the Sharia [14]. Complaints against the decisions of the Qāzis were considered by one of the two supreme Qāazis in the city of Khiva, which were called Qāzi-kalān and Qāazi-urdā.

The Muftis participated along with Qāzis in legal processes, whose duty was to draft a court decision and to verify the correctness of the execution of documents. The document acquired official status after the personal seal of the mufti was assured. The eldest of muftis with deep knowledge in Sharia was the *A'lam*, whose duty included checking rivayats and *fetwa*. After establishing the identity of these *rivāyats* with the original, the a'lam fixed the fatwa with his seal, thereby confirming the accuracy of the document [13, 277].

In addition to these positions, there was also a post of Qāzi-hasse, the post of Qāzi-askar. Qāzi-askar, who was at the head of the military trial, delivered sentences on various issues that arose in the military sphere. Qāzi-askar was endowed with great powers. For example, in the territory of military clashes, he was free to vacate the local Qāzis from his post without the consent of the supreme ruler. And the Muftis-askars were to follow the accuracy and conformity of the verdicts passed by the Qāzis with the basics of the Sharia.

An important place in the spiritual and religious life of the Khanate of Khiva was occupied by Nakibs, responsible for the religious sphere of society. In the khanate, there was also the post of Mutavalli. According to archival data, he controlled income coming from the waqf property [15]. In addition, he monitored the state and material security of the madrasas, in favour of which a certain waqf was established, and also controlled the timely delivery of grain from tenant landowners to the madrasa.

Among the documents on the history of external relations of the Khanate of Khiva in the late medieval period, we will consider four documents concerning the diplomatic relations of the Khanate. The first document: Letter from Iranian shah Abbas I (1587-1628) to Khivan Arab Muhammad Khan (1603-1622) [16]. This document gives an idea not only of the traditions of the Khivan-Iranian relations, but also sheds light on the political situation in the Khanate.

At the beginning of the letter, historical ties between the Khanate of Khiva and Iran are mentioned. Shah Abbas underlines the help of his great-grandfather Shah Tahmasp I, provided to Khorezm Ali Sultan at the time, as well as the support of the Sefevid house in relation to Khivan khan Khadzhi Muhammad (1558-1602). The Iranian Shah, hinting at his "patronage", notes that his "instructions", as in the days of his great-grandfather (Tahmasp I), are aimed at preserving and continuing the traditional rules of state administration and the upbringing of children. He, expressing his readiness to educate the Khorezm sultans in his court, informs:

"Arab Muhammad Khan, following the traditions that arose during the time of his great-grandfather [Tahmasp], can send one of the sons to the service of the shah. They, as in former times, will be awarded to the royal upbringing and honour" [16, 74].

The practice of "amanat" was widely used in the East, especially since the days of Chingizids, and for a long time served as a guarantor of good-neighbourly relations between the Safevids of Iran and the Khiva Arabshahids. In this case, the "instructions" of the Shah of Iran seem to be directly related to political turmoil in the Khanate of Khiva, where in 1620-1621, because of the high-handed actions of the eldest sons of the khan Ilbars and the Habash sultans, not only did several conspiracies against the central government take place, but relations with neighbouring states, in particular Bukhara and Iran, also became more complicated.

In the testimony of the younger son of the Afghan khan Afgan Sultan, who was forced to leave his homeland, on the agitation of the Russian ambassador I. Khokhlov arrived in Russia, it is emphasized that the raids of the brothers of Ilbars and Khabash on the territory of Iran and Bukhara led to an aggravation of relations with father khan [17, 300]. Based on the details examined, it can be concluded that the "Letter of Instruction" of the Iranian Shah Abbas I represents a hint of frequent raids, by the Khorezm sultans, on the territory of Khorosan, and to which the shah expresses his dissatisfaction with "ill-mannered sultans", makes an attempt to stop such actions.

The second document: A letter from Abulkhair Khan dated 1732, sent to Khiva [18, 71]. The letter was compiled in the form of a decree. It speaks of the acceptance of Russian citizenship by the Qazaqs, and that he, Abulkhair Khan, can help in establishing trade ties between Khiva and the Russian Empire. The letter contains reproaches to the Khivans for the improper treatment of his son Nurali Sultan and his people, as well as the violation by the Khivans of the oath of allegiance given to them by Abulkhayr Khan. The letter ends with a threat of military alliance with the Aral Khan against the Khivans.

To represent a complete picture, there is also need to look at local narrative sources of Khorezm [19]. The dates indicated in the above letter (1731-1732) coincide with the rule of Ilbars khan, and in *Firdaus al-Iqbāl* it is noted that "in his epoch the country was in peace and prosperity for eight years" [20, 101]. Also, according to this source, Ilbars-khan not only was able to resist the political forces that formed in the Aral region, but also having strengthened the khan's power, he organized a number of successful campaigns in Horosan [20, 102].

Abulkhair Khan, at the time of A.I. Tevkelyov's arrival in the steppe, not only had no opportunity to interfere in the internal affairs of the Khanate of Khiva and act as a "sovereign suzerain", but also because of the weakening of his power, did not enjoy authority even among other Qazaqs khans and sultans. Abulkhair khan himself confessed that "khan only bears the name of the khan, and has no power over his subordinates" and compared the position of the khan with the wild horse, which "both people are beating and the beasts are preying" [21, 122]. In this regard, the question arises, what was the real influence of Abulkhayr khan in Khiva? The above-mentioned "The Decree to Khivan Chief Advisers" was not just a kind of tactic of this Qazaq khan who tried to appear before the Russian government as the most powerful ruler of the steppe?

To find answers to these questions in the events indicated in the letter of 1731-1732 will lead to a certain confusion. A careful chronological analysis in the horizontal and vertical direction will give an opportunity to view the situation in a more extended perspective. The fact is that the promises of the Khivan elite "to obey his decrees as long as he (Abulkhayr-khan) is alive" should have been attributed to the situation that arose in the 1720s, namely, during the crisis of central power in the Khanate of Khiva.

It should be noted that at the end of the first quarter of the 18th century, the Khivan Arabshahids not only lost real power, but the pretenders to the throne from this dynasty were physically destroyed. According to Khorezm chronicles: "After him [Shirgazi Khan] they brought Sarig Aygir (Mamai), one of the brothers of the Qazaq padishah Abulkhair Khan and proclaimed him khan. It was on Friday, on the way to the Friday prayer (namaz), he felt from a horse (argamak), crashed and died. Bahadur Khan, he too, was from the brothers Abulkhair Khan. After Sarig Aygir, Ishmuhammad Biy brought him [Bahadur Khan], put him on the throne and he stayed for six months, at night [secretly] get down from the Akshaykh building, and fled" [20, 101].

The local elite of Khorezm in this crisis situation was interested in strengthening relations with the Qazaq khans. Because in connection with the loss of political power of the rulers of the Arabsahid dynasty, from the second quarter of the 18th century, the Qazaq khans and sultans, like the descendants of Chigiskhan, were often invited to the throne of the Khanate of Khiva. Also, if we take into account the fact that Abulkhair Khan in the 1920s, as the commander-in-chief of the combined military forces of all three Qazaq zhuzes, gathered against the invasion of the Dzungars, he had a fairly strong political position in the steppe. In this regard, the spread of its influence on the Khanate of Khiva has a real basis.

But, the subsequent events show that in the 1930s Abulkhair Khan lost his power, including his threats aimed at "calming the Khiva Khan with the help of the Aral's forces" did not yield any results. Thus, it can be concluded that Abulkhair Khan indeed, by the above-mentioned "Decree" sent to the Khivan advisers, tried to artificially exaggerate his power in front of the government of the Russian Empire.

R.Yu. Pochekayev assessing the personality of Abulkhair khan, wrote: "... the most authoritative among the Qazaq monarchs in the eyes of the central authorities of the Russian empire was still Khan Abulkhair, who continued "to cloud the eyes" of Russian monarchs and their dignitaries about his own dominant position among the Qazaqs. Not surprisingly, Neplyuev began to build relations with the Qazaq vassals of the Russian Empire precisely with Abulkhair" [22, 56].

The third document: Authentic diploma (with a gold inscription) of Emperor Peter I to Khivan khan Shirgazi khan Chingizid [23].

"By the merit from the Highness and most powerful grand Sovereign, Tsar and grand knyaz Peter Alekseevich, the autocrat of whole great Russia, ... Jurgen and Khivan lands to the head of Shir Gaza khan, our Majesty congratulations. We, the great Sovereign our Majesty, decided to send our ambassador Alexander Bekovich Cherkassky for needs of the common good, both our Russian State and the Khivan land. And you, Shir Gaza khan, the head of Jurgen and Khivan lands, to greet Him, our ambassador, by his rank and dignity, and he will also offer you in the name of our Tsar Majesty, to give decisions on desirable affairs to the common good.

Written in our Reigning City in St. Petersburg. 1716 years from the birth of Christ, March 17. Statehood of our 34th year of our reign."

According to the diplomatic protocol (etiquette), the ambassador was instructed to deliver an oral message or message from his ruler, which requires researchers to recruit additional sources.

The fourth document: Letter of the Iranian shah Muhammad Shah Kadjar to Khivan khan Allaquli Khan [24]. The message of the Iranian shah represents his desire to "strengthen friendly relations". Shah, reports that the envoy of the Khivan khan Ataniyaz Mahram, who arrived together with the Iranian envoy Mirza Riza, was graced with an honorary reception. Also, Muhammad shah stresses that in order to express loyalty to the friendship and the alliance of the Iranian state with the Khanate of Khiva, he sends his representative Shahsuvarbek as an ambassador and accompanying person. In this letter, which is called "Humāun-nāme-yi dustāne", shah notes that '… it will be known that how much friendship and love and harmony from your side will be, then more friendship and honour will be given from our side".

Conclusion. Thus, the study of archival material on the history of the Khanate of Khiva shows that the extant written sources contain important and factual information. The Khivan documents have numerous data on the history of nomadic peoples, including the Qazaqs who lived in the territory of the Khanate of Khiva.

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ХИУА ХАНДЫҒЫ ТАРИХЫНЫҢ КЕЙБІР ҚҰЖАТТАРЫ ТУРАЛЫ

Аннотация. Хиуа хандығының тарихы бойынша мәліметтер бар архивтік құжаттар қарастырылады. Бізге жеткен хиуалық құжаттар өзінің мазмұны мен фактілік материалдардың алуан түрлілігі бойынша Орталықазиялық аймақтағы жазба деректердің арасында маңызды орын алады. «Хиуа ханының кеңсесі» қорының материалдары Өзбекстан үкіметі тарапынан аса құнды деп ресми танылды. Мақала авторлары хиуалық архив құжаттарының шынайы дерек болып табылуымен қатар хандық аумағында мекен еткен қазақтардың тарихын зерттеу үшін де құнды деген қорытындыға келді. Хиуа хандарының көршілес мемлекеттермен, соның ішінде қазақ жүздерімен сырты саяси қатынастарын қалпына келтіруге мүмкіндік беретін мәліметтері бар құжаттар сақталған. Мақала Қазақстан Республикасы Білім және ғылым министрлігінің іргелі және қолданбалы ғылыми зерттеулерді қаржыландыру гранты аясында дайындалды.

Түйін сөздер: Хиуа хандығы, хиуа ханының кеңсесі, архив құжаттары, сыртқы саяси қатынастар, қазақтар тарихы.

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О НЕКОТОРЫХ ДОКУМЕНТАХ ПО ИСТОРИИ ХИВИНСКОГО ХАНСТВА

Аннотация. Рассматриваются архивные документы, содержащие сведения по истории Хивинского ханства. Дошедшие до нас хивинские документы по своему содержанию и многообразию фактического материала занимают важное место среди письменных источников Центральноазиатского региона. Материалы фонда «Канцелярия хана хивинского» официально признаны правительством Узбекистана как особо ценные. Авторами статьи сделан вывод, что хивинские архивные документы являются достоверными источниками и для изучения истории казахов, которые проживали на территории ханства. Сохранились документы, в которых содержатся данные позволяющие реконструировать внешнеполитические отношения хивинских ханов с соседними государствами, в том числе, и с казахскими жузами. Статья подготовлена в рамках гранта Министерства образования и науки Республики Казахстан по финансированию фундаментальных и прикладных научных исследований.

Ключевые слова: Хивинское ханство, канцелярия хана хивинского, архивные документы, внешнеполитические отношения, история казахов.

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THE ONTOLOGY OF FINANCIAL MARKETS, FUNCTIONS AND STRUCTURE EVOLUTION: THEORETICAL AND METHODOLOGICAL ASPECT

Abstract. Search and formation of the optimal model of the financial market for stimulating the economic growth of the country is an actual problem of the current stage of development of Kazakhstan.

The study of the dialectics of the development of capital as a factor of production made it possible to reveal the ontological nature of financial markets, which is based on systemic functional dualism. The article substantiates that the financial market, being an element of the economic system, forms the system dynamic core, which is based on the exchange of current purchasing power for future purchasing power.

It is shown that economic development has stimulated the expansion of the functional apparatus of financial markets. Based on theoretical and methodological studies of their structure and character of modification, authors present grouping of functions of the modern financial market in the form of four functional clusters: ontological, dynamic, consulting, control and regulatory functions.

The role of the financial sector in the resource provision of economic development is determined by the structural and functional characteristics of the financial system, which are formed under the influence of internal factors of a unique model of economic evolution, as well as external factors formed under the influence of the global economic processes.

System analysis of the typology of financial markets allowed us to identify the most common types of their structure: with the dominant role of banks or the financial market. It is proved that this typology of the structure is rather conditional since banks are active participants in the financial market. For sustainable economic development, consistency of interaction between financial market institutions is important.

Theoretical and methodological analysis of modern problems of financial markets functioning revealed the increasing amorphousness of the characteristic forms and properties of the financial market, the loss of specialization of financial instruments and the decisive role of globalization in this process. Initially, the unique specific ability of capital to dematerialize physically tangible productive assets is enhanced by its modern irrational characteristics, shaping the phenomenon of the domination of the financial market over the real economy. The prevalence abstract-idealistic, irrational nature of the financial markets leads to the risks of loss of controllability.

The article focuses on the growing role of state regulation of financial markets to ensure a balance of interests of its participants in the financial market, to ensure effective, sustainable and innovative economic development, as well as to reorient national and international investment flows to ensure the investment and innovation development of Kazakhstan.

Keywords: capital, ontological nature, banks, financial markets, functions transformation, capital market, functional dualism, structure typology, financial instruments.

Introduction. The formation of the architectonics of modern financial markets in a market economy has traditionally been influenced by exogenous and endogenous factors, which is reflected in the discussions and alternative scientific concepts of representatives of leading economic schools that have shaped modern finance theory. At the same time, a scientific analysis of the ontology, structure and current development of financial markets allows us to determine the nature and specificity of their

transformation. In our opinion, there is a close connection between the theoretical and methodological studies of the development of financial markets and the improvement of economic practices. The synergy of economic and financial development is aimed at improving the efficiency of the model of financing the economy. Search and formation of the optimal model of the financial market for stimulating the economic growth of the country is an actual problem of the current stage of development of kazakhstan.

The architecture of strategic purposes, on the top of which the long-term plan is: Strategy "Kazakhstan - 2050", provides including of Kazakhstan to the list of top 30 most developed countries in the world. The conception of the financial sector development of the Republic of Kazakhstan until 2030 is aimed to create the competitive financial sector and increase its efficiency in redistribution of economic resources based on the best international standards, including the OECD's standards [1].

The achievement of this purpose does not turn out to be possible without liberalization of the financial services market, strengthening the competition on financial market, decreasing of brittleness from external shocks, protection of domestic market from the capital runoff, the development of internationalization processes, strengthening of the protection system of right and interests of minority shareholders, overcoming of macroeconomic imbalances, implementations of financial technologies.

According to the opinion of OECD's experts, the financial sector of Kazakhstan is operating under difficult economic circumstances, which is characterized by opacity of the state regulation system, as well as negative influence of the monopoly on supply of the electric power and telecommunications services, lowering interest to purchase the assets [2, p.144]. At present time, the recovery after crisis 2008-2009 is being continued. The increased dependence of the banks on the external borrowings, currency discrepancies, low standards of crediting, weakness of the bankruptcy legislation, "financial bubble" in the real estate resulted in vulnerability and brittleness of financial system. For purpose of prevention of social tension, the financial support to banking industry was given by the government of Kazakhstan at a rate of about 24 billion US dollars [3], as well as the norm setting, prudential regulation and banking supervision has increased substantially.

The global competitiveness report of the Global economic forum of 2017 - 2018 [4], the Report of the Organization for economic co-operation and development (hereafter - OECD) in Kazakhstan independently but unambiguously designated that the main limitation for sustainable growth of Kazakhstan economy is access to financial resources. In particular, in the last of named documents seven key limitations of economic development are designated, including brittleness and the fragility of the financial sector [2, p.22].

At the same time, in spite of the active process of consolidation of Kazakhstan's banking sector, the clearance of non-performing assets of the banking industry is going in a complicated manner because of bank's limited ability to increase the capital. This situation is negatively influencing the ability of the banks to take on the role of transformation channel of savings into investments. According to the evaluation of researchers, at the high level of the banking system penetration into the economy (more than 90 per cent of enterprises have accounts in banks), only 19% of them got access to loans [2, p.132]. Therefore, the enterprises are forced to rely mainly on internal financing, at the time when access to external financing is the basis of economic growth and the key development component of the national production.

Taking into account many-sided nature and complexity of tasks facing by Kazakhstan government, we believe in the necessity to consider the ontology of the financial market in historical-theoretical aspect, and on the basis of revealed performance characteristics, to consider its role and transformation of functions realized at the present stage of economic development. The result of research should be rethinking of the role of the financial market as one of the most important institutions which assure the steady economic development of the country.

Methods and approaches:

The purpose of the study is to summarize and systematize the theoretical and methodological aspects of the financial markets ontology, to identify the nature of the evolution of their functions and structure in a reformed market economy, a complex system of government regulation, the influence of endogenous and exogenous institutional factors emerging in the context of globalization.

Methods. General scientific research methods were used, including:

- the method of historical and logical - in the process of theoretical and ontological analysis of the economic nature of capital as a special kind of product;

- abstract and concrete - in the process of theoretical and methodological substantiation of the typology of financial market structures;

- analysis and synthesis - in the process of analyzing the evolution of the functions of the financial market, identifying the specifics and problems of the current stage of its development;

- the causal method is used to classify the functions of the financial market.

A synergistic approach to the study of the topic revealed a systemic, complex relationship between the level of development of financial markets and the availability of investment resources (capital) as one of the determining factors of economic development and economic growth of the country.

The degree of problem's researching. The research is based on the results of theoretical researches of leading scientific economic schools (J. Schumpeter, A. Pigou, J. Keynes, J. Tobin, Ch. P. Kindleberger, E. Mandel). Author's reinterpretation on the basis of using historical and evolutional methods allowed formulating new approaches to the ontological nature of financial markets, the dialectics of development of their functions and roles in the economic system.

Modern deep structural changes and expansion of functional and tool apparatus is based on works of the leading researchers-economists: V. Milovidov, V. Belolipeckij, M. Sharapov, Y. Osipov, A. Buzgalin, L. Abalkin representing philosophical view at facilities economy that along with research works of B. Christophers, K. Knorr Cetina, R. Peston, P. Krugman allowed outlining specifications and the actual problems of the financial market.

The use of the results of system researches of the World Bank's experts, the Global Economic Forum, the Organization for Economic Cooperation and Development, allowed the authors to apply systematic methodological and structural-functional tools to study the phenomenon of the capital market in its modern interpretation, the directions and extent of the transformation of its role, having a dominant effect on the economic system.

The results of research.

1. The economic nature of the financial market: theoretical and ontological aspect. Outstanding representatives of classical and neoclassical political Economy, institutional and monetary schools, including Keynesian economics, considered and justified preconditions and the necessity of the financial market's functioning. Historically basis for its formation and development in economic theory are categories "capital", "investments" which, according to the opinion of modern economic schools, are in close interaction with categories "well-being", "innovations", "steady economic development", "efficiency".

In the base of the most theoretically developed rational-economic doctrines of financial markets functioning and financial intermediaries is the Theory of economic development of J. Schumpeter.

According to his theoretical displays, the economic development represents new "combinations of productive resources" referred to as innovation today. In the process of the creation of innovations, entrepreneurs have to overcome numerous obstacles - objective and subjective, technical and social, including limitations of private property. The element connecting the whole construction of productive resources (the labour and the land) are the investments as free capital. That is the reason why, investments' market is a direct development generation, as new investments, in particular, create new costs [5].

J. Schumpeter defines capital as the facility of achieving goods, as a lever, as a fund of purchasing power which acts as the third, needed for the production of the agent supplying communication between entrepreneur and goods' world. Capital is a link and allows an entrepreneur to use the benefits to achieve development goals production in a new direction by acquiring the means of production, which, according to the researcher, is "the only function of capital that characterizes his place in the organism of the national economy" [5, p. 231-233].

At the same time, in the argument of J. Schumpeter, this function of capital manifests itself, exclusively in the process of developing a market economy and only for production. Having no analogue in the circuit and having a specific feature not to be embodied in concrete benefits, capital is used not as a boon, but as a means of attracting those benefits that should be used directly in production. "At the same time, this is the only reason explaining why an entrepreneur needs capital, because it is with the help of capital that the means of production are transferred from one private owner to another, therefore, only being in the hands of private households, means of payment can fulfil the function of capital" [5 p. 234]. Thus, J. Schumpeter defines capital as the sum of money and other means of payment, which at any time can be made available to the entrepreneur.

Furthermore, investigating the capital's nature, J. Schumpeter also justifies the necessity of the presence of the capital market in its theoretical sense, where this resource, "specific sort of agent" is purchased and sold. *Characterizing the given market, the researcher deeply realizes and foresee the transformation of its economic nature as a reply to the development of the economy, appearing not only in money functions but also in exchange of all kinds of assets and means of production.* In particular, he writes: "In the conditions of development entering into the economic process a new agent - that is the capital, there should be the third market, on which also capital market takes place as well many interesting things. Such market is present, and it is an evident fact, much more evident than in the case of two other markets (the markets for services for the labour and for the land, as well as subjects for pleasure). The capital market is far more concentrated, better organized, and it is much easier to be replaced and to cover by sight. The capital market is what any businessman names the money market; …on this market simply not just the money is really sold and purchased [5, p. 271].

Conspicuous is the fact that for researcher the concepts "the money market" and "the capital market" are one and the same but this contradicts modern definitions of these economic categories. J. Schumpeter does not differentiate the concepts "the money market" and "the capital market" based on functions executed by them. Moreover, he draws the conclusion that by the virtue of specific features of the given third agent – the capital, defining it as the amount of money, the capital market is the money market. *Moreover, he characterizes this market as the market of free, accessible buying power, "processes realization, by means of which the means of payment get into hands of the entrepreneur*" [5, p. 243]. As the result, that position gives us understanding of the ontological essence of the category of "capital" and its role in the economic development of the government, because the financing for development in opinion the author of "The Theory of the Economic Development", is the main function of the Money market or Capital market as the process of development is create, support and maintains its existence.

Therefore, this approach allows us to understand the ontological substance of the capital which is displayed through its two primary functions: 1) Since the process of economic development creates a need for capital, hence capital is the result of a certain stage of economic development of society; 2) The capital stimulates the process of economic development. *The functional dualism of economic category of the capital is displayed in this way, however, this type of nature is in particular nucleus, economic substance and it allows deeply realize cause-effect relationships between economic development and its financing, between the economic system and the system of the financial market.*

Next, in accordance with the development of both the economy and the financial market, the process of transformation begins: the capital market acquires one more, the third function, becoming the market of the income sources. This third function is realized through "purchase - sale of constant and temporary sources of the income as the way of attraction and application of the capital, exactly what happens on the capital market". [5, p. 275]. In the process of implementing this function, a "new player" of the market appears - a financial intermediary. Since on the one hand, there are entrepreneurs who demand money, and on the other hand financial intermediaries that form the money supply. On the basis of supply and demand, the price of capital (is formed, which becomes a commodity, allowing to exchange the current purchasing value for a future source of income. Thus, the exchange existing purchasing power to future purchasing power underlies in dynamics, which is formed inside the financial market and is relayed (strengthen or lower) influence on economic development. *The two main financial capital functions that formed the dualism of the ontological nature of the financial market are complemented by a third function that has a dynamic effect on the national economic development.*

The market economy evolution, the process of economic development of the society (transition from feudal mode to capitalist mode) caused occurrence and development of the market of the capital and the Institute of financial mediation. At the same time, savings accumulations and their subsequent investment have generated the market of the capital in money form, with the tools of money market on initial phase. Later, the exchange of the present purchasing power fund to the future purchasing power, have generated the market of the income sources. The capital has become the third factor of production for supplying innovative development by means of "financing of new combinations". After that capital market was assigned to accomplish the functions of risks and expenses decrease and an increase in public production efficiency.

The main feature of the financial market is its system dualism, as, being, on the one hand, the element of the economic system, in fact, forms its strategic nucleus. Moreover, financial market represents the system of interconnected production attitudes which does not only actively interact with parent economic system, but also renders essential influence on it, seeking in the last decades to predominating role. This is confirmed by "financial globalization", according to the laws of development of which the "world of finance" dominates over the "world of real production", demonstrating super-profits, including due to the formation of "financial pyramids". Changes occurring inside the financial market, have a direct influence on all elements of the economic system and respectively dynamics of its development. *Dualism is also manifested in the fact that the development of the economic system, in turn, has an impact on the dynamics and quality of the financial market, actualizing the search for levers, mechanisms and tools, stimulating or constraining the development of financial markets in order to ensure the economic growth of the country.*

To support a given thesis, we cite the Doctor of economic sciences, Professor M. Sharapov: "The theory of "nucleus of development" considers difficult economic systems through the prism of allocation of their biomodal base - specific nucleus of development concentrating in itself the potential of evolution of the system and peripheral segments subordinate to nucleus of development and supplying its need for material and human resources, as well as justification of the way of communication between the nucleus and periphery» [6, p. 22].

Economic activity practice confirms that the capital market becomes the heart, the nucleus of economic development, forming a plan for development, establishing the prices for capital, financing development and producing the sources of the income. The last function is supplied by means of choice of the most effective projects which allow receiving a higher size of the profits, sufficient not only for payment of interest for use of capital but also forming of new savings and investments. Financial mediation in the person of specialized financial agents lowers risks and supplies exchange of current purchasing power to future purchasing power. The government is also actively involved into the process of development of the capital market, stimulating savings and investments, as well as lowering risks for investors, by means of regulation and formation of the stable macroeconomic environment. Moreover, the current exchange of purchasing power for the future one on the capital market forms the dynamics of development for the whole economic system.

2. Financial Market Functions Transformations. As economic relations developed, the functions of the financial market evolved. For instance, representative of marginalism and one of the pioneers of economic and mathematical methods of research A. S. Pigou considered an economic well-being as a set of such satisfying and unsatisfying needs which can be measured with the aid of money. However, according to Pigou's opinion, two factors influence the capital (investments): expectations of future profits and an uncertainty burden. The increase of the nation's well-being is reached through stimulation by the state of saves and minimization of "uncertainty burden" through the Institute of financial mediation which is distributing capital in the economy. From Pigou's point of view, intermediaries, in particular, evaluate the most effective capital annexe variants, choose directions, where the production of private products is the most effective for the whole society [7]. *As a result, the capital market function as the driver of economic development, the researcher complements by functions of decrease of uncertainty (risk) and stimulation of saves*.

According to the founder of the theory of state regulation of a market economy, John Keynes, the measure of well-being is the employment of the economically active population, while investment growth stimulates the development of the national economy and macroeconomic stability. However, investment process intensity also depends on two factors: of "current price" of the proposal of the capital and "expected income" which depend on a limiting capital efficiency. At the same time, J. Keynes in his economic theory relies on the state, which is able to weigh a limiting efficiency of capital goods from the standpoint of long perspectives and on the basis of the common social benefits will incur all responsibility for the organization of investments" [8]. J. Keynes formalizes one more important function - the state should purposefully regulate the capital market that allows increasing efficiency of functioning of the capital market, to lower social expenses and to stimulate improvement of the well-being of the society as a whole. It is due to state regulation of the financial market, ensuring the availability of credit resources for business, and also - due to state investment in the "growth points" of the national economy – as M. Keynes argues – the multiplicative effect of economic development is formed, is macroeconomic stability and economic growth achieved.

Concentrated expression of an institutional approach to research of financial market is regulation of J. Tobin (the representative of post-Keynesian school), according to which financial market represents the system of *determined institutional agreements supplying transformation of savings in the investment and distributing resources among alternative users within the industrial sector* [9].

Theories of cyclical development considered the financial market as the only source of credit necessary for economic growth, which is cyclical in nature. The works of H. Markowitz, N. Kaldor, F. Black confirmed the concept of the financial market as a platform for investment. The theory of optimizing the portfolio of investments, the pricing mechanism of financial instruments and risk management complemented the list of financial market functions. In the process of formation and development of financial markets, their functionality has expanded.

Currently, there is a fairly large variety of research approaches to the classification of financial market functions. Given the diversity of functions of the modern financial market, we grouped them into 4 functional clusters:

The cluster of ontological (root) functions includes the primary functions of the financial market (Savings and Accumulation Function; Capital agglomeration Function; Resource Function; Investment Function; Speculative (commercial) Function; Monetization Function);

The cluster of dynamic functions contains the functions of the financial market, reflecting its dynamic nature (Innovative Function; Allocation of Capital and Property Rights Function; Risk and Liquidity Allocation Function; Stimulating Function);

The consulting cluster includes a range of functions implemented by the Institute of financial intermediation in making investment decisions (Indicative Function; Informational Function; Payment settlement Function; Risk Management Function; Engineering);

The cluster of control and regulatory functions includes the monitoring and regulation of the environment, ensuring the safety of investments.

The development and transformation of the functions of financial markets testify to the expansion of their role in economic development. The role of the financial sector in the resource provision of economic development is determined by the structural and functional characteristics of the current financial system, which are determined both by internal factors determined by the specifics of the economic evolution model and external factors resulting from the impact of global processes. The need to implement modern tasks of economic development dictates new requirements for studying the typology of the structure of the financial market as an intermediary in the movement of investment capital to create an effective mechanism for financial support for sustainable economic development.

3. The typology of structures of the financial market. J. Schumpeter, justifying the sequence of the phases of economic development, in his work “the theory of economic development” pays attention to the fact that all last economic periods are bound with social and economic communication relations. Determined means and methods of production are coming from the past as well. “and all of these has strongly been keeping it on once selected way” [5, p.9].

Since the financial market is an institution that depends on the trajectory of its previous development, the terminological apparatus of the Neoinstitutional theory is applicable to it to describe the relationship between the old and the new institutions: “path dependence”. Generally, the existence of the dominant type of structure is due to the fact that in the past, its creation had incurred significant fixed costs, while its current operation and maintenance of efficiency did not require significant costs. The current practice of “using a certain type of financial market structure to transform savings into investments can be cheaper ...” [10, p. 20], which is evidence of adherence to a certain institutional type of development of the financial market.

Researchers allocate globally two pole types of the structure of financial market: a financial system with dominating role of financial intermediaries (banks, insurance companies and so forth), and ethe financial system with the prevalence of the securities market (shares, bonds, derivatives) [11].

In the first type, the banks are the levers of financial mediation, playing the key role in the distribution of the capital, being intermediaries. The economic development is performed, mainly, by means of direct bank financing. In its turn, financing of the banks need is implemented with a help of central banks’ financing and investors' deposits. So, a large part of assets and commitments making the vital base of the financial system, are plain vanilla bank deposits and loans. For debt or equity securities, just a small part of corporate financing is necessary, therefore the capital markets, are small and relatively undeveloped.

In a developed market system, vice-versa, financial markets execute the central role in distribution, since the big share of financial assets and the commitments of the system are market as opposed to "vanilla deposits and loans". The instruments of the market include not only bonds and share, but also derivative financial tools (options, futures, swaps), securitized packs of mortgage credits, and also other debts bought by the investors as incomes flow generating assets. As a result, the banks play a much less important role. Assets and commitments fixed on balances of the banks in bank model are replaced by the securitized products freely circulating in the market environment.

However, system analysis of the presented higher financial market structure initially brings into a question the correctness of given typology, as the structure is formed by using of entirely different categories: on the one hand, financial institutions (intermediaries), and on the other hand financial tools. Moreover, the absence of sharp "polarity" of the structure typology, allocation of a few structural subtypes leads us to the conclusion that one of the essential specifications of the financial market is mixed nature of its structure with relative prevalence (domination) of one or another type [10].

For example, Professor B. Christophers in his research "Against the idea of financial markets" pays attention to that in scientific literature on financial systems in the base of differentiation between bank and market financial systems, there is initially wrong precondition: the banks and markets belong to essentially different orders of things and they are ontologically various: on the one hand, there are things referred to as markets; on the other hand, banks (or, in a more common sense, financial institutions) [12]. Furthermore, criticizing the given approach, he notes, that exactly based on this wrong precondition, researchers identify a series of key distinctions. In particular," post-financial crisis, standard and scientific debates of "too big failures" invariably position as only the problem of banking, excluding this problem for financial market too. Markets are left to a considerable extent as incontestable.

Similarly, post-crisis debates of financial markets, as a rule, exclude banks. A vivid example of this, were the economists who directed critics to "effective market hypothesis" which asserts that financial markets always properly evaluate the assets, taking into account the present information. These debates, on the one hand, reflect and strengthen wrong, but the deep-seated distinction between markets and banks. Understanding the fact that, the bank can work in the market in a wrong way implies its self-sustainability and independence. On the other hand, the markets are represented also as an independent platform, where competitive and, mainly, anonymous economic operations take place.

However, Professor B. Christophers insists that structural problems of the banking sector, such as concentration, are simultaneously structural financial-market problems and vice-versa: institutional concentration is the feature of financial markets, just like the markets of financial services and it alerts of the given error in understanding of the nature of financial markets. Banks and other financial organizations are interconnected, active on the market, along with other subjects of the economy. Moreover, even in absolutely market financial systems, the banks and other financial institutions frequently have the essential influence on markets.

Hence, the markets are anonymous seldom or entirely competitive, they are mostly institutionally concentrated and hierarchical. It is necessary to understand that financial markets in the most made up of the banks which dominate over it, forming "abstract idealistic market" performing political work. The problem of high concentration of the capital in the banks is provided with a negative influence to ability by the market to execute their distributing and regulating role. Thus, the interaction between banks and other financial institutions is one of the main components of the financial market.

In our opinion, the ultimate aim of the given interaction should be an increase of efficiency that assumes granting of financial resources with the largest speed and least expenditures and risks, on behalf of not separate individuals, but societies as a whole. Therefore, to attain this aim quality of institutes' interaction of financial market is important. "Creation of the infrastructure enabling both the markets and financial institutions to reach the optimum level, probably, will be the best decision" [13, p. 80].

Researches of correlation of common economic growth and the typology of financial markets testify that from a long-term perspective it makes no difference, whether the financial system relies on banks or on markets. Just the level of common financial development of the banks and markets matters [14]. This statement turns out to be true on the level of the branches: neither acceleration nor slowing down of branches growth attracting external financing through banks or the market is observed.

However, the findings of the World Bank study contain the thesis that these two systems may have different effects on the ability of firms to receive funding, especially with a low level of financial development [15]. Early studies of cross-country differences were often based on such a measure of financial development as banking penetration. However, as the last researches in Kazakhstan show [2, p.132] in some cases access to the finances is hindered even with a high degree of bank penetration. There are the reasons for such a situation: absence of competition, high prices, high risks, and infringement of corporate lending standards. Then, the securities market can become an additional channel of access to finances.

Although the development of both banks and markets improves access to external financing, relatively greater size of the securities market simplifies access of companies to long-term financing, and development of the banks increases the availability of short-term financing. Hence, distinctions in the system of contracts and their influence on the development of the banks and financial markets can have far-reaching consequences [14].

Based on the above-stated analysis of researches and approaches to the typology of the structure of the financial system, and its influence on the development, we can draw a few conclusions:

✓ formation of institutional infrastructure of the financial market requires investment expenditures which decrease during the system operation that forms path dependence;

✓ the typology of the structure of the financial system providing division on banks and financial markets is rather conventional;

✓ high concentration of the structure of the banking sector has an influence on the institutional concentration of financial market that has a negative influence on the ability of the market to execute its distributing and regulating role;

✓ the purpose of the financial system is the qualitative interaction of all institutes of financial mediation during the implementation of economic activities which depends on the efficiency level of institutes and system as a whole;

✓ the presence of advanced financial markets is an indirect certificate of the mature phase of the market economy, at the same time transition to a market economy requires the development of the institutional infrastructure of the financial market;

✓ in the period of transition to the advanced economy, the government stimulates the development of the financial market, being, along with banks, one of the largest financial institutions of the market.

In summary, the above arguments make it possible to substantiate the conclusion about the mutual dependence of the level of development of financial markets and economic development. At the same time, a higher degree of development of financial markets is characteristic of developed economies. However, for developing economies, stimulating the development of financial markets will allow for diversification and improving the efficiency of financial intermediation institutions.

4.The phenomenon of the financial market: features and problems of the current development stage. As numerous theories of economic development prove, the financial market was initially formed as a money market. The development of international trade and the need to reduce investment risks led to the separation of the foreign exchange market and the gold market. The emergence of debt and equity instruments at the stage of high demand for large volumes of investment has formed a full-fledged segment of the capital market. Thus, the development of the structure of the financial market is a consequence of economic development, on the other hand, the emergence of new financial instruments stimulate economic growth.

At the stage, late capitalism separated isolated financial markets integrated into world financial market. The next stage of evolution in response to the need to diversify increasing risks was the development of the derivatives market. Traditional set of financial tools was added by a constantly amplified spectrum of new derivative tools; the scales of speculative financial operations increased [16].

At the present time, the number of financial tools increased considerably and was complicated significantly; as a result, we observe the erosion of precision of their specifications and loss of their specialization. They become more and more universal and multi-tasking, opportunities of their application and their value are expanded. A share of the financial sector in the global GDP sharply grows, in the economies of advanced countries, incomes begin to dominate coming from operations on financial markets, taking essential place in the structure of aggregate incomes of the society.

As a result, the phenomenon of financial custody of the economy appears in the global economic space. Investigating of the financial market and the channels of its influence to the economic system, Doctor of Economic Sciences, Professor V. Belolipeckij, noticed the fact of its establishment of rule over the real economic life, as the production of cost in the society is implemented immediately under the direct control of financial topside. The whole value life of a society with all its estimates, prices, money, currency relations, capital, investments, incomes, wages, international economic relations, taxes, government spending, debt, social payments, savings, markets, demand-offers and turns out to be decisive derived from the actions of this financial superstructure [17].

In the financial sector, trends are emerging that determine the economy of late capitalism and shape the process of functioning of global virtual fictitious financial capital. The Russian economist A. Buzgalin among the most current trends highlights:

- monumental scopes of the transaction on the world financial markets;
- domination of the world financial corporations operating as monopolists on international markets;
- a significant impact on the future of national economies, an increase in international capital flows [18].

Doctor of Economics, Professor, Y. Osipov wrote that the primacy of the financial sector, the subordination of the economy to it, is the main system characteristic of the new quality of the global economy. "Financial capital forms new centres of economic authority in the global economy, influencing the moving of investment resources of broad reproduction, redistribution of factors of production for the benefit of points of innovative growth "[19, pp. 571-572].

The integrated model of the global financial market successfully solves the problem of demand satisfaction on investment resources of diversified financial institutions combining functions of investment and business banks, activation of the stock exchange and off-stock securities markets, dissemination of new financial tools [20]. But the formation of "global financial mega system" objectively lowers the role of national financial markets and lead to getting closer to various models of national financial systems [6, p. 23].

The Professor of Swedish university, B. Christophers allocates one more aspect in the specification of the modern financial market, noting that abstract idealistic financial market reflects the reaction of the society to political applications, as it is used by the politicians "as the main arbitrator of public politics" [12]. When the governments justify future political interferences, they see the reaction of the market to potential changes, and after acceptance of political decisions, the reaction of markets is considered as wisdom acknowledgement of the chosen rate. In summary, the real or expected signals of financial market give evaluation (positive or negative) for political activity. Prices on share became the barometer for economic and democratic future of countries.

A metaphorical reference to the market is characterized by assignment of spiritual qualities: such definitions as "all-knowing, almighty and omnipresent", substantiated and godlike. The financial market is considered by practices as an independent agent having "own life". Moreover, there is not only animated but also straightly gender aspect: it is necessary "to ask Mr Market what he thinks of all this" [21]. In this process actions of those who participate in markets, are veiled, meanwhile large financial institutions play a dominating role on the global financial market. Finally, "the market becomes socially and spatially uncontrolled, as it is an "invisible hand" working through interested, distributed participants who correct their choice on price signals [22, p. 115]. In this process, the actions of market participants are outwardly veiled, meanwhile, large financial institutions play a dominant role in the global financial market.

Thus, during the economic evolution, the formation, development and strengthening of the role of financial markets took place. At the stage of late capitalism, in the active phase of globalization, the phenomenon of the dominance of global virtual fictitious financial capital over all spheres of economic life was formed, which was reflected in the multiple growths of financial transactions, the monopoly of financial corporations, and the active movement of capital flows. The global financial market formation contributed to the integration of financial institutions, the development of instruments for financing investment needs. However, this also led to a weakening of the role of national financial markets, a loss of control over the activities of investment banks, and a multiple increase in default risks.

Moreover, the initially unique specific feature of the capital in dematerialization of physical productive assets is enhanced by its irrational characteristics. The capital, as the third production factor, through

the transformation of financial tools, becomes "non-material good of the top category", in the base of which there is the human psychology of expectations, assumptions, evaluations and risks. As a result, an organized and potentially efficient financial market as a mechanism for the redistribution of investments for economic development is influenced by the private interests of investors and intermediaries admitted to management, without taking into account public interests.

Discussion. In the period after the last financial crisis, having rejected the theory of an efficient financial market, economists turned to the theory of behavioural finance, since investors are basically too irrational and are subject to unreasonable panic. attacks of irrational abundance and unreasonable panic. Other investors, trying to justify their decisions on cold calculation, they frequently find out that they are not able to do it, as the problems with the trust and limited supplying force makes them follow the crowd [23]. The dematerialization of financial services and tools, the absence of tangible material consumer qualities, form conflict produced by human factor, human psychology. The market becomes socially and spatially uncontrollable, which leads to destabilization of the financial and economic systems.

According to the opinion of the Russian scientist, V. Milovidov "stability of the financial system, can be assured only intelligently by supported and disciplining inner etiquette of activity of financial institutions, and, of course, strong, based on judicial system, laws, on administrative authorities by state regulation, politics, authority in the economy area as a whole and finances in particular" [24, p. 8,13].

The directions for improving the financial policy of Kazakhstan and strengthening the regulatory role of the state are: balance of budgets of all levels and state extra-budgetary funds; improvement of the tax system; increasing the efficiency of using public and private property; improving budget planning and forecasting; ensuring the unity of monetary and financial policies; effective use of public finances; strengthening financial control [25, c.168].

We believe it is possible to agree with this vision of the prospects for the development of financial markets in order to achieve the goal of financing the country's economic development and to ensure a balance between public and private interests.

Findings. Theoretical and methodological analysis of the evolution of interpretations of ontology, structure and modification of financial markets forms the epistemological basis for improving the practice of financing economic development.

A feature of the ontological nature of the financial market is its systemic dualism, since, being, on the one hand, an element of an economic system, it is, in fact, its system-forming core, transforming under the influence of the evolution of an economic system. This functional dualism contributes to the formation of an effective capital market as a market for future sources of income, developing financial intermediation, government regulation, and building an institutional environment.

The historical transformation of the financial market indicates a large-scale expansion in the quantity and quality of its functions and an increase in its role in financing the economy. The development of the financial market has followed economic development, structurally forming two segments: banks and financial markets. However, the modern research view calls into question the correctness of this typology due to the loss of independence of the functioning of these segments from each other, their deep mutual penetration and influence. Therefore, in the new formation, the most prominent aspect of the functioning of the financial market is the increase of efficiency and expansion of access of economic subjects to financial resources through all possible channels in order to stimulate economic growth.

It has been established that in modern conditions a phenomenon of a hypertrophied influence of the financial sector relative to the real sector of the economy has been formed, which has led to a loss of specialization of financial tools and financial markets and increased management risks. The transition of the capital to the category of "highest goods" expands the amount and depth of functions executed by him, that it is increased the role of them in acceptance of political decisions, forming, as a matter of fact, worship cult to objective and effective market institute. However, financial crises, demonstrating irrationality and the presence of structural problems, stimulate the occurrence of new approaches to research the place and the role of financial markets. Therefore, enhancing the role of the state in regulating the market is the most important tool for balancing the interests of market participants with the goal of effective, sustainable and innovative economic development.

These conclusions have a basic value for research of the place and the role of the financial market of Kazakhstan in the conditions of globalization as well as to reach the strategic aim to supplying of

sustainable and innovative economic development. But, the achievement of this purpose does not turn out to be possible without liberalization of the financial services market, strengthening the competition, decreasing of brittleness from external shocks, protection of domestic market from the capital runoff, the development of internationalization processes, strengthening of the protection system of right and interests of minority shareholders, overcoming of macroeconomic imbalances, implementations of financial technologies.

The need to implement modern tasks of economic development dictates new requirements for studying the typology of the structure of the financial market as an intermediary in the movement of investment capital to create an effective mechanism for financial support for sustainable economic development.

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ҚАРЖЫ НАРЫҒЫНЫҢ ОНТОЛОГИЯСЫ, ФУНКЦИЯЛАРДЫҢ ЖӘНЕ ҚҰРЫЛЫМЫ ЕВРОЛЮЦИЯСЫ: ТЕОРИЯ-ӘДІСТЕМЕЛІК АСПЕКТ

Аннотация. Елдің экономикалық өсуін ынталандыру үшін қаржы нарығының оңтайлы моделін іздеу және қалыптастыру Қазақстанның қазіргі дамуының өзекті мәселесі болып табылады.

Капиталдың даму факторы ретінде диалектиканы зерделеу жүйелік функционалдық дуализмге негізделген қаржы нарықтарының онтологиялық сипатын анықтауға мүмкіндік берді. Мақалада экономикалық жүйенің элементі бола отырып, қаржы нарығы болашақта сатып алу қабілетіне арналған сатып алу қабілетінің қазіргі айырбасталуына негізделген жүйе қалыптастырушы ядро қалыптастырады деп негіздейді.

Экономикалық даму қаржы нарықтарының функционалдық аппаратын кеңейтуді ынталандырды. Олардың құрылымы мен модификациясының теориялық және әдіснамалық зерттеулеріне негізделген қазіргі заманғы қаржы нарығының функциялары авторлық тобы төрт функционалды кластер түрінде ұсынылған: онтологиялық, динамикалық, кеңес беру және бақылау және реттеуші функциялар.

Экономикалық дамудың ресурстық қамтамасыз етілуінде қаржы секторының рөлі экономикалық эволюция моделінің ерекшеліктерімен анықталған ішкі факторлармен және жаһандық экономикалық процестердің әсерінен қалыптасқан сыртқы факторлармен айқындалатын қаржы жүйесінің құрылымдық және функционалдық сипаттамасымен анықталады.

Қаржы нарықтарының типологиясын жүйелік талдау біздің құрылымымыздың неғұрлым таралған түрлерін анықтауға мүмкіндік берді: банктердің немесе қаржы нарығының басым рөлі. Бұл құрылымның типологиясы жеткілікті шартты болғаны дәлелденді, өйткені банктер қаржы нарығының белсенді қатысушылары болып табылады. Тұрақты экономикалық даму үшін қаржы нарығы институттарының өзара іс-қимылының сапасы маңызды.

Қаржы нарықтарының жұмыс істеуіндегі қазіргі заманғы проблемалардың теориялық және әдіснамалық талдауы қаржы нарығының тән формалары мен қасиеттерінің артуының, қаржы құралдарының мамандануын жоғалтудың және осы үдерістегі жаһанданудың айқындаушы рөлінің өсуін анықтады. Бастапқыда физикалық материалдық өнімді активтерді дематериялауға арналған капиталды бірегей ерекше қабілеті оның қазіргі заманғы иррационалдық сипаттамалары арқылы дамып, қаржы нарығының қамқорлығының феноменін экономикадан қалыптастырады. Абстрактілі-идеалистік, иррационалдық сипаттың таралуы басқару қабілетінің жоғалу қаупіне әкеледі. Сондықтан, мемлекеттің рөлін күшейту - тиімді, тұрақты және инновациялық экономикалық даму үшін қаржы нарығының қатысушылары мүдделерінің балансын қамтамасыз етудің ең өзекті құралы.

Бұл мақалада ұлттық экономикалық мүдделерді қорғау және Қазақстанның инвестициялық және инновациялық дамуын қамтамасыз ету үшін ұлттық және халықаралық инвестициялық ағымдарды қайта қалпына келтіру мақсатында қаржы нарықтарының мемлекеттік реттеуінің рөлі арта түсуде.

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ОНТОЛОГИЯ ФИНАНСОВЫХ РЫНКОВ, ЭВОЛЮЦИЯ ФУНКЦИЙ И СТРУКТУРЫ ТЕОРЕТИКО-МЕТОДОЛОГИЧЕСКИЙ АСПЕКТ

Аннотация. Поиск и формирование оптимальной модели функционирования финансового рынка для стимулирования экономического роста страны является актуальной проблемой современного этапа развития Казахстана.

Исследование диалектики развития капитала как фактора производства позволило выявить онтологическую природу финансовых рынков, в основе которой – системный функциональный дуализм. В статье обосновано, что финансовый рынок, являясь элементом экономической системы, формирует ее системообразующее ядро, в основе динамики которого находится обмен текущей покупательной способности на будущую покупательную способность.

Показано, что экономическое развитие стимулировало расширение функционального аппарата финансовых рынков. Основываясь на теоретико-методологических исследованиях их структуры и характере модификации, представлена авторская группировка функций современного финансового рынка в виде четырех функциональных кластеров: онтологических, динамических, консалтинговых и контрольно-регулирующих функций.

Роль финансового сектора в ресурсном обеспечении экономического развития определяется структурными и функциональными характеристиками финансовой системы, которые детерминированы как внутренними факторами, определяемыми спецификой модели экономической эволюции, так и внешними факторами, формирующимися под воздействием глобальных экономических процессов.

Системный анализ типологии финансовых рынков позволил выделить наиболее распространенные типы их структуры: с доминирующей ролью банков или финансового рынка. Доказано, что данная типология структуры является достаточно условной, поскольку банки являются активными участниками финансового рынка. Для устойчивого экономического развития важна согласованность взаимодействия институтов финансового рынка.

Теоретико-методологический анализ современных проблем функционирования финансовых рынков выявил возрастающую аморфность характерных форм и свойств финансового рынка, утрату специализации финансовых инструментов и определяющую роль глобализации в этом процессе. Изначально уникальная специфическая способность капитала к дематериализации физически осязаемых производственных активов усиливается его современными иррациональными характеристиками, формируя феномен доминирования финансового рынка над реальной экономикой. Превалирование абстрактно-идеалистической, иррациональной природы финансовых рынков ведет к рискам потери их управляемости.

В статье акцентируется внимание на возрастающей роли государственного регулирования финансовых рынков для обеспечения баланса интересов его участников, обеспечения эффективного, устойчивого и инновационного развития экономики, а также в целях переориентации национальных и международных инвестиционных потоков на обеспечение инвестиционно-инновационного развития Казахстана.

Ключевые слова: капитал, онтологическая природа, банки, финансовые рынки, трансформация функций, рынок капитала, функциональный дуализм, типология структуры, финансовые инструменты.

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INVESTMENT SUPPORT FOR THE DEVELOPMENT OF THE FORESTRY OF UKRAINE IN THE CONTEXT IMPROVING THE COUNTRY FOREST RESOURCE POTENTIAL

Abstract. The article presents the results of studies that characterize the forest industry of Ukraine as one of the components of the national economy. In turn, the structural elements of the forest sector are: forest chemistry, wood processing, pulp and paper industry. Forest enterprises are independent economic entities in the field of forestry and hunting. These problems predetermine the need for a study of new approaches to the development of investment support principles for the Ukrainian forest industry in the context of increasing the country's forest resource potential. Consideration of investment support of the forestry, analyze the causes, factors and threats associated with a shortage of investment resources in the forest industry and develop proposals for the prospects of investment activity in the direction of using, protecting and recreating the forest resource potential of the region are the purpose of the study. One of the most important conditions for sustainable development at the state level, as well as for individual enterprises, is the maximization of the innovation component of investment support. Obviously, in the conditions of reforming the forestry of Ukraine on the principles of sustainable development the need for an appropriate level of investment support for technological and technical transformation of the forest industry is even more acute. At present, Ukraine cannot meet domestic needs for wood and ensure ecological balance, therefore, studying the potential of forestry and its impact on the country's economy is relevant.

In spite of this, a big problem is that after the reorganization of collective farms into agro formation a significant part of the forest was assigned to reserve lands and was left without protection and supervision, that is, the timber potential in these forests is not used. Almost half of the forests of Ukraine are artificially created which need enhanced supervision. On this basis, it is recommended to use in reasonable proportions both the ecological and economic value of forests, ensure reforestation, increase the forest area and prevent the reduction of timber stocks in the forest policy in Ukraine.

Key words: forestry of Ukraine, forest industry of Ukraine, forest resource potential, forest, investment support, agro formation, land, resources, law, industry transformation.

Introduction. The signing by Ukraine of the Association Agreement with the European Union requires a review of the strategic priorities for the development of the main sectors of the national economy, especially those that base their activities on the use of natural resources and influence the formation of the assimilation potential of the territories. The forest sector is representative in this respect, and especially its structure-forming element - forestry. The existing model of forest management in Ukraine, which is based on the departmental principle and provides for a rigid vertical of management of the system of use, reproduction and protection of forest resource potential, already fully meets modern requirements for sustainable forest management. Moreover, a significant determining effect on the rates of expanded reproduction of the resource and production potential of forestry is exercised by the territorial asymmetry of the forest cover levels of individual regions of Ukraine.

In recent years, various scenarios and mechanisms for reforming the forest industry have been proposed. The main directions of reforming the forest industry can be identified: the transformation of the

forest management system, the improvement of the regulatory tools for influencing the markets for forest products, viewing the relationship between the forestry and forest processing segment of the forest industry.

At the same time, the main factor hindering real reforms in forestry is the long-term, or rather chronic investment deficit, which does not allow to replace physically worn and outdated equipment in most forest enterprises in a timely manner and to provide new quality of finished products, more competitive in domestic and overseas markets.

These problems predetermine the need for a study of new approaches to the development of investment support principles for the Ukrainian forestry industry in the context of increasing the country's forest resource potential. In the works of such domestic scientists, such as A. Dzyubenko, A. Deineka, I. Sinyakevich, O. Furdychko, N. Shershun, I. Yarov, and also foreign scientists: I. Verveyka, S. Korchagova, M. Orlova, K. Balbota covers traditional sources of expanded recreation of the resource potential of forestry enterprises, addresses topical issues of using raised and borrowed funds, explores issues of investment development of forestry. However, in our opinion, not enough attention has been paid to the specifics of developing the principles of investment support for the growth of forestry in Ukraine in the context of increasing the forest resource potential of the country.

Purpose of the study. The purpose of the study is to examine the problems of investment support for forestry, analyze the causes, factors and threats associated with a shortage of investment resources in the forest industry, and develop proposals for the prospects of investment activity in the direction of using, protecting and recreating the forest resource potential of the region.

The presentation of the material. Historically, it was formed in Ukraine that there are many-forest and low forest areas, which largely determines the specialization and diversification of production and economic activities of state forest enterprises, which the government has delegated the rights of permanent use of forest fund lands for practical implementation of national forest policy priorities [1].

The importance of the forestry complex for recreation, human health, maintaining natural balance is difficult to overestimate, therefore the problem of forestry development is gradually becoming a priority in Ukraine. Forestry belongs to the economic complexes that are of strategic importance for the national economy, because it covers all the processes that are associated with the reconstruction and use of a strategic resource - the forest, but at the same time it occupies a relatively small place, in general, in the industrial production of Ukraine [3].

At present, Ukraine cannot meet domestic wood needs and ensure ecological balance. Therefore, the topic of studying the potential of forestry and its impact on the country's economy is relevant [2].

The forest sector is an important component of the national economy of Ukraine, as it provides for an expanded reproduction of the forest resource base, and is the basis for the assimilation potential of individual territories. The structural elements of the forest sector are: forestry, forest chemistry, wood processing, pulp and paper industry. In recent years, the level of capitalization of forestry has significantly increased, since the forest resource base is concentrated here and a permanent flow of financial resources is ensured due to the involvement of wood and non-timber resources into economic circulation [4].

The forests of Ukraine, according to their purpose and location, perform mainly water protection, protective, sanitary and hygienic, recreational and other environmental functions and meet the needs of society in forest resources [4].

Forestry is essential for the development of the agro-industrial complex, as well as for the food and energy security of the country, because the territory of Ukraine is 603,549 km^2, that is, 17.6% cover forests. For comparison, the territory of Belarus is 207,600 km^2, and covers 39.8% of forests. The total area of the country's forest fund is 10.4 million hectares [1]. Despite the low forest cover of the territory, Ukraine ranks ninth in Europe in forest area and sixth in terms of wood reserves. For 50 years, forest cover has increased almost one and a half times (figure 1).

At the current stage of the country's economic growth, forestry does not have sustainable development, although Ukraine has acceded to many International Agreements on the development of forestry. This, in turn, is the World Forestry Congress in Buenos Aires, the UN International Conferences in Rio de Janeiro, Strasbourg, Helsinki, Lisbon. By European standards, forests that are not affected by human activity constitute only 59,000 hectares in Ukraine.

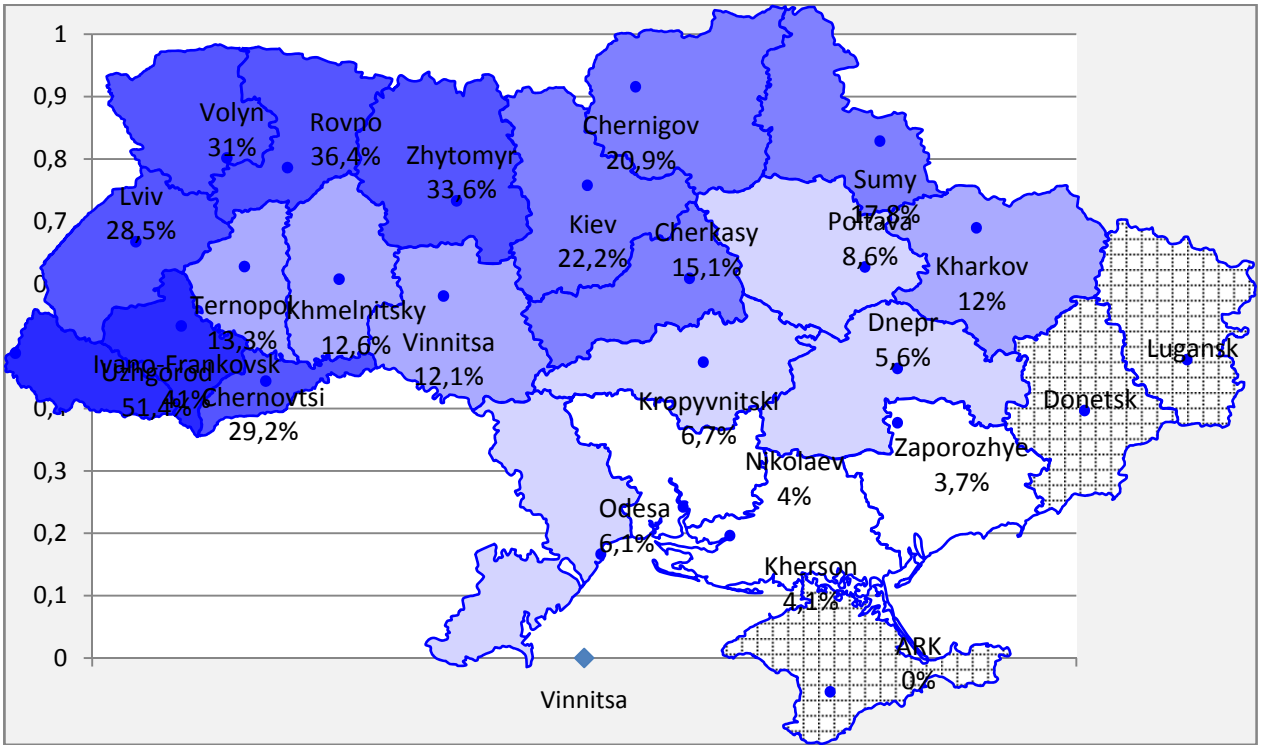

Figure 1 – State of forestry of Ukraine on January, 01 2018

A significant part of the forest after the reorganization of collective farms in agro formation was attributed to the lands of the reserve and left without protection and supervision, that is, the potential of wood in these forests is not used. Almost half of the forests of Ukraine are artificially created, which need enhanced supervision. The program "Forests of Ukraine" considered an increase in the number of plantations throughout 2010-2015, but these tasks and many others (in particular, an inventory of forest belts and assigning them to land users, the resumption of agro forestry services, the creation of protective stands on eroded lands of private and communal property, etc.) are not implemented in a timely manner [1].

An important indicator of the state of forests, in terms of the long-term perspective of their use, is the age structure - the distribution of forest areas by age groups. In the Ukrainian economy, the division of forests into young stands (age up to 40 years), medieval (40-60 years), maturing (60-80 years), ripe and over mature (more than 80 years) has been preserved. Economically the most profitable is the uniform distribution of planted areas by age groups. Unfortunately, the forests of Ukraine are characterized by an uneven distribution of forest plantations by age groups with a significant predominance of young and middle-aged (70-80% of all areas) and an insufficient number of mature and over-mature (6-15%) [6].

Another important feature is bonitet, which is determined by a number of characteristics - the average height of the trees depending on age, the average trunk volume, the number of trees per 1 ha, and, consequently, the stock of wood (volume per 1 ha), current and average increment of wood stocks. For each breed and bonitet, tables of growth rates of tree stands are compiled, which reflect the magnitude of the above indicators, ranging from planting to the age of over-ripeness, with an interval of 10–20 years [5].

Forestry enterprises are independent economic entities in the field of forestry and hunting. Forestry on 99.9% of Ukraine's forest land is conducted by specialized state and communal forest enterprises subordinate to a large number of ministries and departments, however, most forest products and services are produced by enterprises of the State Forest Resources Agency of Ukraine. Forestry in Ukraine, according to the "Classification of Economic Activities", includes four groups: forestry and other forestry activities (group 02.1), logging (02.2), wild-growing non-timber products (02.3) and the provision of ancillary services in forestry (02.4). Forest enterprises also provide services in a number of other important sectors: hunting, primary woodworking, food processing, and others. [14]

As for the country's economy, the contribution of the forest industry is very small. The cost of forestry products and services is only 0.2-0.4% of the total gross output. The share of wood in total exports is somewhat higher - about 1.5%, which is usually also not a determining factor. The decline in public funding opportunities, the lack of own funds of state enterprises and limited access to bank loans do not provide an opportunity to increase production rates and the quality of forest products, hinder the development of the scientific and technological potential of the forest industry.

One of the most important conditions for sustainable development at the state level, as well as for individual enterprises, is the maximization of the innovation component of investment support. In fact, in the conditions of reforming the forestry of Ukraine on the principles of sustainable development, the need for an appropriate level of investment support for technological and technical transformation of the forest industry is even more acute.

As of January 1, 2018, forestry attracted investments in the amount of UAH 767.5 million (figure 2).

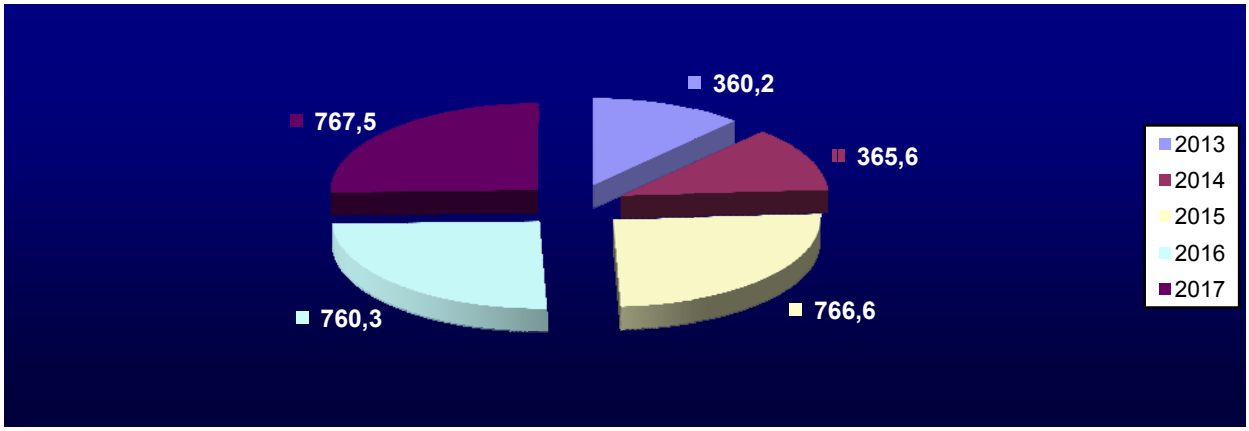

Figure 2 – Attracted investments in forestry of Ukraine, 2013–2017

Source: State Statistics Committee of Ukraine.

The data of figure 2 show that since 2014 the volume of attracted investments in forestry has increased by 2 times, but this figure does not yet allow for the effective operation of forestry enterprises. At present, the main source of financing capital investments in the forestry of Ukraine remains the own funds of enterprises and organizations and makes up about 70% of the total cost. [6].

State-owned forestry enterprises are investment-attractive because they have a predictable medium-long-term forest resource base, which is a very significant factor for convincing foreign and domestic investors to finance forestry projects and woodworking production projects. The forecasted raw material base is an important prerequisite for the design of primary and in-depth wood processing facilities and the planning of production, economic and investment activities.

Forestry enterprises are state-owned enterprises, which creates opportunities for using such a powerful tool to increase the investment attractiveness of forestry production, such as government guarantees, which in turn will allow enterprises to modernize production with fixed assets. [15].

A significant factor in increasing capital investments in forestry production would be to simplify the mechanism for using financial leasing, which would speed up the process of renewing the production equipment and forestry equipment fleet and ensure a gradual decrease in the level of physical deterioration of fixed assets of state forestry enterprises.

The development of the forestry complex requires the use of projects to build up forest resource potential and introduce modern woodworking technologies.

The main direction of reforming the forestry of our country should be the gradual integration of forestry production into the system of expanded reproduction of the entire natural resource complex, since best practice shows that integrated management of natural resources (land, forest and water) is the basic determinant of resource-saving and sustainable environmental management. So, state-owned forestry

enterprises should work more actively with the subjects of agrarian business, water management and recreational activities, since forest biocenosis are today a necessary condition for the sustainability of agricultural landscapes and restoration agriculture, the protection of watercourses and inland waters, the formation of natural resources for sanatorium-resort and tourist and recreational economy [7].

In the European Union, it is common practice to encourage farmers to increase the extent of a forestation of agricultural land and conduct agro forestry activities, which makes this category of agricultural producers subjects of forestry. Obligations made by Ukraine to the European community and the requirements of the European Union environmental directives to require the involvement of domestic agricultural producers in the processes of expanded reproduction of forest resource potential, since the level of tilled agricultural land is one of the highest in Europe and threatening the environmentally balanced socio-economic development of the vast majority of regions of Ukraine. Considering that the overwhelming majority of agricultural producers (subjects of agricultural entrepreneurship - agricultural enterprises, farmers and personal peasant farms) do not have the necessary production, technical and organizational potential for a forestation and agro forestry, as well as the maintenance of forest cultures, the overwhelming majority of forest management activities on agricultural land and coastal water protection zones should be implemented by state forestry's enterprise.

Considering that the non-state sector of management has long been formed in the agricultural sector and the direct influence of the state does not work here, it is necessary to use regulators and modern institutional forms that will stimulate the subjects of agricultural entrepreneurship to involve state-owned forest enterprises in the reproduction of forest resource potential and implementation agroforestry works on the territory of agricultural land. A very promising form of integration of agrarian entrepreneurship and state forestry enterprises is a public-private partnership. In this form of interaction, one of the parties acts as a state and the other as a private partner. Agricultural enterprises, farmers and private farms can be private partners, and state forestry enterprises can be state partners. The initiators of establishing partnerships for a forestation can be both public and private firms [8].

The implementation of public-private partnerships is also necessary for the development of the recreational forestry industry [4]. Since state forestry enterprises as permanent forest users have significant recreational potential, ensuring its efficient use will allow diversifying production and economic activity and shifting the center of gravity to increasing the level of capitalization of forest and forestry assets from the scope of increasing the volume of harvesting liquid wood to the integrated use of forest resource potential. Considering the above, the state forestry enterprises should become a public partner, and specialized recreational enterprises, subjects of green and rural tourism should become a private partner [10].

Forest clusters are a priority form of activating recreational forest management, which are also voluntary associations on a non-statutory basis and on the principles of partnership of forest enterprises, subjects of recreational activities, local governments, financial institutions and universities. The innovative core of such clusters should be state-owned forest enterprises, to ensure the harmonization of priorities for sustainable and continuous forest management with the priorities of the economic development of the recreational potential of the forest. For multi-forest areas, in particular, the Carpathian and Polesye economic regions, forest clustering will ensure the integration of agriculture, forestry and recreational farms, which will cumulatively reflected on the employment dynamics of the local population and the development of related industries.

Use in reasonable proportions of both the ecological and economic value of forests, the provision of reforestation, the increase in forest area, and the avoidance of declining timber reserves - these should be the principles of forestry policy in Ukraine.

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ИНВЕСТИЦИОННАЯ ПОДДЕРЖКА ОТРАСЛИ ЛЕСНОГО ХОЗЯЙСТВА УКРАИНЫ В КОНТЕКСТЕ ПОВЫШЕНИЕ ЛЕСОРЕСУРСНОГО ПОТЕНЦИАЛА СТРАНЫ

Аннотация. В статье изложены результаты исследований, которые характеризируют лесную промышленность Украины, как одну из составляющих ее национального хозяйства. В свою очередь структурными элементами лесного сектора являются: лесохимия, лесоперерабатывающая, целлюлозно-бумажная отрасли. Лесохозяйственные предприятия являются независимыми субъектами экономической деятельности в сфере лесного и охотничьего хозяйства. Приведенные проблемы предопределяют потребность в исследовании новых подходов к разработки принципов инвестиционной поддержки отросли лесного хозяйства Украины в контексте повышение лесоресурсного потенциала страны. Целью исследования является рассмотрения проблем инвестиционной поддержки лесного хозяйства, анализ причин, факторов и угроз, связанных с дефицитом инвестиционных ресурсов в лесной отрасли, а также разработка предложений относительно перспектив инвестиционной активности в направлении использования, охраны и воссоздания лесоресурсного потенциала региона. Одним из важнейших условий устойчивого развития на уровне государства, а также отдельных предприятий - максимизация инновационной составляющей инвестиционного обеспечения. Да, в условиях реформирования лесного хозяйства Украины на принципах устойчивого развития еще больше заостряется потребность в соответствующем уровне инвестиционного обеспечения технологической и технической трансформации лесной отрасли. В настоящее время Украина не может удовлетворить внутренние потребности в древесине и обеспечить экологическое равновесие, поэтому изучение потенциала лесного хозяйства и его влияние на экономику страны является актуальной.

Не смотря на это, большая проблема заключается в том, что значительная часть лесов после реорганизации колхозов в агроформирования была отнесена к землям запаса и осталась без охраны и присмотра, то есть, древесный потенциал в этих лесах не используется. Почти половина лесов Украины является искусственно созданными, которые нуждаются в усиленном присмотре. Исходя из этого, рекомендуется использование в разумных пропорциях как экологической, так и хозяйственной ценности лесов, обеспечение лесовосстановления, увеличение площади лесов, недопущение снижения запасов древесины в лесохозяйственной политике в Украине.

Ключевые слова: лесное хозяйство Украины, лесная промышленность Украины, лесоресурсный потенциал, лес, инвестиционное обеспечение, агроформирования, земля, ресурсы, закон, трансформация отрасли.

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THE STUDY OF NEUROMEDIATORY ACTION OF THE COMBINATION DRUG "MEMOFIT" UNDER CHRONIC IMMOBILIZATION STRESS

Abstract. Neuromediatory action of the combination drug "Memofit" has been studied using the parameters of lipid peroxidation products and antioxidant system. POL and antioxidant system were determined by marker indicators: specifically, the level of primary oxidation products – diene conjugates and secondary products – malonic dialdehyde; anti-oxidative systems; catalase activity and superoxide dismutase. Experimental research has been performed in 18 WAG rats with approximate body weight from 210 to 230 g. Stress-modeling action has been studied on the model of neuromuscular tension during 5, 15 and 30 days. Immobilization stress was modeled by keeping rats for 5 hours in plastic cages – plastic boxes. Blood serum was used for investigation. Level of primary oxidation products – diene conjugates (DC) and secondary products – malonic dialdehyde (MDA) and state of antioxidant system has been determined by spectrophotometric method. Based on the POL level parameters, we can make a conclusion, that the tested combination drug "Memofit" decreases TBA-AP and DC parameters only on the 30-th day statistically significant in relation to immobilization stress and reaches to control. The level of catalase at immobilization stress + combination drug "Memofit" is 4.12±0.09 c.u., correspondently, that is statistically significant in relation to the group of animals, that were subjected to immobilization stress 6.23±0.03 c.u. ($P<0.05$). The level of SOD at immobilization stress + combination drug "Memofit" reaches 4.16±0,09 c.u. correspondently, that is statistically significantly in relation to immobilization stress 7.13±0.89 c.u. and control 3.59±0.11 ($P<0.05$).

Key words: neuromediatory action, combination drug, chronic immobilization stress.

Introduction. Life under conditions of psychoemotional loads, constant overfatigue and chronic stress leads to the occurrence of different symptoms that make 10-20 % of people consult a doctor. In our days it is not doubtful, that stress plays a great role in the development of many socially significant diseases, which make quality of life worse and reduce life duration. It is known that stress is recognized as a risk factor of neuroses, neurosis-like borderline cases and psychopathic states. Stress prevention and stress induced processes is the actual direction of medicine and pharmacy. At the present time psychotropic drugs of different pharmacological groups such as sedative, anxiolytic (tranquilizers), antidepressants and neuroleptics are used for prevention and treatment of stress [2, 5].

Standard means of pharmacotherapeutic neuroses treatment are anxiolytic and sedative drugs. Now synthetic tranquilizers, the benzodiazepines derivatives, which have a range of adverse effects that limit their use especially under conditions of continuing working activity connected with professional necessity of attention concentration are used most often. Heavy adverse effects caused by benzodiazepines include: development of drug dependence, suppression of respiratory center, myorelaxation with imbalance and falls, drug addiction, abstinence syndrome etc. Taking into consideration such a wide list of adverse effects, that limit their use, a search of alternative herbal medicinal products without mentioned above adverse effects is actual [1]. One of the perspective directions is the search of effective herbal medicinal products, which contain in their composition a complex of biologically active substances and show a wide spectrum of pharmacological activity.

According to WHO data, 80 % of population gives preference to medicinal preparations of a plant origin. Phytotherapeutic drugs practically do not have contraindications, have a wide spectrum of

therapeutic action and can be used for prophylaxis and treatment both independently and in the complex therapy course for a number of diseases of central nervous system. Therefore, the search of medicinal plants with psychotropic activity, that has low toxicity and do not yield by their pharmacologic effect to modern synthetic drugs represents a great interest [4].

The aim of our research was to study a neuromediatory action of the combined medicine "Memofit", POL and antioxidant system were determined by marker indicators: specifically, the level of primary oxidation products – diene conjugates and secondary products – malonic dialdehyde; anti-oxidative systems; catalase activity and superoxide dismutase.

Materials and methods. Investigations of substances obtaining, finished dosage form and also determinations of technological and microbiologic characteristics for "Memofit" capsules were carried out on the basis of LLC "State Enterprise "GNCLS". Capsules were produced in accordance to general technological scheme. Both active substances and excipients in the solid state in the form of a powder were placed into one of the capsules caps that were tightly closed by the other ones. Solid capsules have a coating that consists of two cylindrical parts, one end of each part is rounded and closed, and the other is open. On the basis of the obtained experimental data the industrial technology for a drug production has been developed and introduced into practice at the LLC "State Enterprise "GNCLS".

With the purpose of development of technical conditions for dietary supplement "Memofit" in Ukraine, determination of such quality parameters as organoleptic characteristics, uniformity of mass (2.9.5) and disintegration for finished dosage form has been performed (2.9.3).

Experimental research has been performed in 18 WAG rats with approximate body weight from 210 to 230 g. Stress-modeling action has been studied on the model of neuromuscular tension during 5, 15 and 30 days [1]. Immobilization stress was modeled by keeping rats for 5 hours in plastic cages – plastic boxes. Animals were divided into 3 groups, 6 animals in each group. Animals of group 1 – intact (conventional condition) were intraperitoneally injected through the probe with 3 % of pure starch paste per os. Animals of group 2 were exposed to stress by the way of immobilization for 5 hours and were intraperitoneally injected through the probe with 3 % starch paste per os. Animals of group 3 were intraperitoneally injected per os with 3 % starch paste containing tested combined medicine "Memofit" once daily 1 hour prior to the stress exposition.

Animals of all groups were decapitated under ether anesthesia 5 hours after immobilization stress, in other words – against the background of maximal stress exposition. Blood serum was used for investigation, in the course of POL investigation the blood serum was determined, namely: level of primary oxidation products – diene conjugates (DC) and secondary products – malonic dialdehyde (MDA) with spectrophotometry method [7,8]. State of antioxidant system has been determined by spectrophotometric method: namely, catalase activity and superoxide dismutase (SOD) [9,10]. To detect changes in parameters to be examined, these levels were estimated in control and test animals after 5, 15 and 30 days, respectively.

Neuromediatory action of the combination drug "Memofit" has been studied using the parameters of lipid peroxidation products and antioxidant system because lipid peroxidation (POL) is a primary reaction in the chain of physico-chemical transformations, that lead to destruction of lipoproteid complex of membranes and break their transport functions, and also oppress processes of energy generation, that results in decreasing of cells vital activity. At the same time these processes are the most significant for adaptive renovation and reparation of the functioning structures, lipoproteid membranes, increasing of capacity and buffer capacity of redox-system, and therefore, increasing of fermentation and non-fermentation antioxidant activity (AO-protection) and also in the fine regulation of reactions (POL) in the membrane structures due to functioning of mechanisms that control content of active oxygen radicals, lipid peroxides and catalysts of peroxidase reactions [11].

POL induction takes place due to different disorders of organism functions on conditions of pathology and stress.

In case of overaccumulation of POL products in the organism, a syndrome of lipid peroxidation develops, that involves such pathological components as damage of membrane lipids, lipoproteids and proteins, enzymes inactivation, disorder of cell division and phagocythosis, decreasing of endocrine and immune systems reactivity that results in changing of structural-functioning organization of membranes.

Regulation of excessive formation of lipoperoxides is carried out by means of antioxidant system (AOS), that is composed of antioxidants (AO) localized both in hydrophobic membranous (tocopherol) and in hydrophilic intracellular and extracellular (thiol compounds, selenium derivatives, glutathione system) media, and also in two main groups of enzymes: superoxide dismutase (SOD) and catalase.

AOS provides neutralization by means of cells of free radicals and cellular homeostasis supporting. Distinctive features of the AOS functioning is the unidirectionality of its regulating action, serious consequences of its even short-term insufficiency that results in the biopolymers and cellular membranes damage. At the same time the balance under the action of different endogenic and exogenic factors between AOS and POL inside cells can be broken due to either reduction of antioxidant level or hyper-production of free radicals. The term oxidative stress (OS) was given to this state [6].

Results of pharmacological action study for the combined medicine "Memofit" on lipids peroxi-dation: diene conjugates (DC) and malondialdehyde (MDA) are given on figures 1 and 2.

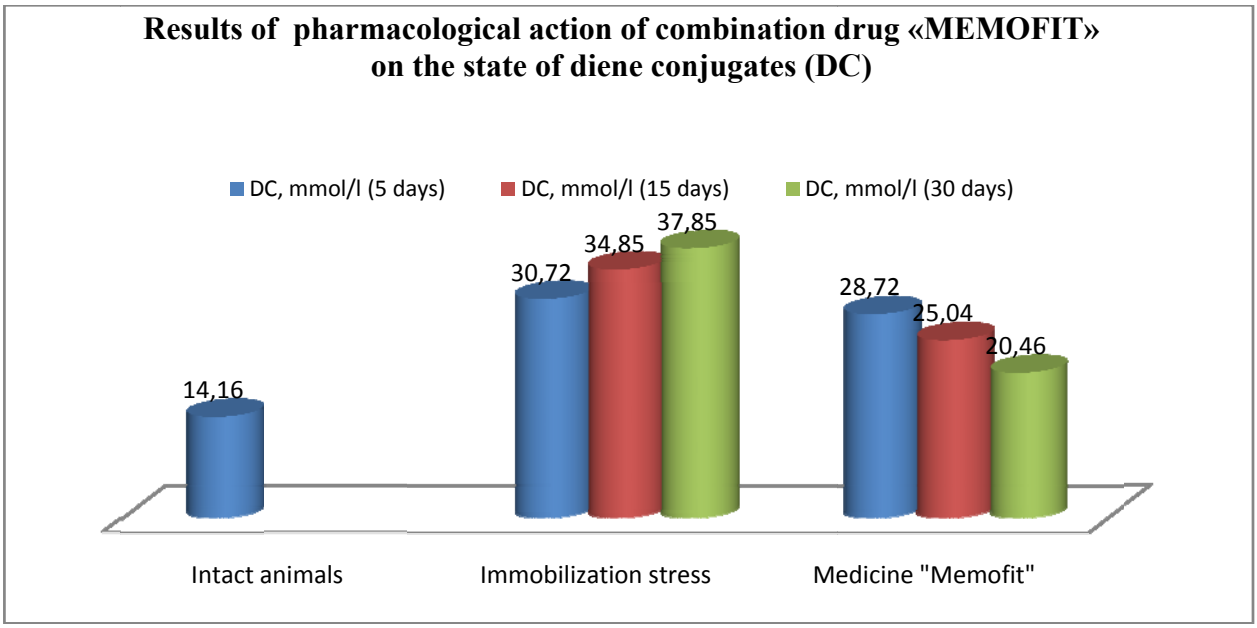

Figure 1

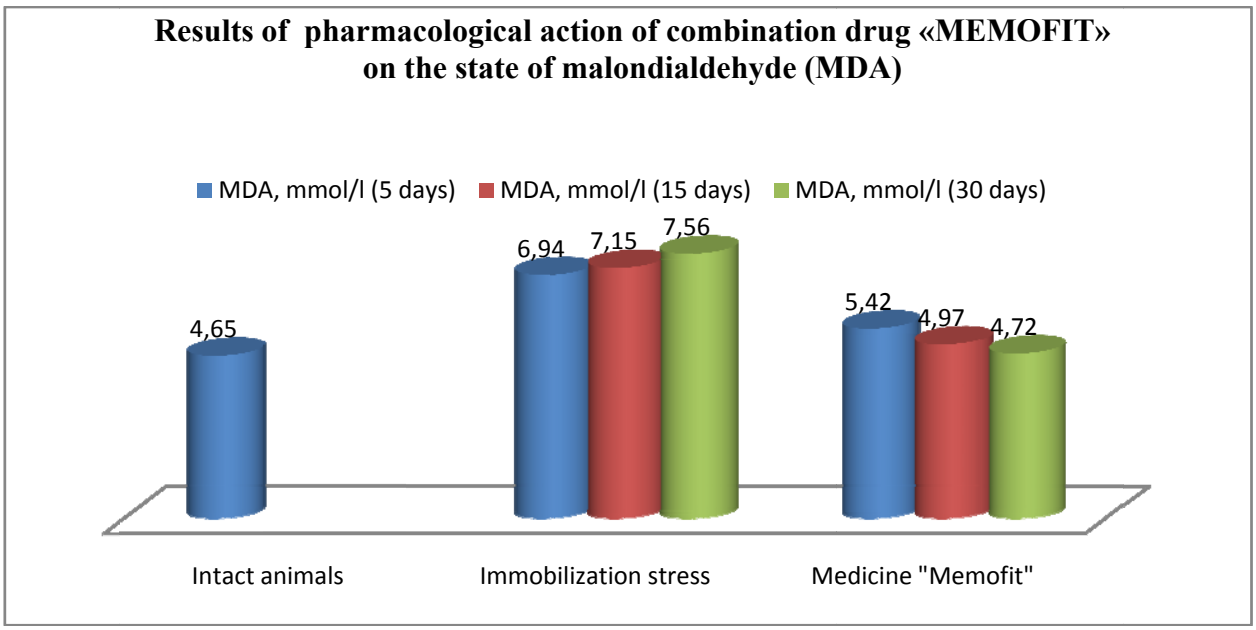

Figure 2

State of POL was determined by the quantity of peroxidation products: DC and TBA – AP, which for intact animals were 14 ± 0.64 mmol/l and 4.65 ± 0.1 mmol/l, correspondently. Figures 1 and 2 show that these parameters increase significantly at immobilization stress on the fifth day. DC level reaches 30.72 ± 1.06 mmol/l that is twice as bigger than the norm, TBA – AP reaches 6.94 ± 0.1 mmol/l, that is 1.5 times as bigger than the control. The DC level on the 15-th day reaches 34.85 ± 0.85 mmol/l, that is 2.5 times as bigger than the norm, TBA – AP reaches 7.15 ± 0.1 mmol/l, that is twice as bigger than the control. The DC level on the 30-th day reaches 37.85 ± 0.12 mmol/l, that is three times bigger than the norm, TBA – AP reaches 7.56 ± 0.78 mmol/l, that is twice as bigger than the control.

Figures1 and 2 show that on the 5-th and 15-th day, level of POL parameters, namely DC and TBA – AP after the use of the combination drug "Memofit" reduces these parameters in 1.2 and 1.7 times, correspondently, that is statistically significant in relation to immobilization stress, but does not reach to the control level.

It is only on the 30-th day that the tested combination drug "Memofit" decreases its DC and TBA – AP levels statistically significant to immobilization stress and reaches control. Thus, DC level on condition of immobilization stress + combination drug "Memofit" is 20.46 ± 0.16 mmol/l correspondently, that is statistically significant in relation to the group of animals, which were subjected to immobilization stress 37.85 ± 0.12 ($P<0.05$).

Level of TBA – AP at immobilization stress + the tested combined medicine "Memofit" is 4.72 ± 0.21 mmol/l correspondently, that is statistically significant in relation to immobilization stress 7.56 ± 0.78 mmol/l ($P<0,05$).

Therefore, based on the POL level parameters, we can make a conclusion, that the tested combination drug "Memofit" decreases TBA-AP and DC parameters only on the 30-th day statistically significant in relation to immobilization stress and reaches to control.

The study results of pharmacological action of the combination drug "Memofit" on the state of antioxidant system (AOS) that is composed of the two main groups of enzymes: superoxide dismutase (SOD) and catalase are given in the figure 3 and 4.

State of antioxidant system was determined by the quantity of catalase products and superoxide dismutase (SOD), which in intact rats are 5.10 ± 0.13 c.u. and 3.59 ± 0.11 c.u. correspondingly.

Figure 3 and 4 demonstrate that at immobilization stress these parameters increase significantly. The catalase level at immobilization stress on the 5-th day reaches 5.88 ± 0.26 c.u. that statistically significantly exceeds the norm ($P<0.05$), SOD reaches 6.93± 0.49 c.u. that is 2 times bigger than the norm. The level of catalase on the 15-th day reaches 6.03 ± 0.21 c.u. that is one and a half times bigger than the

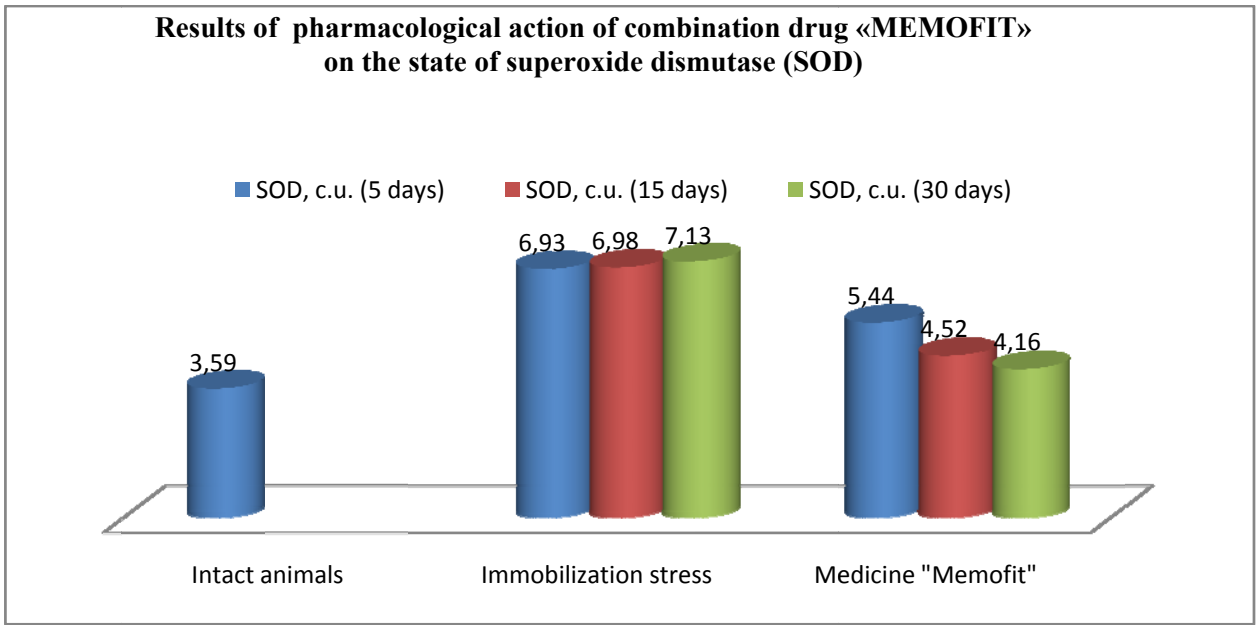

Figure 3

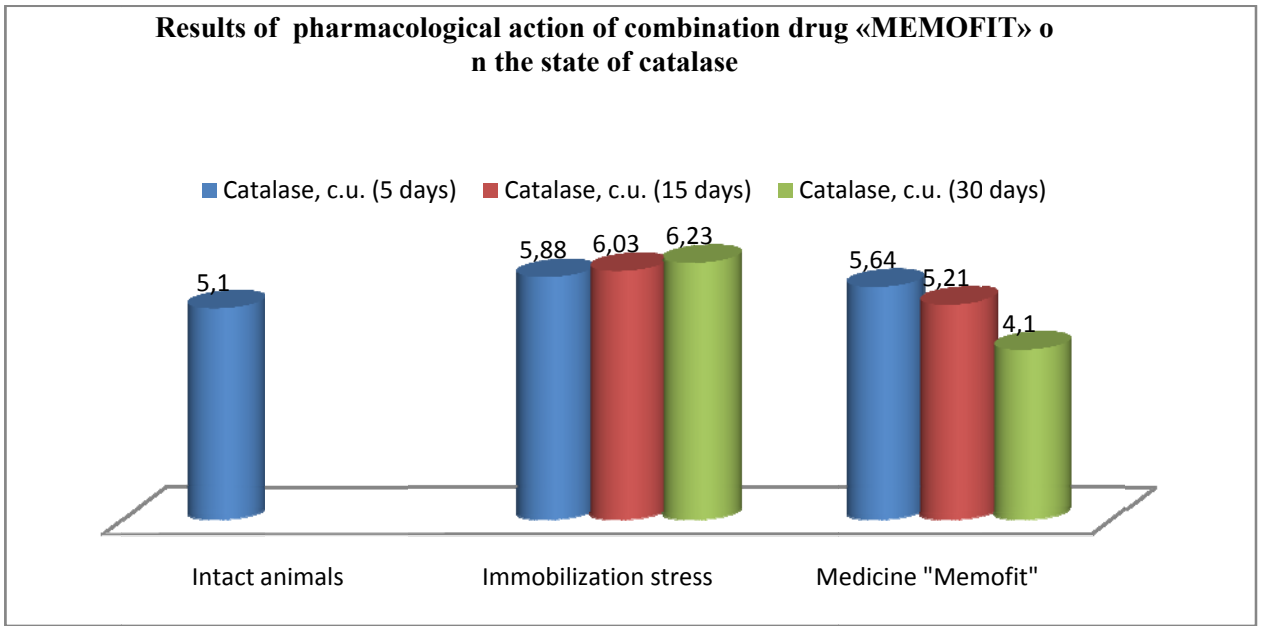

Figure 4

norm, and SOD parameters reach 6.98 ± 0.23 c.u. that is twice as much as the control. The level of catalase on the 30-th day reaches 6.23 ± 0.03 c.u. that is twice as much as the norm, SOD reaches 7.13 ±0.89 c.u. that is two and a half times bigger than the control.

Figures 3 and 4 show that on the 5-th day the tested combination drug "Memofit" influences the level of catalase and SOD in the blood serum of the tested rats statistically significant and these parameters decrease in relation to immobilization stress. Thus, SOD level at immobilization stress + combination drug "Memofit" is 5.44 ± 0.13 c.u. respectively, that is statistically significant in relation to immobilization stress 6.93 ± 0.19 c.u. ($P<0.05$). The level of catalase at immobilization stress + combination drug "Memofit" reaches 5.64 ± 0.12 c.u., that is in 1.04 times less in comparison with this parameter for the group of animals that were subjected to immobilization stress 5.88 ± 0.26 c.u., but do not reach this parameter for the control group of animals.

The combination drug "Memofit" on the 15-th day decreases the level of catalase and SOD statistically significant in relation to immobilization stress and control. Thus, the level of catalase at immobilization stress + combined medicine "Memofit" reaches 5.21 ± 0.34 c.u. that is statistically significant in relation to the group of animals, that were subjected to immobilization stress 6.03 ± 0.21 c.u. ($P<0.05$). The level of SOD at immobilization stress + combination drug "Memofit" is 4.52 ± 0.11 c.u., respectively, that is statistically significant in relation to immobilization stress 6.98 ± 0.23 c.u. and control 3.59 ± 0.11 c.u. ($P<0.05$).

The tested combination drug "Memofit" on the 30-th day reduces the level of catalase and SOD statistically significant in relation to the group of rats that were subjected to immobilization stress. Thus, the level of catalase at immobilization stress + combination drug "Memofit" is 4.12 ± 0.09 c.u., correspondently, that is statistically significant in relation to the group of animals that were subjected to immobilization stress 6.23 ± 0.03 c.u. ($P<0.05$). The level of SOD at immobilization stress + combination drug "Memofit" reaches 4.16 ± 0.09 c.u. correspondently, that is statistically significantly in relation to immobilization stress 7.13 ± 0.89 c.u. and control 3.59 ± 0.11 ($P<0.05$).

Conclusions. Taking into consideration the results of POL parameters (DC and NBA-AP) at immobilization stress, we can make a conclusion that these parameters on the 5-th and 15-th day do not correct statistically significant in relation to control, but correlate in relation to immobilization stress. It is only on the 30-th day, the combination drug "Memofit" reduces the level of DC and TBA – AP statistically significant in relation to immobilization stress and reaches to control.

Taking into account the research results of catalase and SOD under the conditions of chronic immobilization stress, we can make a conclusion that, these parameters are corrected better than LPO para-

meters (DC and TBA-AP), it gives evidence that the tested combination drug “Memofit” has significant antioxidant action.

Also, paying attention to behavioral reactions of rats during the experiment under the conditions of immobilization stress, we can make a conclusion that the combination drug “Memofit” has significant sedative effect.

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СОЗЫЛМАЛЫ ИММОБИЛИЗАЦИЯЛАУ ҚҰРАЛДАРЫНЫҢ ЖАҒДАЙЫНДА «МЕМОФИТ» АРАЛАС ҚҰРАЛДАРЫНЫҢ НЕЙРОТРАНСМИТТЕРЛІК ӘСЕРІН ЗЕРТТЕУ

Аннотация. Біріккен мемофит агентінің нейротрансмиттерлік әсері қорғасын тотығуының және антиоксиданттық жүйенің параметрлері бойынша, атап айтқанда: бастапқы тотығу өнімдері - диенді конъюгаттар мен қосалқы өнімдер - malonic aldehyde және каталаза және супероксидтік дисмутаза белсенділігі деңгейлері бойынша зерттелді. Эксперименттік зерттеу орташа массасы 210-230 г 18 Ваг егеуқұйрықтарында жүзеге асырылды, созылмалы нейромашалық шиеленістің үлгісі бойынша стресс-модифицирующий әсер зерттелді, ол 5,15,30 күн бойы ойнатылды. Иммобилизациондық стресс пластикалық торларда - сөрелерде егеуқұйрықтарды күнделікті күтумен 5 сағаттан модельденді. Зерттеу үшін сарысу пайдаланды. Спектрофотометриялық әдіспен бастапқы тотығу өнімдерінің деңгейі - диенді конъюгаттар (DC) және қосалқы өнімдер - malonic dialdehyde (MDA) және антиоксидант жүйесінің жағдайы анықталды. FLOOR негізінде, ТВС-АР және DK индикаторларының 30 күндік кезеңде ғана комбинациялық препараттың зерттеуі, DK және ТВА-АР статистикалық тұрғыдан иммобилизация стрессіне қатысты сенімділікпен төмендейді және оны басқаруды жақындастырады деген қорытындыға келуі мүмкін. Иммобилизациялық стресс жағдайында каталаза деңгейі + «Мемофит» есірткі 4,12±0,09 текше метрге дейін жетеді, тиісінше иммобилизация стрессіне ұшыраған жануарлар тобына қатысты, мүмкін, 6,23±0,03 куб. (Р <0,05). Иммобилизациялық стресс жағдайында SOD деңгейі + «Мемофит» аралас препарат 4,16±0,09 текше метрді құрайды. тиісінше, 7.13±0.89 куб. Иммобилизациялық стрестке өте ұқсас және 3,59 ± 0,11 АҚШ доллары (Р <0,05).

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ИЗУЧЕНИЕ НЕЙРОМЕДИАТОРНОГО ДЕЙСТВИЯ КОМБИНИРОВАННОГО СРЕДСТВА «МЕМОФИТ» В УСЛОВИЯХ ХРОНИЧЕСКОГО ИММОБИЛИЗАЦИОННОГО СТРЕССА

Аннотация. Нейромедиаторное действие комбинированного средства «Мемофит» было изучено с использованием параметров продуктов перекисного окисления лидидов и антиоксидантной системы, а именно: по уровню первичных продуктов окисления – диеновых конъюгатов и вторичных продуктов – малонового альдегида, и активности каталазы и супероксидисмутазы. Экспериментальное исследование было проведено на 18 крысах линии WAG средней массой 210–230 г. Моделирующее стресс действие изучали на модели хронического нервно-мышечного напряжения, которое воспроизводили на протяжении 5-ти, 15-ти, 30-ти суток. Иммобилизационный стресс моделировали путём ежедневного содержания крыс в течение 5 часов в пластиковых клетках - пеналах. Для исследования использовали сыворотку крови. Уровень первичных продуктов окисления – диеновых конъюгатов (ДК) и вторичных продуктов – малонового диальдегида (МДА) и состояние антиоксидантной системы определяли спектрофотометрическим методом. На основании ПОЛ можно сделать вывод, что показатели ТБК-АП и ДК только на этапе 30-ти суток исследуемый комбинированный препарат понижает уровень ДК и ТБК-АП статистически вероятно достоверно относительно иммобилизационного стресса и приближает к контролю. Уровень каталазы в условиях иммобилизационного стресса + комбинированный препарат «Мемофит» достигает 4,12±0,09 у.е., соответственно, то вероятно достоверно относительно группы животных, которых подвергали иммобилизационному стрессу, 6,23±0,03 у.е. (Р<0,05). Уровень СОД в условиях иммобилизационного стресса + комбинированный препарат «Мемофит» достигает 4,16±0,09 у.е. соответственно, що вероятно достовірно относительно иммобилизационного стресса 7,13±0,89 у.е. и контроля 3,59±0,11 у.е. (Р<0,05).

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CLASSIFICATION OF WHEAT YELLOW RUST POPULATIONS IN THE CONDITIONS OF KAZAKHSTAN (*Puccinia striiformis* West. f. sp. tritici Erikss. et Henn.)

Abstract. One of the most dangerous fungal diseases of cereals is the wheat yellow rust that causes *Puccinias-triiformis* West. f. sp. triticiErikss. et Henn. The yellow rust significantly reduces the yield and lowers grain quality. The occurrence of disease in autumn and its wintering during the vegetation period in favorable climatic conditions in the autumn wheat field leads to a 100 percent loss of crop. An important element in the integrated protection of wheat crops from rust disease is a variety. Success in selection of disease resistance depends on the population structure of pathogens, which differ from soil-climatic zones and biotic, abiotic factors. The article presents the results of yellow rust study in the South and South-Eastern Kazakhstan. The determined pathotypes are classified into three groups: high, middle and low (minimal) virulence. High virulence patterns of HeinesKolben, Lee Chinese 166, Heines VII and Reichersberg 4 were virulent to classifiers up to 100 percent.

Key words: wheat, resistance, pathotype, classifier varieties, yellow rust, epiphytotia, virulence.

Introduction. The use of genetically uniform, inefficient resistance genes in production will increase natural selection in agro-economic system and will result in new patterns, leading to the mutation of pathogenic populations and incidence of new virulent pathotypes [1]. The virulent gene, which is able to defeat the resistant gene will appear and spread widely. Finally, the resistant variety is defeated by the new race of pathotypes. With emergence of a new pathotype (race), a variety of monogenic resistance demonstrates complete non resistance against pathotypes. As a result, the disease can develop to the level of epiphytotic in the sowing field [2, 3]. The loss of endangered varieties from emergence of new races was shown in many studies. According to G.J. Green, T. Johnson, D.J. Samborski [4], the growth of new races in the first resistant varieties is different in each region. This is also due to the specification of variety and its prolonged use in production. In Mexico, Colombia and Kenya, the varieties lose their durability after 2-5 years due to the favorable condition of fungus rust disease development. The new resistant variety filters pathogenic population by involving virulent race. Therefore, selection of wheat rust resistance is one of the main factors that control the parasitic population changes in race structures.

According to phytopathologistsYahyaoui A, Wellinggs C.R., Torabi M., andKetata H. [5] the population structure of yellow rust has continuously change as in host-plant. The wheat varieties grown in Central and Western Asia were initially resistant to yellow rust populations. The use of varieties for several years in production has led to occurrence of virulent forms as well as decrease of gene resistance. In 1980, the emergence of a virulent race to Yr9 resistant gene, and its rapid spread led to yellow rust epiphytotics in wheat varieties in the regions from Western Asia to Pakistan.

As M.R.J. Kamali and F.Afshari state [6], *P. striiformis*, which has overcome certain known resistance genes, has been registered in many regions of the world. The Chamran variety, which was sown in Iran for half a million hectares in 2003, lost its resistance after the emergence of a new 166E134A + + pathotype. In Turkey, the planting of the Gerek 79 variety that is resistant to disease in the area of 1 million hectares has resulted in severe pathogenic damage and 26.5% of product losses. In 2003, Uzbekistan harvested 1,390,000 hectares of wheat, however it did not increase crop yields. The main reason for it was the planting of Polovchanka (376.5 thousand hectares), Koshka (322.9 thousand hectares), Knyazhna (53.2 thousand hectares) and Umanka (41.8 thousand hectares) varieties that were sent to be planted in the main production, however they were quickly infected and caused a favorable conditions for the pathogen development [7].

The purpose of the paper is to study population structure of wheat yellow rust (*Pucciniastriiformis* West. F.sp. triticiEriks. Et Henn.)

The tasks are to determine pathotype structure of *P. striiformis* population and to make classification of its virulence properties.

History: An in-depth study of raw material taken by selection, replacement of inefficient ones with efficient can help prevent progression of disease and prevent epiphytotic.

However, the problem of immunity can not be solved without deep study of systemic relationship between the two organism that affect each other. The relationship between pathogen and host-plant can be regarded as an evolutionary process that continuously develop. The ability of yellow rust to mutate leads to emergence of new pathotypes that get used to the host-plant in population structure.

Research Materials and Methods. The local population of wheat yellow rust *(Pucciniastriiformis West. f.sp. triticiErikss. et Henn.)* and single pathotypes (races) were used as epidemic material.

The main sources of epidemic material were obtained from the leaves of wheat, barley, triticale and wild grains that were get during the phytosanitary monitoring in the Southern, South-Eastern regions of Kazakhstan.

Identification of pathotypes in yellow rust population is based on the following main stages: collecting of samples; increasing of uredospores in the collected yellow rust samples; separation and multiplication of monopostic isolates; classification of isolates into pathotypes.

Identification of population structure of yellow rust was carried out in separate greenhouses. The following eight European variety classifiers as Heines VII, Spaldings Prolific, Carstens V, Compair, Nord Desprez, Heines Peko, Reichersberg 42, Hybrid 46 and Seven International classifiers like Suwon 92 x Omar, StrubesDickkopf, Moro, Vilmorin 23, HeinesKolben, Lee, Chinese 166 have been used [8,9]. The way of application of these varieties for studying yellow rust is shown in table 1.

Table 1 – The way of application of International and European Varieties' Classification for studying yellow rust population

Decimal measure	Binary calculus	International Classifier Varieties (Resistant Genes)	European Classifier Varieties (Resistant Genes)
1 (=2^0)	1	Chinese 166(Yr1)	Hybrid 46 (Yr4+)
2 (=2^1)	10	Lee (Yr7, Yr22, Yr23)	Reichersberg 42 (Yr7+)
4 (=2^2)	100	HeinesKolben (Yr6)	HeinesPeko (Yr6+)
8 (=2^3)	1000	Vilmorin 23(Yr3V)	NordDesprez (Yr3N, Yr3a)
16 (=2^4)	10 000	Moro (Yr10, YrMor)	Compair (Yr8, Yr18)
32 (=2^5)	100 000	StrubesDickkopf (Yr2, YrSD)	Carstens V (YrCV)
64 (=2^6)	1 000 000	Suwon 92xOmar (YrSU, YrPa1-3)	SpaldingsProlific(YrSP, Yr6)
128 (=2^7)	10 000 000	–	Heines VII (Yr2, YrHVII)

Race numbering was based on the use of Hubbold's binary system [9]. The resistant species of varieties were shown as R-type (Resistance) 0, and the S-type (Susceptable) 1 and their decimal measurements. In definition of pathotype, first is shown the number in international collection, and second, the indication of letter E, followed by the number in European collection [10].

Research results. As a result of studying of yellow rust population collected from the Southern and South-Eastern regions of Kazakhstan, 46 pathotypes of pathogens were determined. Vulnerability of pathotypes for each classifier of colection was calculated. Chinese 166 varieties were exposed to 43 pato-types. That is, the typical virulence of pathotypes to this variety was 92%. The Moro variety was infected by only one pathotype (31E158), and the virulence of studied pathotypes to this variety was only 2%.

12 pathotypes (15E15 (31 / 1,5), 15E135, 15E159 (A-8 / 1,5), 15E191, 31E158, 47E143, 47E159, 15E159, 47E143, 15E199, 47E223, 71E191, 71E175, 79E143, 111E155) that showed 53,3-80,0% virulence to 15 International and European classifier varieties were determined to be the most dangerous yellow rust race.

Among the international classification of varieties Moro variety that has Yr10 and YrMor gene demonstrated high resistance to all determined isolates, not including the 31E158 pathotype. It has been found that the HeinesKolben variety among the European collection and the Yr6 Avocet variety transformed into a non resistant form due to the loss of effectiveness of Yr6 gene in the structure of their isogenic line. However, Spaldings Prolific variety that has Yr6 and YrSp genes demonstrated complete immunity for all pathogens except for the pathotype 47E223 (table 2).

Table 2 – Wheat yellow rust of high virulence

Racecode	Reactions of classifier varieties														
	International collection							European collection							
	Suwon 92xOmar	StrubesDickkopf	Moro	Vilmorin 23	HeinesKolben	Lee	Chinese 166	Heines VII	SpaldingsProlific	Carstens V	Compair	NordDesprez	HeinesPeko	Reichersberg 42	Hybrid 46
15E15 (31/1,5)	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*
15E135	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*R*	*R*	*S*	*S*	*S*
15E159 (a-8/1,5)	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*
15E191	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*S*
31E158	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*R*
47E143	*R*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*R*	*S*	*S*	*S*	*S*
47E159	*R*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*
47E223	*R*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*S*	*R*	*S*	*S*	*S*	*S*	*S*
71E175	*S*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*S*	*R*	*S*	*S*	*S*	*S*
71E191	*S*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*S*
79E143	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*R*	*S*	*S*	*S*	*S*
111E155	*S*	*S*	*R*	*S*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*R*	*S*	*S*
Averagevirulence, %	33,3	33,3	8,3	83,3	100,0	100,0	100,0	100,0	8,3	25,0	58,3	91,7	91,7	100,0	91,7

Note: «R» – tolerance reaction; «S» – the reaction of intolerance.

Most virulent pathotypes include 12 patterns, including 31 / 11.5 and A-8 / 1.5 races stored on collection models. These pathotypes showed virulence to Vilmorin 23, HeinesKolben, Lee, Chinese 166, Compair, Nord Desprez, Heines Peko, Reichersberg 42, Hybrid 46, and Moro and Spaldings Prolific. Only 31E158 pathotype showed virulence to Moro variety, while 47E223 pathotype was virulent to Spaldings Prolific variety. Studies pathotypes showed 100 percent virulence for HeinesKolben, Lee, Chinese 166, Heines VII and Reichersberg 42 varieties.

The analysis of results showed that Kazakhstani wheat yellow rust pathotypes virulent to resistant gene of Yr1, Yr2, Yr3a, Yr3N, Yr3V, Yr4, Yr6, Yr7, Yr8, Yr18, Yr22, Yr23. But most of the local pathotypes failed to defeat Yr10, YrMor, YrSP genes (table 3).

Table 3 – Wheat yellow rust pathotypes with low and middle virulence

Pathotype (racecode)	Reactions of classifier varieties														
	International collection							European collection							
	Suwon 92xOmar	StrubesDickkopf	Moro	Vilmorin 23	HeinesKolben	Lee	Chinese 166	Heines VII	SpaldingsProlific	Carstens V	Compair	NordDesprez	HeinesPeko	Reichersberg 42	Hybrid 46
0E0	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*	*R*
1E136	*R*	*R*	*R*	*R*	*R*	*R*	*S*	*S*	*R*	*R*	*R*	*S*	*R*	*R*	*R*
2E156	*R*	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*R*	*R*
4E144	*R*	*R*	*R*	*R*	*S*	*R*	*R*	*S*	*R*	*R*	*S*	*R*	*R*	*R*	*R*
5E136	*R*	*R*	*R*	*R*	*S*	*R*	*S*	*S*	*R*	*R*	*R*	*R*	*S*	*R*	*R*
6E145	*R*	*R*	*R*	*R*	*S*	*S*	*R*	*S*	*R*	*R*	*S*	*R*	*R*	*R*	*S*
7E3	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*R*	*R*	*R*	*R*	*S*	*S*
7E8	*R*	*R*	*R*	*R*	*R*	*S*	*S*	*R*	*R*	*R*	*R*	*S*	*R*	*R*	*R*
7E21	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*R*	*S*	*R*	*S*	*R*	*S*
7E47	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*S*	*R*	*S*	*S*	*S*	*S*
7E63	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*S*
7E135	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*R*	*R*	*R*	*S*
7E148	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*R*	*S*	*R*	*R*
7E151	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*R*	*S*	*S*	*S*
7E153	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*R*	*R*	*S*
7E156	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*R*	*R*
7E158	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*R*
7E159	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*
7E190	*R*	*R*	*R*	*R*	*S*	*S*	*S*	*R*	*R*	*S*	*S*	*S*	*S*	*S*	*R*
11E23	*R*	*R*	*R*	*S*	*R*	*S*	*S*	*R*	*R*	*R*	*S*	*R*	*S*	*S*	*S*
11E135	*R*	*R*	*R*	*S*	*R*	*S*	*S*	*S*	*R*	*R*	*R*	*R*	*S*	*S*	*S*
13E7	*R*	*R*	*R*	*S*	*S*	*S*	*S*	*R*	*R*	*R*	*R*	*R*	*S*	*S*	*S*
13E23	*R*	*R*	*R*	*S*	*S*	*R*	*S*	*R*	*R*	*R*	*S*	*R*	*S*	*R*	*S*
Pathotype (racecode)	Reactions of classifier varieties														

As a result of classification of the local population of wheat yellow rusts, they were classified as pathotypes with low virulence (0E0, 7E3, 7E8, 11E23, 13E7, 13E23, 15E5, 15E7 (N / 1,5), 15E13).

Stem rust is the most common and dangerous disease of wheat. Despite comprehensive studies of stem rust, protection of wheat from this disease is still relevant. In order to determine resistance to stem rust under field and laboratory conditions, phenologic, phytopathological were conducted on 90 varieties of spring wheat varieties [11].

Conclusion. About 80 percent of the isolates that were identified during experiment showed high virulence and 20 percent showed lower virulence to the classifier varieties. The studied wheat yellow rust were classified into high, middle and lower virulence groups.Pathotypes with high and middle virulence to the classifier varieties showed virulence to Moro (Yr10, YrMor) variety and Spaldings Prolific (Yr6,

YrSp) variety. The average virulence rate was 2 percent for Suwon 92xOmar (YrSU, YrPa1-3) variety, 23 percent for StrubesDickkopf (Yr2, SD) variety and 11 percent for Carstens V (YrCV) variety. HeinesKolben, Lee, Chinese 166, Heines VII and Reichersberg 42 varieties have demonstrated the loss of gene efficacy for 12 pathotype with high virulence.

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ҚАЗАҚСТАН ЖАҒДАЙЫНДА БИДАЙ САРЫ ТАТЫ (*Puccinia striiformis* West. f. sp. tritici Erikss. et Henn.) ПОПУЛЯЦИЯ ҚҰРАМЫН ЖІКТЕУ

Аннотация. Астық дақылдарының өте кең таралаған, ең зиянды ауруларының бірі *Puccinia striiformis* West. f. sp. tritici Erikss. et Henn. қоздырғышы шақыратын сары тат саңырауқұлақ ауруы. Сары тат егін түсімін айтарлықтай төмендетіп, дән сапасын кемітеді. Аурудың күз мезгілі кезінде пайда болып, вегетациялық кезенде қолайлы климат жағдайда күздік бидай егістігінде қыстап шығуы, 100 пайызға дейін егін шығынының болуына әкеледі. Бидай егістігін тат ауруынан интеграцияланған қорғауда маңызды элемент сорт болып табылды. Ауруға төзімділік селекциясында жетістіктерге жетуде топырақ-климаттық аймақтар және биотикалық, абиотикалық факторлар әсерінен әртүрлі болатын патогеннің популяциялық құрамына байланысты. Мақалада оңтүстік және оңтүстік-шығыс Қазақстан жағдайында сары таттың популяционного құрамын зерттеу нәтижелері көрсетілген. Анықталған патотиптер үш топқа жіктелінген: вирулентгілігі жоғары, орташаа және төмен (минималды) вирулентгілер. Вирулентгілігі жоғары патотиптер Heines Kolben, Lee Chinese 166, Heines VII және Reichersberg 4 жіктегіш сорттарға 100 пайыз (%) вирулентті болды.

Түйін сөздер: бидай, төзімділік, патотип, жіктегіш сорттар, сары тат, эпифитотия, вирулентгілік.

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ДИФФЕРЕНЦИАЦИЯ ПОПУЛЯЦИОННОГО СОСТАВА ЖЕЛТОЙ РЖАВЧИНЫ ПШЕНИЦЫ (*Puccinia striiformis* West. f. sp. tritici Erikss. et Henn.) В УСЛОВИЯХ КАЗАХСТАНА

Аннотация. Одним из наиболее вредоносных заболеваний зерновых культур является желтая ржавчина, вызываемая грибом *Pucciniastriiformis*West. f. sp. triticiErikss. etHenn. Она существенно снижает урожай и качество семян. При появлении в осенний период, успешной перезимовке и развитии во время вегетационного сезона можно ожидать 100 % потерю урожая. Важнейшим элементом интегрированной защиты пшеницы от ржавчинных болезней являются устойчивые сорта. Для успешной селекции растений на устойчивость к болезням большое значение имеет знание структуры популяций патогенов, которая заметно различается в разных почвенно-климатических зонах и подвержена изменению во времени и пространстве под воздействием биотических, абиотических и антропогенных факторов. В статье представлены результаты изучения популяционного состава желтой ржавчины пшеницы в условиях южного и юго-востока Казахстана. Выявленные патотипы разделены на три группы высоковирулентные, средне и мало (минимально) вирулентные. Высоковирулентные патотипы проявили 100% вирулентность к сортам дифференциаторам Heines Kolben, Lee Chinese 166, Heines VII и Reichersberg 42.

Ключевые слова: пшеница, устойчивость, патотип, сорта дифференциатор, желтая ржавчина, эпифитотия, вирулентность.

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SCIENCE, EDUCATION & COGNITIVE COMPETENCE BASED ON E-LEARNING

Abstract. This article is devoted to the development of the educational process, including in the context of ideas about digital learning. Although in recent years, electronic learning has often become the object of research and practical development, many practitioners and theorists do not fully understand what the concept of "e-learning" really means, does not understand how it can help teachers and educators to achieve success in students' knowledge. The authors of the article consider the historical foundations of digital education and the use of information technologies in education. They believe that the leading changes in education associated with digital learning are that digital learning develops the cognitive competence of schoolchildren and students. Using the example of learning foreign languages, the article shows that the use of e-learning stimulates the development of metacognitive components of cognitive competence, and also activates the declarative and procedural components of cognitive activity.

Key words: education, e-learning, cognitive competence, teaching and students.

Introduction. Nowadays, science, developed technologies for teaching a foreign language such as Content and Language Integrated Learning (CLIL) and Cognitive Academic Language Learning Approach (CALLA) and different equipment and devices for carrying out experiments have become associated with each other in one place, it is even impossible to fix the end where the one ends and the other begins. This means that there is a core of science and technologies. The unique originality of the interaction of the sciences of thinking and information technology is still not clear, it is surrounded by some mysteries. For instance, by means of e-learning we can teach students to speak a foreign language without involvement of native speaker teacher in the lesson and develop students' cognitive competence which is essential after graduating from a university in global market while working.

In the second half of the 19th century, there were four main areas of research of intellectual and spiritual activity [1, p. 7], as figure 1 summarizes:

1. A logical study of the formal rules of thinking, the structure of concepts and statements, forms of evidence-based reasoning.
2. Linguistics focused on clarifying the relationship of language activity and thinking in the framework of natural languages.
3. Analysis of the neurophysiological mechanisms or essential processes with the help of which the thinking and other mental acts are realized.
4. Psychological research focused on the study of all forms of psychological activity in their real empirical manifestations.

These four research directions, interrelating with each other or moving away from each other, existed as more or less independent scientific disciplines with autonomous problems, conceptualization and methodology up to the beginning of the second half of the 20th century. When information technology had broken out in the world of science and technology and the new era started, this has been the era of computers and information technology [1, p. 8].

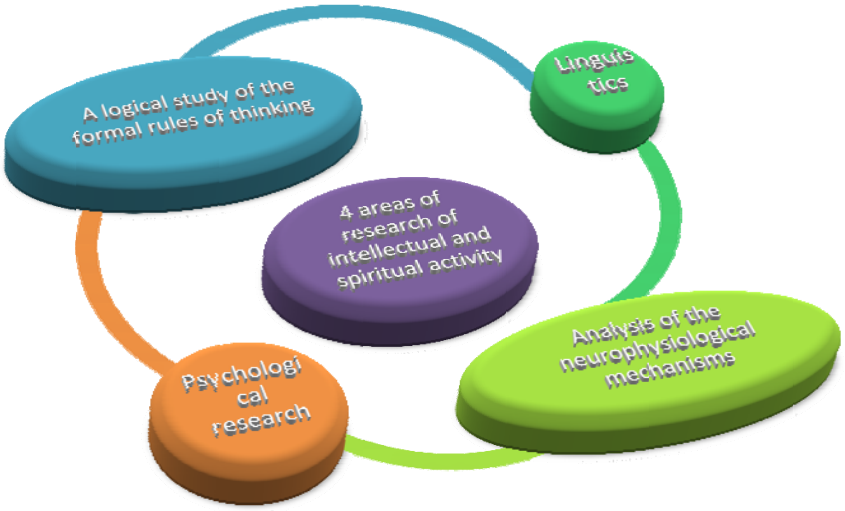


Figure 1 – Four main areas of research of intellectual and spiritual activity

New information technologies (IT) create an environment for computer and telecommunication support for organization and management in various fields of activity, including education. The integration of information technology into educational programs is carried out at all levelseducation system and sciences: school, university and postgraduate education.

The main areas of IT application in the educational system [2, p. 50-51]:

1. development of pedagogical software for various purposes;
2. development of educational websites;
3. development of methodological and didactic materials;
4. management of real objects;
5. organization and conduct of computer experiments with virtual models;
6. implementation of targeted search for information of various forms in global and local networks, its collection, accumulation, storage, processing and transmission;
7. processing the results of the experiment;
8. organization of intellectual leisure of students.

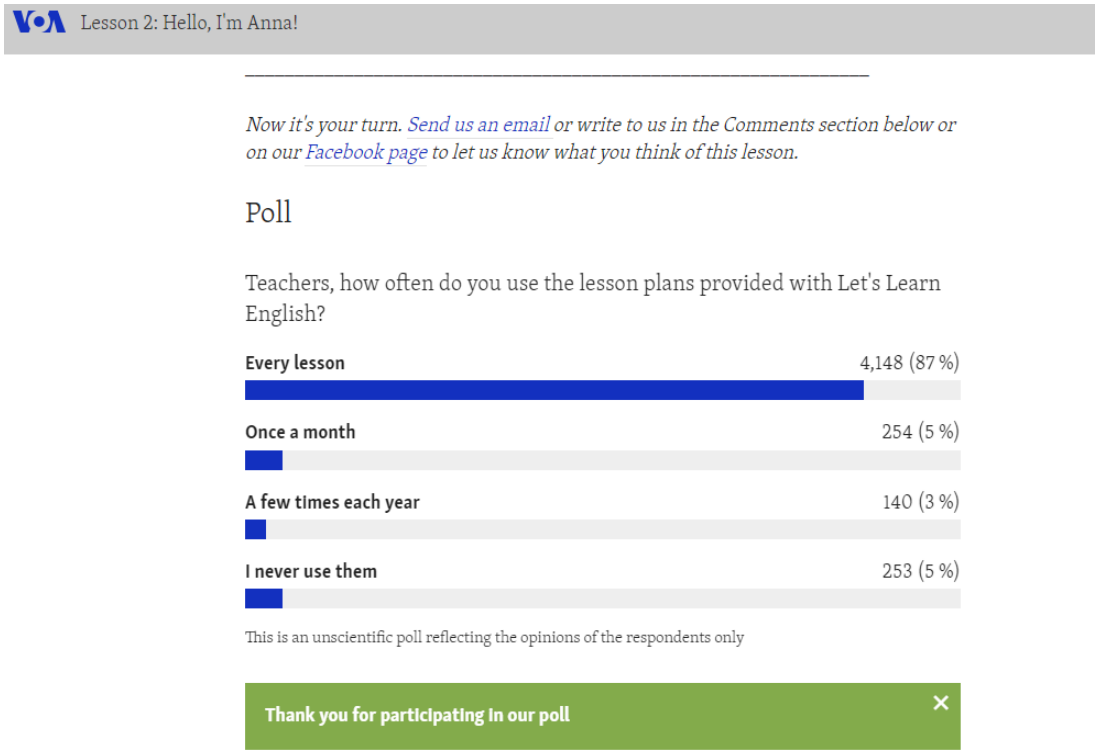
The most widely used at the moment are integrated lessons using multimedia tools. Training presentations are becoming an integral part of learning, and IT are even used in organizing a big international scientific conference or business meeting as well, but these are just the simplest examples of applying IT. The annual International Scientific and Practical Internet Conference "Challenges of Science" by Satpayev University in Almaty, Kazakhstan shows the interest of leading scientists of the world in participating in such a dialogue platform and contributes to the development of innovative and research activities of students, graduate students, undergraduates , executives, managers, analysts and consultants(www.kims-imio.kz).

If we take, for example, only the fact how many sources are offered on the Internet about e-learning: a list of recommended literature, interactive manuals and online tutorials, abstracts, etc. At the user's request "Discipline" E-learning "search engine http://apps.webofknowledge.com gives about more than 9, 000 links.

New technologies have been making educational process more flexible for those students who are very concerned with their extra actions during fixed lesson hours and great possibilities have been developed for both planned and spontaneous independent adult education. These technologies serve for students' benefit as an interactive learning process. For instance, 'Voice of America learning English' Internet program stems from Washington DC and is referred to in variety of teaching ways for non-native speakers (https://learningenglish.voanews.com).

This is ubiquitous web site which is widely used among 87 % of English teachers and learners, as it can be seen in this poll, and it is one of the largest World Wide Web program, which provides learning

language and the latest news about the world. It means students not only learn English as well as they will be aware of what is happening worldwide. In the fast-paced world of e-learning the available technologies to make a course exciting are always changing, and course content can and should be updated quickly to give students the very latest information [17, p.7]. It does not limit their acquiring knowledge and e-learning has huge advantages for students. E-learning offers the ability to share material in all kinds of formats such as videos, slideshows, word documents and PDFs, e-books with audio & transcript for non-native speakers, which is one of the best teaching methods for a foreign language. Another benefit is personal cognitive development. It is very important to develop cognitive competence while studying in the system of higher education. According to the Concise Oxford Dictionary, competence (or competency) denotes the "ability to do" something or the "ability for a task". The Macquarie Concise Dictionary defines competence as "the quality of being competent", where competent means "properly qualified" or "capable". Significantly, in these dictionary definitions the prime focus is on competent people having the ability or capability, which will enable the satisfactory completion of some task(s). A description of the abilities or capabilities required for competent performance of an occupation typically invokes terms such as 'knowledge', 'skills' and 'attitudes' [15; 23] which are on demand of labor market. Nowadays there are many interactive methods for teaching. One of them is CALLA which develops not only language skills but students cognitive competence as well.



https://learningenglish.voanews.com/a/lets-learn-english-lesson-2-hello/3113733.html
(Date of research: 17 Dec. 2018)

CALLA Concepts. Students who are not fluent in English as their main language face a multitude of challenges in their education, but one particular challenge was identified by Dr. Jim Cummins in the late 1970s. Dr. Cummins discovered that many English language learners were being mainstreamed into classes and greatly struggling despite their apparent fluency in English.

CALLA is built on a few key concepts from cognitive psychology and instructional design. The main concept is that of scaffolding, which provides a great deal of instructional support for students handling challenging material and then slowly removes the support as the student becomes proficient and develops necessary skills. CALLA also utilizes the theory that learning is grouped into three different types of knowledge:

- The first type, **declarative knowledge** is factual knowledge, such as the boiling point of water at sea level is 212 degrees Fahrenheit.
- The second type is **procedural knowledge**, which is the ability to know how to do a task, such as hard boiling an egg in the water.
- The final type is **metacognitive knowledge**, or the ability to relate current tasks to previous experiences, such as knowing that when you've boiled eggs in the past you can't cook them too long because then they become hard and rubbery [16].

E-learning& its advantages according to B. F. Skinner. In 1924, Ohio State University professor Sidney Pressey invented the "Automatic Teacher", the first device in electronic learning. The "Automatic Teacher" was designed to let students drill and test themselves. However, this first try wasn't successful. In 1954, Harvard professor B. F. Skinner creates the "Teaching Machine" for use in schools. The teaching machine was a mechanical device whose purpose was to administer a curriculum of programmed instruction. From B.F. Skinner experimental study of learning come devices which arrange optimal conditions for self-instruction [4]. For more information, please, visit'B.F Skinner. Teaching machine and programmed learning in this video': https://www.youtube.com/watch?v=jTH3ob1IRFo. …B. F. Skinner, a psychologist professor, states that immediate knowledge has 2 principal effects. It made the most rapidly to the formation of correct behavior and there is also motivation effect, the student is free of anxiety about being successful or failed, because the work is pleasurable. He does not have to force himself to study.One function of the teaching machine to give students a quickly afford in the adequacy of his response. It is important not only for efficient learning, it generates a high level of interest and enthusiasm. An another advantage is that students work on own pace, so there is no force to work on the machine in the same time equally with one another.Students who work on the machine, make progress which is the most effective for him. Fast student can do the task in short time while slow students do it at their pace and reaches the same rank as a fast student by learning the material in subject. Both types of students learn the material thoroughly. If a student is absent, he does not miss any words, he can do tasks in other time. B. F. Skinner also outlines that by means of machine teacher can cover twice as much materials at same amount of time and effort as at traditional lessons with additional classroom techniques. It is not magic and simply convenient way for students tocontact with a man who writes the program. Writers offer the program not like a machine, but like a teacher. He remains in the same position like teacher and students stay constantly interactive, according to the psychologist, Burrhus Frederic Skinner's opinion in the video mentioned above [4].Thank to the scholar, B. F. Skinner, modern teachers have got benefit to bring education to a wider audience. There is no boundaries and no restrictions to organize e-learning. Everyone who is interested in a course can be present.

Submission of conventional learning that relies on the transfer of knowledge in the classroom and teacher-centered learning already is not possible where the learning outcomes wants to appropriate use of technology in the world of work. Speed and ease as well as present information as teaching materials can be obtained easily if the learning using computer-aided media. Computer-aided multi-media rich changes obtained only by using internet service. Through learning program that is loaded on the e-learning package is very possible that the interaction of information very quickly as required [3; 18].

Didactical models in e-learning. If we look at didactical models used within education we can distinguish 3 main models [5]:

- Behaviorism
- Cognitivism
- Constructivism

Behaviorism. This model based by Skinner is based on the assumption that learning is a function of change with stimuli and responses. Regarding this model it is not relevant to know the process of learning is happening within the brain because the focus is on the results of learning, not the process itself. A strong element of behaviorism is positive and negative feedback, which can condition the learner. A result of this attitude of learning is the de-contextualizing of learning content. Knowledge is offered in a fragmentized way. In a behavioristic environment didactical aspects like knowledge tests, homework and highly structured learning are common. Behaviorism can be easily combined with computer aided learning. The first e-learning lessons were mostly labelled as 'Drill-and-practice'. The lessons are build up on practicing.

Cognitivism. This model based on the idea that the process of learning is comparable with the way a computer is working. Cognitivists are using words like short term memory, long term memory and stimuli. Cognitivism is about:

- ✓ collecting;
- ✓ adapting;
- ✓ and integrating information.

The focus is on the way we are learning, not only at the outcome of the learning process. Techniques like mind mapping are used to anchor the information.

Constructivism is an epistemic belief about how students learn. Constructivists proffer that knowledge acquisition develops through interactions with the environment. During the 1980s, the development and distribution of multimedia personal computers offered such an interactive method of learning [6 p.5]. This means that computers turned into teaching tool which make students be active during learning.

Interrelation of electronic devices and learning. … From a study of the literature, it appears that pedagogy, technological devices, context, and social interactions are the four central constructs [6 p.3] in high education because any sort of learning may take place anywhere and anytime by means of e-learning. Mobile phone apps might be an excellent example for it. Let us say if a person learns a foreign language, he can improve his or her listening skills by using some mobile phone apps such as TED talk or simple radio,i.e. according to Crampton et al. (2013) definition for mobile learning (m-learning) is "learning across multiple contexts, through social and content interactions, using personal electronic devices." To be clear, the word "context" in this definition encompasses m-learning that is formal, self-directed, and spontaneous learning, as well as learning that is context aware and context neutral. In other words, the learning may be directed by others or by oneself, and it can be an unplanned, spontaneous learning experience; learning can happen in an academic setting, or any other non-academic setting; and the physical environment may or may not involved in the learning experience[6 p.4]."

Here we can consider m-learning as e-learning since smartphones belong to electronic device. In essence, e-learning is a computer based educational tool or system that enables you to learn anywhere and at any time. Today e-learning is mostly delivered though the internet, although in the past it was delivered using a blend of computer-based methods like CD-ROM.Technology has advanced so much that the geographical gap is bridged with the use of tools that make you feel as if you are inside the classroom [17, p.5-6]. Nowadays smartphones have got all the advanced features of personal computer, that is why they can replace each other and offer educational program. E-learning can occur inside or outside the classroom, it can be self-directed or spontaneous as Crampton mentioned above. For instance, if a person wants to obtain further information about something he or she can surf online for more knowledge and be content by oneself.

Pedagogical shifts from teacher-dominated method to learner-centered education. Throughout history, learning has been of paramount importance in all cultures. In simple terms, learning is essential to personal and professional survival, and a culture's pedagogical choice is often driven by social behavior, expectations, and values. For example, Western pedagogies during the 1930s did not encourage autonomy and self-direction. A student was to learn facts without question. Even into the 1950s, pedagogies typically emulated the *tabula rasa* approach, teaching the students as though they were empty vessels waiting for the teachers to impart knowledge [6 p.5].**Tabula Rasa** (from the Latin is a smooth, clean writing board) is a term of sensationalism, meaning a state of consciousness of a person who does not yet possess any knowledge (for example, a newborn) due to the lack of external feelings. This word is a Latin common expression. Itis used to denote the epistemological thesis that a separate human individual is born without innate or embedded mental content. It is pure person's knowledge resource is fully built from experience and sensory perception of the external world (see The Experience of the Human Mind, in the book: Favorite Philosophical Works, Vol. 1, M., 1960) [7].

Another good example for teacher-dominated method is the American **audio-lingual**or **army** method advised that students should be taught a language directly, without using the students' native language to explain new words or grammar in the target language.This method is the product of three historical circumstances. The prime concern of American linguists in the early decades of the 20th century had been to document all the indigenous languages spoken in the US. At the same time, behaviourist psychologists such as B.F. Skinner were forming the belief that all behaviour (including language) was learnt through

repetition and positive or negative reinforcement. The third factor was the outbreak of World War II, which created the need to post large number of American servicemen all over the world. It was, therefore, necessary to provide these soldiers with at least basic verbal communication skills [8].Disadvantages of this teaching approach is that it is a mechanical method since it demands pattern practice, drilling, and memorization over functional learning and organic usage and the learners are in a passive role; theyhave little control over their learnt information [9]. That means students are unconscious about how they are learning language skills.

Every historical event has its own impact on education. For instances in 1930s and 1940s [11 p.149, 151] in Kazakstan, there were an artificial famine and World War II. Historically, the 1930s were tragic for Kazakhstan due to the policy of collectivization which had very negative consequences, with a wave of famine that reduced by half the native population. In 1932-1933:

over 50 thousand Kazakh children lost their parents. The famine in Kazakhstan significantly decreased the number of schoolchildren in Kazakh primary schools; in 1932-1933 one million 750 thousand people became direct victims of the famine and the associated diseases, that is 42% of the Kazakh population of Kazakstan, many of them being children [10 p.45].

During World War II, the number of school hours for physical training increased in the school curricula and the studies of the foundations of agriculture were introduced. The education content became more oriented for the development of patriotic feeling of pupils and for the applied aspects of sciences, for the practical links of theory and life. Schools were involved in public life, their pupils working at plants and gathering the crops.

Early learning aid in Europe

This image above is dated from 200 A.C. and shows a school where the teacher is sitting in the middle and two students are sitting around him, reading a parchment role. At the right a student is arriving with his tablet on which he could write. This technique was used within European schools till around 1950 [13].

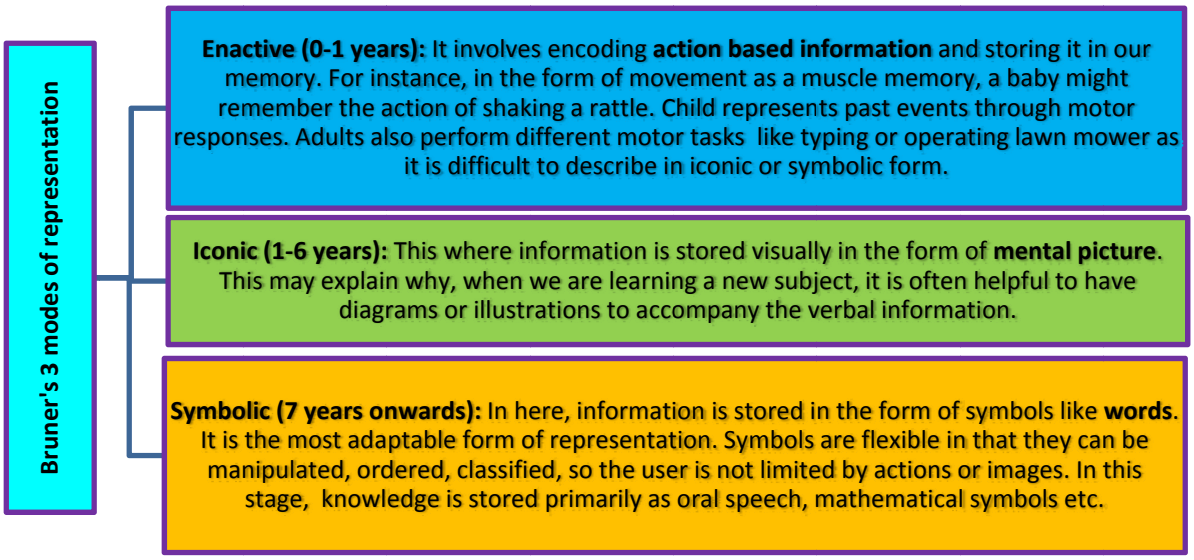
Nowadays, thank to IT, learners are viewed very differently: students are encouraged to be active in their own learning, to be self-thinking and active consumers of knowledge. Shifts in educational philosophy have been led by calls for change toward active learner-ship [6 p.5] and pedagogical shift has been led to individualized learning by means of e-learning. For instance, there are many online programs such as CALLA or CLIL technologies for self-learning which encourages learners to study something new cognitively by themselves; learners must also be given considerable control over their own learning; during e-learning some may need more time than others to deal with the same material and approach the same problem in different ways.

According to Herbert P. Ginsburg and Sylvia Opper's concept that children – or individuals of any age – learn best from self-initiated activity is vital for the guidance of education. Teachers (and the public at large) usually consider that the aim of education is to impart existing knowledge, often of a factual type, as efficiently as possible to the pupil, who will then absorb it in the form presented. In this view, if students were allowed to design and conduct experiments, there would not only be chaos in the classroom, but there would also be no learning. According to Piaget's theory, these beliefs and attitudes are erroneous for several reasons. Teachers can in fact impose very little knowledge. It is true that they can convince the

child to say certain things, but these verbalizations often indicate little in the way of real understanding. Moreover, it is seldom legitimate to conceive of knowledge as a thing which can be transmitted. Certainly the child needs to learn some facts, and these may be considered things. Sometimes, drill or programmed instruction may assist in learning of this type. But often the child does not learn even facts when imposed; the student may have to discover them himself [13 p.320].

Bruner's 3 modes of representation and cognitive development. According to Bruner, the outcome of cognitive development is thinking. The intelligent mind creates from experience "generic coding systems that permit one to go beyond the data to new and possibly fruitful predictions".So he states that important outcomes of learning include not just the concepts, categories, and problem-solving procedures invented previously by the culture, but also the ability to "invent" these things for oneself [14]. It means that there is interaction between human capabilities and culturally invented technologies which are similar like engines of these abilities.

Modes of representation are the way in which information or knowledge are stored and encoded in memory [14]:



Bruner suggests it is effective when faced with new material to follow a progression from enactive to iconic to symbolic representation; this holds true even for adult learners [14]. Learning the heuristics of discovery through active participation was Bruner's recipe for increasing intellectual potency. He believed students are more likely to remember concepts they deduce on their own. This philosophy led to the discovery-learning movement, with the focus on how students acquire, retain, and recall knowledge, a transition from the behaviorist stimulus-response approach [6 p.5].

E-learning is based on student-centered education. It provides for such an organization of education of subjects of the educational process, which is focused to the maximum extent on their individual characteristics and the specifics of the personal understanding of the world. In these conditions, there is not only the transfer of knowledge, development of skills, but also the formation of the orientation of the student's cognitive interests, life plans, value orientations, development of the personal potential of subjects of the educational process of the university [28, p.102-103]. In recent years, Kazakhstani education system undergoes educational reform and students have already started toprofoundly learn English which is considered to be business language. And there have also been research on psycholinguistic works [29]. Which means that students earn psychological benefit while acquiring foreign language knowledge by means of interactive technologies.

Conclusion. Overall, traditional learning is expensive, takes a long time and the results can vary. E-learning offers an alternative that is faster, cheaper and potentially better [17, p.7]. Although there are many benefits of e-learning, some students might face with challenges such as carrying out experiences in laboratories if they are students who study chemistry or engineers who need to invent new technologies

for mechanical sciences [24-27]. Some psychologists also claim that internet gets learners addicted. Some educational psychologists also claim that internet gets learners addicted and stressed because of some internal and external factors. However, there are many ways to cope with stress [19-22] and it should be advised when running an online course it's a good practice to send out guidelines about correct sitting posture, desk height, and regular breaks.

Most researchers tend to conclude that there is no perfect teaching method. The one which is selected to teach a unit needs to be critically selected and applied. A review of a few theories of teaching and learning provides us with a history of how both activities are intimately linked to the social, economic and cultural contexts and most importantly technological development. CLIL and CALLA are innovative and blended eclectic approach into teaching for formation students' cognitive competence. They provide both teachers and learners with real-life materials and very innovative teaching materials such as computers, tablets and smartphones. As a results of resorting to such active teaching aids, roles and positions in the teaching undertaking are reshaped. The teacher is more of a mediator who facilitate the quite autonomous interaction between learners, learning materials and the knowledge. With a world where IT are at the center of human life(ubiquitous), these two approaches to language teaching specifically can reveal themselves as being reliable tools and partners in the communication acquisition and development of knowledge. In the modern world, we are witnessing the integration of educational models, their technologies and ideologies. Modern digital education is enriched by the ideology of traditional education. A culture of digital education and a culture of human interaction with digital devices (digital culture) as a whole are being formed and developed. Classical, traditional education, enriched by the technologies of digital education, becomes more effective, more focused on the development of different side of cognitive competence (its metacognitive, declarative and procedural components).

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ҒЫЛЫМ, БІЛІМ ЖӘНЕ E-LEARNING ЖҮЙЕСІ НЕГІЗІНДЕГІ КОГНИТИВТІК ҚҰЗІРІТ

Аннотация. Мақала оқу үрдісін дамытуға, оның ішінде цифрлық оқыту туралы идеялар контексіне арналған. Соңғы жылдары цифрлық оқыту зерттеу және практикалық даму объектісіне айналса да, көптеген практиктер мен теоретиктер «электрондық білім» беру жүйесі туралы түсінікті шынымен де түсініне алар емес, e-leraning жүйесі мұғалімдер мен тәрбиешілердің оқушылар мен студенттерге білім беруде табысқа жетуіне қалай көмектесетінін түсінбейді. Мақала авторлары цифрлы білім берудің тарихи негіздерін және білім берудегі ақпараттық технологияларды пайдалануды қарастырады. Олар цифрлы оқытуға байланысты білім берудегі жетекші өзгерістер саналы оқыту оқушылар мен студенттердің когнитивтік құзыреттілігін дамытады деп санайды. Шет тілдерін үйренудің мысалын пайдаланып, мақала цифрлы оқытуды қолдану когнитивті құзыреттілік метагнитивтік компоненттерінің дамуын ынталандырады, сондай-ақ когнитивтік қызметтің декларативтік және процедуралық компоненттерінің қызметін белсендіреді.

Түйін сөздер: білім беру, электрондық оқыту, когнитивтік құзыреттілік, оқыту және студенттер.

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НАУКА, ОБРАЗОВАНИЕ И КОГНИТИВНАЯ КОМПЕТЕНТНОСТЬ НА ОСНОВЕ E-LEARNING

Аннотация. Статья посвящена развитию образовательного процесса, в том числе в контексте представлений о цифровом обучении. Хотя в последние годы цифровое обучение часто становится объектом научных исследований и практических разработок, многие практики и теоретики до конца не понимают, что на самом деле означает понятие «цифрового образования», не понимает, как оно может помочь учителям и преподавателям достичь успехов в образовании в знаниях учащихся. Авторы статьи рассматривают исторические основы цифрового обучения и применения информационных технологий в образовании. Они полагают, что ведущие изменения в образовании, связанные с цифровым обучением состоят в том, что что цифровое обучение развивает познавательную компетентность школьников и студентов. На примере изучения иностранных языков, в статье показано, что применение цифрового обучения стимулирует развитие метакогнитивных компонентов познавательной компетенции, а также активизирует деятельность декларативных и процессуальных компонентов познавательной активности.

Ключевые слова: образование, электронное обучение, познавательная компетентность, обучение и студенты.

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FORMULATION OF COLD DRINKS ON THE BASIS OF DECOCTION OF DRUG PLANTS

Abstract. It is proposed to use natural supplements using drug plants of South Kazakhstan region (Turkestan region) in this paper. Such composition of cold drinks allows not only to allay thirst, but also to compensate necessary vitamins and other useful substances in a human body. There are more than 20,000 plant species in Kazakhstan, 6,000 of which contain biologically active substances. But there are other compounds in the composition of plants that are not desirable in the composition of drinks. Therefore, it is very important to separate and obtain necessary biologically active compounds, which positively influence the useful and organoleptic properties of drinks. We have studied trends and prospects of the market of various soft drinks in Kazakhstan and abroad. The developed recipes for enriched cold drinks using dietary supplements derived from Turkestan region drug plants have high biological activity. The obtained cold drinks will be the first domestic products, obtained with the use of Turkestan region drug plants.

Keywords: biologically active substances, medicinal plants, flavones, flavonoids, flavonols, alkaloids, electrochemical synthesis.

Introduction. The growth in the production and consumption of soft drinks in Kazakhstan is mainly due to increase in the share of drinks based on artificial flavors, dyes and sweeteners. Recently, along with increase in output of products, changes have been observed in the direction of their quality, expansion of assortment, increase in the share of production of drinks based on natural juices, sugar, as well as new types of special-purpose drinks, including low-caloric and energy drinks.

In the segment of the world sweet carbonated drink market, reduction of sugar and artificial ingredients became the main trend. About 40% of the market of soft drinks is sweet carbonated drinks, but sweet soda loses its position, giving way to sports and functional drinks. According to experts' forecasts in 2016, about a quarter of all sales will fall at the share of sports and energy drinks [1].

The share of dietary and low-caloric drinks in the market can reach 15%. Now the market is dominated by such tastes as cola, orange and lemon, but the modern consumer is looking for novelties and is ready to perceive new tastes, including mixed ones.

The key trends in the world market are reflected in the Russian reality. According to Inteso Research Group experts, the segment of "healthy" drinks with a low content of sugar and calories, which includes natural ingredients, is actively developing in the Russian and Kazakh markets. Most producers of mineral water expand the assortment through lemonades based on natural components [2].

As for tastes, two opposite tendencies are observed: return to traditions and revival of classical tastes (which are considered by consumers as healthier and more natural), and the second direction is expansion

of the assortment due to new, unexpected, exotic tastes (for example, coffee, rose). First of all, the growth of supply in this category is aimed at young people who are willing to try new things. As a rule, these are drinks of the middle and upper price category. Drinks made on natural raw materials (juices, syrups, extracts, tinctures), are characterized by a significant content of sugar (10-12%, and recently 5-6%).

Tonic (refreshing) drinks contain tonic infusions and extracts, owing to that these drinks can relieve fatigue and have a thirst-quenching effect. Thus, "Sayana" drink contains infusions of magnolia vine, leuzea. Composition of "Baikal" drink includes infusions of eucalyptus, laurel and some other plants. "Stepnoy" drink is prepared on the basis of infusions of walnut of milk-wax maturity, hypericum, milfoil, liquorice, orange, vanilla grass.

The assortment of "tonics" is increasing every year. Composition of the tonic series drinks includes infusion of cola nuts rich in caffeine and theobromine, which have specific bitter-resinous taste and odor that are close to muscattaste. In the formation of sensor characteristics of the drink, floral attars of citrus added to it are also involved. The sugariness of the drink is 5-6%. The added color gives it dark brown color. In addition, instead of sugar (sucrose), sugar substitutes are introduced. These drinks are provided only for patients with diabetes, and for other categories of population are strictly prohibited, because they disrupt the work of the gastrointestinal tract [3].

Vitaminized drinks have increased content of vitamin C, introduced as an ascorbic acid or as a part of high vitamin extracts of juices and infusions (lemon, orange, blackcurrant). When using fruit and berryhalf-finished products, drinks are simultaneously enriched with vitamin P.

Experimental part. It is proposed to use natural supplements using Turkestan region drug plants in this paper. Such composition of cold drinks allows not only to allay thirst, but also to compensate necessary vitamins and other useful substances in a human body. There are more than 20,000 plant species in Kazakhstan, 6,000 of which contain biologically active substances [4]. But there are other compounds in the composition of plants that are not desirable in the composition of drinks. Therefore, it is very important to separate and obtain necessary biologically active compounds, which positively influence the useful and organoleptic properties of drinks. We have studied trends and prospects of the market of various soft drinks in Kazakhstan and abroad. The assortment of vitaminized drinks or as they are called "tonics" is increasing every year, since these drinks can relieve fatigue, have a thirst-quenching effect, and also have other medical properties.

It is established that a man is adapted to the consumption of a large number of biologically active substances, the sources of which are representatives of more than 300 plant genera [5]. With plant food, a man receives necessary nutrients, as well as vitamins and minor elements, and not only that. Studies in recent years have identified the need for many minor components of plant food to preserve health and, to a greater extent, reduce the risk of developing a number of chronic diseases. These components are called chemoprotectors or chemopreventers. Among the most intensively studied natural chemopreventive compounds are flavonoids, food indoles andisothiocyanates, dietary fibers, etc. Although the clinical picture of phyto-compounds' insufficiency is not established, their low concentration in the diet is accompanied by a significant increase in the risk of developing cardiovascular, oncological diseases, diabetes. Some researchers even consider such diseases as manifestations of the state of maladaptation as a result of the constantly low intake of components with food that are absolutely necessary to ensure the protective-adaptive capabilities of a human body. Exceptionally important and the only reliable means of improving the structure of nutrition and achieving the optimal balance of the diet of the population is use in daily diet of healthy and sick people the biologically active additives to food (dietary supplements). In our work we tried to analyze advantages and disadvantages of biologically active additives, and also reflect state of the dietary supplements in Kazakhstan and the most pressing problems associated with production and sale of this product through the pharmacy network.

For production of dietary supplements, food and drug plants are used that contain a rich complex of biologically active substances such as bioflavonoids, vitamins, polysaccharides, amino acids, minor elements, etc. Modern technologies and equipment allow not only extract the whole complex as much as possible, but also preserve its natural combination. Often this leads to the fact that bioavailability and effectiveness of each of the biologically active substances is greatly enhanced. For example, phenolic compounds are more active in combination with polysaccharides, vitamin C is more effective in combination with flavonoids (rutin).

Concentration of biologically active substances in extracts from plants is such that it allows then to use the obtained food additives in relatively small amounts (doses), sufficient for both prevention and complex therapy of diseases.

Use of a large assortment of drug plants containing various natural substances allows create dietary supplements to food with wide possibilities for correcting various disorders in a human body [6-8].

An analysis of the development of the food industry shows that over the last 15-20 years, a reorientation of production is taking place all over the world - alternative technologies are developing that involve the use of new types of raw materials and fundamentally different technological solutions [9-13].

In Kazakhstan have been recently introduced a policy framework, which aims to address this emerging demand providing a legal context to avoid unfair competition among producers and to provide clear information to final consumer through certification systems. At present time framework covers products from organic farming and the "made in Kazakhstan" labelling system assuring the provenance of the produce [14].

The main active components of the plant genus Haplophyllum A. Juss are: coumarins, flavonoids, dimethoxyflavone, alkaloids (acetamide, folifin, evoxin, haplotin, candecin), terpenoids; steroids, carboxylic acids, lignans, tannins etc. [15].

As already noted above, it is inadmissible to use highly toxic natural products – poisonousand drastic drug plants in the composition of dietary supplements. Dietary supplements to food are not strictly dosed and controlled means,they are recommended to people of any age and therefore cannot contain substances with possible toxic properties.

To obtain a dietary supplement to food, official plants are used. They are relatively well studied in terms of chemical composition and pharmacological properties. At that, a more in-depth study of these parameters is often carried out. This allows obtain new information and expand the scope of many drug plants.

For example, milfoil extract *(Achilleamillefolium)* is known as a stomachic medication, used as a drug and dietary supplement to food –"Akhillan"–in gastritis and ulcer disease. However, it has been experimentally established that the milfoil extract also charms away enterospasmand at the same time has a mild, laxative effect, all along the intestine. Unlike traditional laxatives (senna, buckthorn), which, incensing the intestines, release only its lower parts, causing colicky pains in the small intestine.

Bottlebrush *(Equisetum arvense L)*, which is a part of "Urolizin" additive, is awell-known drug plant recommended for diseases of kidneys and urinary tracts as an anti-inflammatory and diuretic agent. Experimental studies have established that bottlebrush extract does have a pronounced diuretic effect, but this effect is not accompanied by excretion of potassium and sodium salts from a human body, which is a great advantage over synthetic diuretics – furosemide, hydrochlorothiazide, acetazolamide.

Chamomile (Matricária) has long been used as an anti-inflammatory, hemostatic agent, as well as in the treatment of various diseases. Medical properties of wild chamomile are the most pronounced. Effectiveness of other varieties is lower and therefore they are applied less often. The plant is found in meadows, along roads, as a drug it is specially grown in gardens. Prepared domiciliary chamomile formulations help to cope with viruses, colds, inflammation, charm away spasm, allergy, convulsions, anesthetize. Chamomile formulations help in case ofparasecretion of digestive glands, in gastritis, peptic ulcer, and remove edema of mucous coat of stomach.

Medical properties of thyme*(Thýmus)*have long been known to people. The plant is a good meliferous plant, and thyme honey is very much appreciated for its aroma and high healing properties. The most common in our area iswild thyme, with high straight stems, which is grown also on ether-oil plantations, and creeping thyme, having groveling runners, which usually grows in the steppe.Composition of thyme includes tannins, terpenes, minor elements, gum and other ingredients, but the most valuable in this plant is its ether oil. Thyme infusion is also used. For its preparation, a half-liter capacity is filled with fresh inflorescences, a bottle of vodka is poured. Then, this composition is infused during 10 days in a dark place.

Methods. We have obtained dietary supplements and found optimal conditions for the process and identified target products – biologically active additives by the methods of thin-layer and column chromatography, as well as IR, NMR, mass spectrometry methods [6-8]. The flavor syrup is a concentrated solution of all components that make up flavor and aromatic base of the drink. The flavor syrup is made

by mixing sugar syrup with all components of the drink, except for soda water, or by boiling fruit and berry half-finished productswith sugar. The flavor syrups are prepared by a cold, hot or semi-hot way.

Results and their discussion. The cold way of preparing the flavor syrup: all half-finished products are put into the blending tank with mixing in a certain sequence according to the principle: from less to more aromatic types of raw materials. All is thoroughly mixed and filtered until complete transparency. The cold method is used for drinks on citrus infusions, concentrates, compositions, aromatic infusions and essences.

The semi-hot and hot methods are used if the flavor syrup composition includes juices and wines, for their dealcoholization and evaporation.

Drinks are prepared only on drinking water (GOST 2874).

Choice of technology for water treatment depends on its properties. Muddy water, not amenable to filtration, is settled for a day or more. If the process ofwater settling and its clarification is slow and inefficient, water impurities are coagulated. In necessary cases, water suspensions of different molecular weight are removed by filtration.

Water is passed through coal-sand filters to free it from foreign odor, dechlorination or discoloration. Iron compounds are removed from water by aeration, coagulation, liming and cationing.

In case the water is hard, it must be softened in various ways. Ion exchange is the most commonly used. In practice, Na-cationization and H-cationization are used for this purpose. H-cationization of water, in which a significant decrease in pH value occurs, obtained a wide distribution in nonalcoholic industry.

Water purification and softening is usually carried out in the water treatment department of a plant, from where it is sent to saturation, i.e. it is artificially saturated with carbon dioxide, and then mixed with the flavor syrup.

Conclusions. Use of inverted sugar syrupallows reduce consumption of sugar in production of soft drinks and improve their quality. The inversion is based on hydrolyticsucrose splitting in the presence of weak acids orinvertase enzyme. In the industry at present, for this purpose, citric acid is mainly used,tartaric acid is used less often (when obtaining dry drinks).

Sucrose substitutes – artificial sweet substances: sorbitol, xylitol and saccharinare used for preparation of low-caloricsoft drinks and drinks for patients with diabetes.

Food lemon, tartaric, orthophosphoric, lactic, ascorbic and sorbic acids are usedin production of soft fruit drinks. From these acids, the latter two are used only to increase persistence of drinks. The most widespread is lemon acid. Alcoholic infusions and extracts, as well as essences from plant raw materials are used to aromatize drinks. Ether oils and some synthetic aromatic substances are widely spread.

The developed recipes for enriched cold drinks using dietary supplements derived from Turkestan region drug plants have high biological activity. The obtained cold drinks will be the first domestic products, obtained with the use of Turkestan region drug plants.

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ДӘРІЛІК ӨСІМДІКТЕРДІҢ ТҰЗДАРЫ НЕГІЗІНДЕ АЛКОГОЛЬСІЗ СУСЫНДАР ӘЗІРЛЕУ

Аннотация. Бізбен түрлі алкогольсіз сусындардың Қазақстанда және шетелде зерттелу үрдістері қарастырылды. Жоғары биологиялық белсенділігімен байытылған Оңтүстік Қазақстан облысының ләрілік өсімдіктерінен алынған БАЗ қосылған салқындатылған сусындардың рецепті өңделді. ОҚО дәрілік өсімдіктерінен алынған салқындатқыш сусындар бірінші отандық өнім болып табылады.

Түйін сөздер: биологиялық белсенді қосылыстар, дәрілік өсімдіктер, флавондар, флавоноидтар, флавонолдар, алкалоидтар, электрохимиялық синтез.

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РАЗРАБОТКА РЕЦЕПТУРЫ ПРОХЛАДИТЕЛЬНЫХ НАПИТКОВ НА ОСНОВЕ ОТВАРОВ ЛЕКАРСТВЕННЫХ РАСТЕНИЙ

Аннотация. В работе предлагается использовать натуральные добавки с применением лекарственных растений ЮКО. Подобный состав прохладительных напитков позволяет не только утолять жажду, но и восполнять в организме необходимые витамины и другие полезные вещества. В Казахстане произрастает более 20 тысяч видов растений, 6 тысяч из них содержат биологически активные вещества. Но в составе растений имеются и другие соединения, которые не желательны в составе напитков. Поэтому большое значение имеет возможность разделения и получения необходимых биологически активных соединений, которые положительно влияют на полезные и органолептические свойства напитков. Нами исследованы тенденции и перспективы рынка различных безалкогольных напитков в Казахстане и за рубежом. Разработанные рецептуры обогащенных прохладительных напитков с использованием БАД, полученных из лекарственных растений ЮКО обладают высокой биологической активностью. Полученные прохладительные напитки будут первой отечественной продукцией, полученные с применением лекарственных растений ЮКО.

Ключевые слова: биологически активные вещества, лекарственные растения, флавоны, флавоноиды, флавонолы, алкалоиды, электрохимический синтез.

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GENETIC POTENTIAL OF EDILBAYSKY BREED SHEEP OF ESPC «AGRO BAYSERKE» HEARD

Abstract. Results the article are shown in of studying of breeding herd of sheep of edilbaysky breed the created in new climatic conditions of «Bayserke Agro» ESPC of Almaty region to them are given in article. The main economic and useful sign of this breed – precocity of lambs for the lactic period of development.

Keywords: phenotypic variability, fat-tailed sheep, growth and development, carcass weight, wool production, meat-fat productivity, the post-natal period.

Introduction. In Kazakhstan, sheep breeding is one of the leading sectors of the agricultural sector. This is facilitated by the presence of vast natural pastures (181 million hectares), almost 70% of which are located in the desert and semi-desert areas. There was the emergence, formation and development of fat-tailed sheep breeds [1].

Currently, 16 (sixteen) sheep breeds of different directions of productivity are bred in the Republic, well adapted to the specific local, often extreme living conditions of certain regions, where it is almost impossible to maintain another direction of the agricultural sector.Here, first of all, should include the seven (7) fat-tailed breeds of sheep: meat-tallow (coarse - edilbaysky, local kazakh coarse wool, from Sary-Arka and Ordabas region); meat – greasy - wool (semi-rough-fur - kazakhsemi-rough-fur and the second enterbreed type of Degeres breed); meat and wool fat (semi fine-wooled –first interbreed type of Degeres breed) and Atyrau-smushkovmeat-fat breed. Their share is more than 70% of the total number of sheep of the Republic. It is gratifying to note that all of these breeds are fat-tailed sheep created by local scientists. [2,3].

A valuable biological feature of sheep of all sheep breeds is that they, unlike other species of farm animals, are well adapted to year-round grazing content and eating rough root parts of the plant, which is very important when using sparse and broken pastures, as well as high intensity of growth of lambs during the milk period of postnatal development. The mother-sheep have a well-developed maternal instinct. They very rarely do not take their lamb after birth, do not run away from it, which is of great practical importance in the preservation of newborn offspring [4].

Undoubtedly, among breed sheep in Kazakhstan the special attention is edilbaysky coarse-wooled fat-tailed breed, created by folk selection at the end of the XIX century on the territory of West Kazakhstan region. They take one of the first places among the existing breeds of sheep in the world on live weight and level of meat and fat productivity. Added to this is that all of these valuable biological quality of fat-tailed sheep breeds, expressed in edilbaysky the most. They are the national pride of the Kazakh people, as the Akhal-Teke breed of Turkmen horses, the Romanov breed of Slavic sheep, the Hissar breed of Tajik sheep, etc

Despite this, when the global sheep total wool production at a cost was 65-70%, edilbaysky sheep, until the last 25 years producing coarse wool in small quantities (1.5-2.5 kg), were forced into unfavorable

zones. There breeding of other types of farm animals was ineffective and their number was reduced to a minimum. In recent decades, due to the sharp decline in the price of wool and the increasing demand for lamb in the international market, edilbaysky sheep have become widespread in the country. Currently, they are grown almost throughout Kazakhstan, several regions of the Russian Federation and the Republic of Kyrgyzstan.

The gene poolof edilbaysky breed has played a prominent role in the creation and improvement of all domestic coarse-wooled and fat tail sheep breeds, as the Kazakh coarse-wooled, Kazakh fat-rumped medium, Sary-Arka, Degeres, Ordabas and a number of intrabreed types of Karakul breeds.

This leads to the preservation and further improvement of the gene pool of the edilbaysky breed. In addition, the increase in the number and distribution is one of the highest priorities of the national zootechnical science and practice. At the same time, the creation of new breeding subjects for this breed of sheep in different regions of the Republic is of great importance.[5]

In this aspect, the interest is the breeding herd of sheep of edilbaysky breed created in ESPC "Bayserke-Agro" located in Talgar district of Almaty region. Is a diversified agricultural holding concerned, except sheep, breeding cattle dairy (Holstein black-motley breed), and four beef breeds (Kazakh white-headed, Auliekol sheep, Aberdeen-Ingushi and Hereford) as well as sport and herd horse breeding (zhabe and kushumsk ones)

Materials and methods of research. The task of this work is to study the phenotypic variability of the leading selected traits of the breeding herd of sheep of the edilbaysky breed, created in the conditions of ESPC TRPC (training research and production center) "Bayserke-Agro" of Almaty region. The object of the study were different age and sex groups of sheep of the desired type. This herd is created by absorption crossing ewes of Kazakh coarse wool, (formerly superior edilbaysky sheep) with purebred sheep edilbaysky sheep breed.The latter were imported from the «Brlik» breeding plant from the West Kazakhstan region, where one of the best gene pools of these animals is concentrated. In the final phase of work to improve precocity and meat production, the flock of sheep, the type of induction crossing, was used gene pool Hissar coarse wool fat-tailed breed of sheep. In the future, three-pedigree offspring of the desired type were bred "in itself". As you know, when you use an introductory crossbreeding of similar type and direction of the productivity of species, the scheme of this crossing is further simplified, and the offspring of the first generation is not considered as crossbred and purebred as the parent (being the edilbaysky breed). The number of ewes of the desired type in the sector is about 5,000 (five thousand) heads.

Results and discussion. Perhaps the most leading breeding a symptom of any kind of farm animals, irrespective of their productivity is the live weight. From its size depends on the development of many other economic and useful features. Besides, live weight of animals in comparison with other signs has the highest "norm of reaction" to conditions of paratypical factors that the last, considerably complicates selection and breeding work.

In the new breeding zone – in the conditions of ESPC TRPC "Bayserke-Agro" live weight of newborn rams is 5.1 kg, the ewe hog – 4.6 kg, which indicates a good development of lambs in the embryonic period of growth. In our opinion, this is facilitated by the experiments established by a remarkable domestic scientist, who played an outstanding role in the preservation and development of the gene pool of this breed by academician Ermekov M. A – a very valuable biological feature developed for many generations in the Queens of edilbaysky sheep – a higher mobilization of the mother's body for the preservation and intensive development of the fetus during the period of malnutrition, especially in the second half of pregnancy. So if the autumn live weight of ewes fine-wool breeds for the period of pregnancy in conditions of South-Eastern Kazakhstan decreased by 8.6 and 9.9 percent, edilbaysky – 12.6%, and in the Central Kazakhstan – in the more adverse paratypical conditions, at the latest, this figure is considerably high of 20.6%.

In postnatal ontogenesis, where, as a rule, the "interaction" of the genotype and environment is the highest, the growth of live weight of the herd of edilbaysky sheep "Bayserke-Agro" is extremely intense. At the same time, in the semi-desert zone in the conditions of round-the-clock pasture content of different age groups of sheep herds, these indicators are among the highest in the history of the development of this breed of sheep (table 1). Thus, the average live weight of the main sheep and adult mother-sheep of the desired type exceeds the breed standard established for elite class animals by 20.5 and 3.3 kg or 17.7 and

Table 1 – Live weight of edilbaysky sheep, kg

Age	Rams			Mothers		
	n	$X \pm m_x$	max	n	$X \pm m_x$	max
At birth	615	5,1 ±0,04	6,5	620	4,8±0,06	6,0
4,5 months	598	45,8±0,18	56	601	39,3±0,37	50
18 months	70	81,5±0,57	95	580	65,1±0,6	85
Adult	50	115±1,89	145	590	78,3±0,4	102

4.2%; some of the best individuals weigh 145 and 102 kg; at the age of 18 months -6.5; 5.1 kg or 7.9; 8.5%; 95 and 85kg, and 4-month-old rams and ewe hogs-7.8; 3.3 kg or 17 and 8.3%, 56 and 47 kg, respectively.

Indicators of live weight of the individual best individuals of different age and sex groups of animals indicate a large genetic potential of the created herd of sheep, which is of great importance for future breeding.

Undoubtedly, perhaps, the most important selective features of the sheep of the edilbaysky breed, which we must not only preserve, but improve and pass on to the next generation – unsurpassed precocity and the level of meat productivity of young animals – especially for the first 4 months of postnatal ontogenesis, i.e. the period of milk development. These valuable qualities of sheep of this breed are currently the highest priority, because the demand for lamb in the global international market is higher than ever, so in this age group of animals edilbaysky sheep, we decided to stay separately in more detail.

According to our data for a number of years, the live weight of rams and ewe hogs at the age of 4 months on average in the herd is 45.8 and 39.3 kg, which is one of the best indicators of the world sheep breeding. They at this time than than at birth, has increased in mass at 9.0 and 8.2 times, respectively. A more visual description of the population on this issue can be obtained by studying the variation number of phenotypic variability of live weight of lambs (table2).

Table 2 – Variation series of live weight of rams and ewe hogs at the age of 4 months

Rams, n = 598				Ewe hogs, n = 601			
#	Class boundaries	Class middles, W	Frequency f, %	#	Class boundaries	Class middles, W	Frequency f, %
1	28-30,9	29,5	1,01	1	30-31,9	31	4,2
2	31-33,9	32,5	0,3	2	32-33,9	33	3,13
3	34-36,9	35,5	1,01	3	34-35,9	35	10,42
4	37-39,9	38,5	5,0	4	36-37,9	37	10,42
5	40-42,9	41,5	26,2	5	38-39,9	39	18,75
6	43-45,9	44,5	28,4	6	40-41,9	41	15,63
7	46-48,9	47,5	29,2	7	42-43,9	43	12,5
8	49-51,9	50,5	6,3	8	44-45,9	45	17,71
9	52-53,9	53	2,6	9	46-47,9	47	3,13
				10	48-49,9	49	4,2

It is noteworthy to note that of the recorded animals, the specific weight of the rams, the live weight of which exceeds the breed standard (38 kg) established for the elite class animals are 97.68 and ewe hogs 82.25%, and exceeding the average data (45.8 and 39.3 kg) for the herd – 38.1 and 57.17%, respectively. Among the rams of particular interest for breeding are those individuals (59 heads), the live weight of which is 50 and above, and ewe hogs 45 kg and above (150 heads). If we consider that precocity is a hereditary property, these animals are important for future practical work, in particular, providing the possibility of early use of the animal for herd reproduction without damage to life and further development.

We conducted a control slaughter of rams at the age of 4 months. This is the age of the offspring, where the value of the gene pool of the edilbaysky breed is fully manifested-precocity, which contributes to the production of high-quality and low-cost lamb, which increases the efficiency of breeding these sheep. For slaughter seven heads of rams of the average live weight of 46 kg characteristic to an average

indicator of herd were selected. The mass of carcass, fat tail and internal fat averaged 20.7, 3.2 and 0.25 kg, and slaughter weight - 24.15 kg, and yield - 45.0, 6.9, 0.54 and 52.5%, respectively.

It should be noted that the average rate of shearing in the herd of adult rams (3.0 kg) and mother-sheep (2.1 kg), and also one-year-old rams (2.3 kg) and ewe hogs (1.5 kg) meets only the minimum requirements established for the first class animals. The relatively low level of shearing of sheep wool is explained as it is with most breeds of sheep in the world - the direction of breeding for live weight, which in turn is associated with a sharp decline in demand for wool in the international market.

Undoubtedly, one of the main achievements of the ESPC "Bayserke-Agro" under the condition of veterinary well - being is the cultivation and sale of breeding sheep of the edilbaysky breed. Only in the last 5 years, more than 6 (six) thousand breeding animals were sold to the farms of three regions of the Republic - Almaty, Zhambyl and East Kazakhstan and, thus, the impact on improving the productive and breeding qualities of local low-yielding fat tailed sheep breeds. In addition, the farm annually produces 25-30 tons of high-quality lamb.

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АЛМАТЫ ОБЛЫСЫ "БАЙСЕРКЕ АГРО" ЖШС ООҒӨО ТАБЫНЫНЫҢ ЕДІЛБАЙ ТҰҚЫМДЫ ҚОЙЛАРЫНЫҢ ӘЛЕУЕТІ

Аннотация. Мақалада еділбай қой тұқымын өсіруде жаңа аймақ болып саналатын Алматы облысы ЖШС «Байсерке Агро» шаруашылығында құрылған осы қойлардын өнімділік нәтижелерінің көрсеткіштері зерттелген. Осы қойдын ен басты өнім көрсеткіштері болып саналатын – қозыларының анасынан бөлгенге дейін тез жетілгіш ерекшелігі талданған.

Түйін сөздер: өсуі мен дамуы, қаңқасының салмағы, жүн өнімдері, ет өнімділігі, босанудан кейінгі кезең.

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ГЕНЕТИЧЕСКИЙ ПОТЕНЦИАЛ ОВЕЦ ЕДИЛЬБАЙСКОЙ ПОРОДЫ СТАДА ТОО УНПЦ «БАЙСЕРКЕ АГРО» АЛМАТИНСКОЙ ОБЛАСТИ

Аннотация. В статье приведены результаты изучения продуктивности племенного стада овец едильбайской породы, созданных в новых для них природно-климатических условиях ТОО «Байсерке Агро» Алматинской области. Анализирован главный хозяйственно-полезный признак данной породы – скороспелость ягнят за молочный период развития.

Ключевые слова: рост и развитие, вес каркаса, производство шерсти, мясная производительность, послеродовой период.

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EFFICIENCY OF ENSURING VETERINARY WELFARE ON INFECTIOUS DISEASES OF LARGE AND SMALL HORSE CATTLE IN BAYSERKE-AGRO LLP

Abstract. The article provides the epizootological characteristics of livestock farms of Bayserke-Agro LLP and the adjacent territories.

In the Almaty region in the territory adjacent to the farms of Bayserke-Agro LLP, we studied the epizootic situation of especially dangerous animal diseases.

At the same time, cases of detection of pathogens of tuberculosis, brucellosis, listeriosis, viral diarrhea, salmonellosis, moraxellosis, necrobacteriosis and others were reported.

Keywords: epizootological units, listeriosis, epizootic process, monocytogenes, bradzota, anthrax.

Introduction. For the successful control of animal diseases, groups were created that were separated, the so-called epizootological (epidemiological) units (EU). Developed and implemented measures, including a set of organizational, economic, veterinary and sanitary and special veterinary activities. A list of works in each area, providing epizootic well-being was given. The implementation of all activities reflected in the relevant plan enabled the well-being of all livestock farms of Bayserke-Agro LLP.

Results and analysis of the data. Infectious (contagious) diseases by their nature hold a specific place in the pathology of animals. A distinctive feature of these diseases is the ability of a specific pathogen to be transmitted from a sick animal to a healthy one. This determines the potential for continuous transmission of the causative agent of an infectious disease, the mass scale of animal damage and the tendency to widespread territorial occurrence. In terms of these characteristics, infectious diseases constitute the most dangerous group of diseases, due to the continuity of the epizootic process and the ability to cause enormous economic damage to livestock and to be transmitted to humans (most of them have this ability) [1].

To date, more than 120 contagious diseases are registered on the territory of the Republic of Kazakhstan, most of which are common to humans and animals [2].

During the entire period of research from 2015 to 2018 we have identified cases of the detection of pathogens of tuberculosis, brucellosis, listeriosis, viral diarrhea, salmonellosis, morax, necrobacteriosis and others in the territory adjacent to the farms of Bayserke-Agro LLP in the Almaty region.

Based on the conducted monitoring studies, anti-epizootic measures have been developed, which reflect a set of organizational, economic, veterinary-sanitary and special veterinary measures.

Organizational and economic measures included the formation of separated groups of animals (epizootological or epidemiological units), carrying out an indication of the entire livestock, organization of work of veterinary and sanitary facilities, as well as the development of animal husbandry technology, contributing to the breakdown of the epizootic chain.

Veterinary-sanitary measures included the timely and regular work on the destruction of pathogens in the environment, i.e. disinfection, disinfestation and disinsection.

Special veterinary measures were carried out in strict accordance with the epizootic situation and included timely diagnosis, specific prophylaxis and therapy.

All of these measures are included in a comprehensive plan of anti-epizootic measures (TEM).

The implementation of the measures stipulated by the plan and recommendations of scientists of KazNIVI LLP, allowed to ensure epizootic well-being in all areas of Bayserke-Agro LLP, which contains farm animals. In recent years, there have been no cases of mass destruction of animals with infectious diseases, although, as noted above, there have been the presence of pathogens of many diseases in the external environment (tuberculosis, brucellosis, pasteurellosis, chlamydia, listeriosis, moraxellosis, etc.).

Thus, the strategy for combating brucellosis included the diagnosis of animal diseases by means of RPP and CSC.

In prosperous epizootological units, screening studies were performed according to the formula recommended by the OIE, which provides for the control of not all the livestock of animals, but of individuals, the number of which depends on the size of the groups (EC) (table).

Calculation of a sample of animals from EU for subsequent studies with different prevalence and different livestock

The number of livestock in EU(гол)	Permissible prevalence of animals, %						
	0,2	0,4	1	2	5	10	20
Less than 10	all	all	all	all	all	all	all
10	10	10	10	10	10	10	8
20	20	20	20	20	19	16	10
30	30	30	30	30	26	19	11
40	40	40	40	40	31	21	12
50	50	50	50	48	35	22	12
60	60	60	60	55	38	23	12
70	70	70	70	62	40	24	13
80	80	80	80	68	42	24	13
90	90	90	90	73	43	25	13
100	100	100	100	78	45	25	13

In the sample of the research animals, ıt was guided by the presence of the most sensitive and susceptible to brucellosis infection in the group. As it is known from the data of the special literature [3], that artiodactyls young pubescent individuals are more likely to develop brucellosis. In the presence of them in the herd, first of all they were researched the specified contingent. In any group that contained large and small cattle of different ages, horses, camels, to the research were first investigated pubescent heifers, a female heifer that has never had a calf, and a heifer that give a birth for the first time.

LLP "Baiserke-Agro" is currently safe for tuberculosis. However, on the dairy farm adjacent to the robotic farm contained cattle, among which animals were positively responsive to tuberculin. When making the final diagnosis, pathological and bacteriological investigating was performed on the section. In this case, the diagnosis was confirmed, and all the unfavorable livestock of cattle were handed over for slaughter. On the farm that held veterinary and sanitary measures to destroy the pathogen in the environment. Right now, on this farm placed animals meat direction of productivity.

The culture of Listeria monocytogenes was isolated by us from poor quality silage samples, what was taken into account when making the AM plan and in this regard, the appropriate vaccine is provided and immunization is carried out.

In general, the cattle that contained in the milk production complex during the year was forced to veterinary manipulations of 5 to 10 treatments.

Small ruminants are on year-round grazing and have contact with groups of animals from other economic subjects that are unfavorable for certain infectious diseases. In this regard, separate sex and age

groups were immunized against brucellosis, dysentery of lambs, infectious enterotoxemia, bradzota, malignant sheep edema, anthrax, and further, taking into account the current epizootic situation and the regional plan to combat animal diseases.

In order to prevent the disease of sexually transmitted animals and increase the productivity of the livestock, artificial insemination is carried out in all EU of small ruminants.

The results of the work on feeding technology and keeping the sheep make it possible to preserve and grow the litter as much as possible against the background of veterinary well-being, which makes it possible to ensure the safety of lambs up to 96%, to reach body weight in 4-5 months of age up to 45-47 kg,. The profitability of the production of sheep products has grown in certain groups of at least 15.0-20.0%.

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«БАЙСЕРКЕ-АГРО» ЖШС-де ІРІ ЖӘНЕ ҰСАҚ ҚАРА МАЛ ЖҰҚПАЛЫ АУРУЛАР БОЙЫНША ВЕТЕРИНАРИЯЛЫҚ САЛАУАТТЫЛЫҚТЫ ҚАМТАМАСЫЗ ЕТУДІҢ ТИІМДІЛІГІ

Аннотация. Мақалада "Байсерке-Агро" ЖШС мал шаруашылығы фермаларының және оған іргелес аумақтардың эпизоотологиялық сипаттамасы берілген. Алматы облысында "Байсерке-Агро" ЖШС фермаларына іргелес аумақтарында жануарлардың аса қауіпті аурулары бойынша эпизоотиялық жағдай зерттелді.

Түйін сөздер: эпизоотологиялық қондырғылар, листериоз, эпизоотиялық процесс, моноцитогендер, брацота.

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ЭФФЕКТИВНОСТЬ ОБЕСПЕЧЕНИЯ ВЕТЕРИНАРНОГО БЛАГОПОЛУЧИЯ ПО ИНФЕКЦИОННЫМ БОЛЕЗНЯМ КРУПНОГО И МЕЛКОГО РОГАТОГО СКОТА В ТОО «БАЙСЕРКЕ-АГРО»

Аннотация. В статье дана эпизоотологическая характеристика животноводческих ферм ТОО «Байсерке-Агро» и прилегающих к ней территорий. В Алматинской области на территории, прилегающей к фермам ТОО «Байсерке-Агро», нами была изучена эпизоотическая ситуация по особо опасным болезням животных.

Ключевые слова: эпизоотологические единицы, листериоз, эпизоотический процесс, моноцитогены, брадзота.

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КАЗАХСТАН В МЕЙНСТРИМЕ БУДУЩЕГО

Реформы Нурсултана Назарбаева способствуют становлению эффективного конкурентоспособного государства.

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Развитие Казахстана в русле стратегических замыслов Президента РК Нурсултана Назарбаева демонстрирует впечатляющие результаты в экономике и социальной сфере общества. Это подтверждают уровень роста и качество жизни казахстанцев. Реформы в Казахстане, в отличие от многих стран постсоветского пространства, понятны людям, которые их всесторонне поддерживают и активно в них участвуют. В современных условиях «обострения» геополитических противоречий всевозрастающее значение имеют стратегические предложения Нурсултана Назарбаева мировому сообществу по преодолению системного кризиса и формированию новой модели глобальной экономики. Лидер Казахстана предложил мировому сообществу сформировать новую модель мироустройства XXI века на основе G-Global, а «Концепция G-Global» Президента Нурсултана Назарбаева – это образец мышления XXI века.

ЛИДЕР СО СВОИМ РЕЦЕПТОМ

Новые возможности экономического и социального развития Казахстана и конкурентность государства стратегически ориентированы на быстрый темп масштабного технологического развития. В условиях глобальных вызовов и рисков Казахстан демонстрирует решимость продвигаться по пути наукоемкого индустриального развития и productiveeconomy. Нурсултан Назарбаев на деле доказал, что его реформы в корне изменяют темпы развития, превращают Казахстан в эффективное конкурентоспособное государство, определяя роль страны в глобальном технологическом мейнстриме будущего.

По оценкам российских ученых, Нурсултан Назарбаев является лидером – созидателем, гениальным стратегом и политиком, крупным ученым, расширяющим границы возможного. Президент Казахстана одним из первых в мировом сообществе призвал к формированию новой модели глобальной экономики для выхода из кризиса, совместному поиску эффективных путей реформирования мировой экономики, включая глобальные финансы, развитие евразийской интеграции.

У казахстанского Лидера всегда есть свой рецепт, свое дерзкое стратегическое решение, когда он оборачивает трудности и вызовы в мировой системе в пользу Казахстана. Это и Стратегия-2050, и «Нұрлыжол», и План нации. Интеллектуальный потенциал реформ Президента Казахстана востребован в мировом сообществе, прежде всего в странах ЕАЭС и СНГ. Для этого необходимы политическая воля и продуктивные системные решения.

В контексте становления новой модели глобальной экономики необходима, во-первых, реализация системных предложений по I этапу реализации глобальной энергоэкологической стратегии, предложенной Нурсултаном Назарбаевым и принятой на РИО-20. Во-вторых, при осуществлении мегапроекта «Экономический пояс Шелкового пути» (ЭПШП) важно научно проработать

механизмы, включая инвестиционные, которые способствуют сопряжению развития ЭПШП и укрепления Евразийского экономического союза.

Нурсултан Назарбаев предложил новую модель мироустройства на основе G-Global как инфокоммуникативной площадки между странами G20 и развивающимися странами. Новая сетевая инфокоммуникативная площадка объединила более 40 тысяч экспертов из 150 стран мира, что является основой для начала прямого диалога и коммуникаций.

Его дальновидная политика позволила Казахстану обрести самостоятельный путь эволюционного развития, сформировать современное общество, для которого характерны стабильность, веротерпимость и межнациональный мир.

Разные лидеры обретают эти качества по-разному, но самый верный способ – пройти вместе со страной многосложный путь жизненного роста и завоевания авторитета собственным напряженным трудом. Именно такой стала биография Нурсултана Назарбаева. Благодаря этому общество и политические институты государства своевременно делают правильный выбор. Сегодня в мировом сообществе Нурсултан Назарбаев характеризуется как Лидер, способный расширять границы возможного.

Выдвигая поистине прорывные инициативы в условиях современных глобальных вызовов, казахстанский лидер наметил новый экономико-социальный и духовно-нравственный мейнстрим развития не только для своей страны, но и в международном, планетарном масштабе.

ПО ПУТИ PRODUCTIVE ECONOMY

Казахстан является сторонником проведения реформ, направленных на поступательное и устойчивое развитие, качественный экономический рост и вхождение в тридцатку развитых стран мира. В рейтинге мировой конкурентоспособности IMD страна на 32-м месте (поднявшись на 15 позиций), а по «легкости» ведения бизнеса Всемирного банка – Казахстан на 35-м месте с ростом на 16 позиций. Действующие 50 предприятий производят энергию из возобновляемых источников суммарной мощностью 300 мегаватт. В течение последних 10 лет за счет реализации природоохранных мероприятий выбросы загрязняющих веществ в атмосферу сократились на 13%, а выбросы попутного нефтяного газа – на 70%.

Нурсултан Назарбаев в эру глубоких и стремительных изменений (экономических, технологических и социальных) определил пути успешной навигации и адаптации в новом мире – мире Четвертой промышленной революции. Рост валового внутреннего продукта составил 4%, а промышленного производства – более 7%. При этом в общем объеме промышленности обрабатывающий сектор превысил 40%. Бедность сократилась в 13 раз, уровень безработицы снизился до 4,9%.

Достижения Казахстана – надежная база, но не гарантия завтрашних успехов – требуют концентрации на решении комплекса задач. Во-первых, индустриализация должна стать флагманом внедрения новых технологий. Во-вторых, стать более инновационной, используя все преимущества нового технологического уклада 4.0, стимулировать трансферт технологий, развивать собственную экосистему разработчиков цифровых и других инновационных решений. В-третьих, важнейшим фактором является стимулирование спроса на новые технологии со стороны реального сектора и функционирование частного рынка венчурного финансирования, развитие IT- и инжиниринговых услуг.

УСПЕХИ НА ВСЕХ ФРОНТАХ

Дальнейшее развитие ресурсного потенциала, организация сырьевой индустрии с учетом управления природными ресурсами подвластны конкурентоспособному государству. При этом «умные технологии» – шанс не только для рывка в развитии агропромышленного комплекса, кардинального увеличения производительности труда и роста экспорта переработанной сельскохозяйственной продукции, но и приоритетного развития аграрной науки, трансферта новых технологий, удешевления банковских кредитов для субъектов АПК.

Конкурентоспособность государства обеспечивается внедрением современных технологий в строительстве и коммунальном секторе. Жилье на одного жителя выросло в последние 10 лет на 30% и составляет 21,6 м^2. Планируется довести этот показатель в 2030 году до 30 м^2.

«Перезагрузка» финансового сектора предусматривает надзор за деятельностью финансовых институтов со стороны Нацбанка, который должен быть жестким, своевременным и действенным, гарантируя со стороны государства соблюдение интересов простых граждан. Человеческий капитал является основой модернизации в Казахстане, а конкурентоспособное государство обеспечивает новое качество образования, первоклассное здравоохранение и здоровье нации, качественную занятость и справедливую систему социального обеспечения.

При этом социальная политика осуществляется через вовлечение граждан в полноценную экономическую жизнь, а пенсионная система полностью «привязана» к трудовому стажу. Все свои социальные обязательства конкурентоспособное государство исполняет в полном объеме. Базовая пенсия выросла в общей сложности на 29%, солидарная – на 32%, пособия на рождение ребенка – на 37%, а по инвалидности и потере кормильца – каждое на 43%. Зарплата работников здравоохранения увеличилась до 28%, образования – до 29%, социальной защиты – до 40%, госслужащих корпуса «Б» – на 30%, стипендии – на 25%. Расходы республиканского бюджета на социальную сферу в 2018 году увеличены на 12% и превысили 4,1 триллиона тенге. Повышение социальных выплат, в том числе пенсий, осуществлено уже более чем для 3 миллионов казахстанцев.

Кроме того, госорганы призваны применять современные цифровые технологии для учета замечаний и предложений граждан в режиме реального времени и оперативного реагирования. Это защищает информационные системы и устройства. Кибербезопасность включает в себя защиту не просто информации, но и доступ к управлению производственными и инфраструктурными объектами в Стратегии национальной безопасности Казахстана, наряду с превентивной борьбой с коррупцией.

РЕГИОНАМ РОССИИ НАДО ИСПОЛЬЗОВАТЬ ОПЫТ КАЗАХСТАНА

«Фактор Назарбаева» необычайно значим для межгосударственного содружества. Казахстан принес в СНГ непреклонную политическую волю Нурсултана Назарбаева, имеющего успешный опыт осуществления экономических и социальных реформ.

– Имеющий глаза, – отмечал академик РАН Дмитрий Львов, – увидит, как преобразовался Казахстан в результате осуществления первого этапа стратегии, предложенной его Президентом. Имеющий уши – услышит, каким станет Казахстан через 10-15 лет. Имеющий разум – поймет и возьмет на вооружение его уроки.

Мне в жизни повезло быть рядом с Нурсултаном Абишевичем в начале реформ независимого Казахстана, ощущать гениальность его решений, настойчивость, последовательность и продуктивность их реализации. Был среди тех, с кем Президент страны впервые поделился идеей Евразийского союза (1994 год). Казахстанско-российские отношения находятся на высоком уровне доверия и стратегического партнерства. Между странами не существует проблем, которые не были бы решены путем конструктивного диалога. Идет обсуждение вопросов о выстраивании сотрудничества в области космических и геоинформационных услуг, объединения национальных систем дистанционного зондирования Земли. Кроме того, одним из важных для России и Казахстана является сотрудничество в сфере энергетики, поскольку обе страны – энергетические державы.

Регионам России надо использовать опыт Казахстана по глобальной конкурентоспособности, по решению других проблем. А самое главное – регионам обеих стран необходимо обращать внимание на социальную сторону проблем, надо повышать уровень жизни людей, важно, чтобы экономика работала на человека, чтобы и система образования находилась на надлежащем уровне.

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ВРЕМЕН СВЯЗУЮЩАЯ НИТЬ

Махмуд Касымбеков,
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В творческой лаборатории и политическом дискурсе Елбасы тема отечественной истории не нова и не эпизодична. Как отдельные ее этапы, так и целые эпохи в свое время исследованы им в книгах «Без правых и левых», «На пороге XXI века», «Уроки истории и современность», «В потоке истории», «Эпицентр мира», «В сердце Евразии», «Казахстанский путь», «Уроки Великой степи», статьях, интервью, речах, концептуальных и программных документах. Статья «Семь граней Великой степи» – их логическое продолжение.

НАРУШИВ МОЛЧАНИЕ ВЕКОВ

Это духовно-интеллектуальное Послание Нурсултана Абишевича нашло живой и заинтересованный отклик не только в сердцах казахстанцев, но и за пределами нашей страны. За этим восстает и копившаяся веками боль о несправедливо забытых по разным причинам страницах истории евразийской цивилизации, без которых картина антропокультурной истории Земли остается неполной, а где-то искаженной, запутанной.

Приведу только три цитаты, свидетельствующие о том, как эта неполнота ощущалась казахскими интеллектуалами в XX веке. В 1919 году один из пламенных трибунов Алаша Смагул Садуакасов, выступая на страницах журнала «Трудовая Сибирь», писал в своей статье «Нужды аула. Очерки казахской жизни»: «Вот Степь – родина казаха, где создавалась его многовековая история, которую никто не изучал, где вложено все его богатство, которым воспользовались многие, но которое тоже никто не изучал… Вот аул, служивший и продолжающий служить «золотым дном» для пронырливых купцов и торговцев и вообще «ученых» людей, которые тоже не постарались сделать ему чего-нибудь хорошего».

В середине XX века АнуарАлимжанов размышлял устами героев своих повестей: «Народы, населявшие наши степи в далекой древности, были обладателями высокой культуры строительства. Они строили великолепные каналы, города, крепости, дворцы. Великие города были на нашей земле… Казахская степь тоже древняя, но еще не прочитанная книга. Почему же до сих пор никто не решился раскопать Отырар?.. Что если разбудить угасшую память о нем?!.. Отырар – это многовековая тайна родной степи».

В те же годы СатимжанСанбаев в книге «Когда жаждут мифа» вывел образ молодого ученого, который говорит: «Моя мечта: по сохранившимся художественным памятникам попытаться увидеть, чем жили мои предки. Все только и знают, что пишут и говорят о набегах и войнах, а мне хочется знать духовную сторону жизни степняков. Государства, может быть, и создавались войнами, но высокой основой жизни, наверное, было искусство».

В те времена вопрос этот остался без ответа. Что было неудивительно в условиях тоталитаризма, повсеместно обрекавшего людей на историческое беспамятство в угоду собственным теориям «сотворения мира».

Еще один важный мотив, о котором нельзя не упомянуть. Когда говорят, что казахская степь – отцовская юрта Великого Тюркского эля, то это не просто устойчивая метафора или дежурный комплимент. В этой фразе отражены и большие надежды, возлагаемые на возрождающийся свобод-ный Казахстан со стороны как близко- и дальнородственных, так и не обязательно родственных, но симпатизирующих и солидарных народов Востока и Запада. Нет никаких сомнений, что и новый культурно-идеологический месседжЕлбасы в том числе работает и на воплощение этих надежд.

В национальной философии казахов всегда были сильны императивы активной гражданской позиции, понимания дарованного человеку таланта как поручения свыше, пожизненных творческих исканий, достижения гармонии с самим собой и с Вселенной.

Устами гениального Абая эти правила выражены в короткой назидательной формуле: «Не будь франтом, падким на изменчивую моду. Если есть в тебе искра божья – взвали на себя посильную ношу, чтобы найти пустующую нишу и лечь прекрасным изразцом в стену Мироздания».

Нурсултан Назарбаев – созидатель, выполнивший и продолжающий выполнять этот духовный завет.

ПРИГЛАШЕНИЕ В ИСТОРИЮ

Прошлое народа – зеркальный родник, в который смотрится и из которого черпает духовные силы и мудрость веков каждое новое поколение.

Разработанная Президентом Казахстана концепция модернизации исторического сознания ценна не только своей социальной направленностью, но и тщательной социологической продуманностью.

В тексте статьи узнаваемы подходы с применением контентного, сравнительно-исторического и факторного анализа места и роли Великой степи в мировой культуре, что позволило выделить ее ключевые признаки.

Не любитель упрощать сложные и многомерные понятия, все же возьму на себя смелость пока что в предварительном, условном и рабочем порядке рассмотреть «Семь граней Великой степи» в несколько иных аспектах и терминах.

Итак, чем нам дорого наследие наших предков? В чем мы можем и должны подражать им в их отношении к себе и к миру?

Это – экономизм (всадническая культура), этатизм (Золотой человек), технологизм (металлургия Великой степи), эстетизм (звериный стиль), ойкуменизм (колыбель Тюркского мира), эрго-

номизм (Великий шелковый путь), экологизм (Казахстан – родина яблок и тюльпанов) мышления степняков.

Наверное, меня не будут судить слишком строго, если допущу еще одну мысль о месте и роли Великой степи в глобально-исторической системе координат. Человеческая история учит нас тому, что истина не выбирает географии и остается таковой в любой точке планеты. В этом плане историческое мышление наших предков коррелировалось с мировоззрением других развитых цивилизаций прошлого.

Вспомним восприятие мироздания в античной литературе, где боги – это те же самые люди, только абсолютизированные, тот же самый привычный мир, но взятый как некий абсолютный космос. Примерно в том же ключе мыслили наши предки, которые в своей мифологии обобщали соответствующие области природы, как разумной, так и неразумной. Посредством такого принципа мировоззрения народы Великой степи воспринимали себя неотъемлемой частью природы, живя в полной гармонии с мирозданием.

Примерно так же дело обстоит и с воззрениями мыслителей средневекового Востока, которые стали не просто «прямыми наследниками» античной традиции. Опережая время, их учения в последующих веках перекликались со взглядами выдающихся мыслителей Нового времени. К примеру, мы находим удивительную содержательную перемычку между философскими представлениями Абу Насыра аль-Фараби и положениями немецкой классической философии.

Такая цивилизационная сцепка со всей очевидностью говорит о том, что грани Великой степи возникали, формировались и оттачивались отнюдь не на периферии глобальных исторических процессов. Они созидались в гуще мировых трендов своего времени.

Реализм статьи Президента подтверждается и тем, что, не витая в «академических» эмпиреях, он строит свои размышления на научно доказанных, а значит вполне проверяемых фактах, событиях, закономерностях. Этот предметный и земной, вечный и «вещный» мир можно не только изучать по книгам и фильмам, но и вживую увидеть, услышать, потрогать и даже ощутить на запах и вкус.

Люди моего поколения родились и выросли в середине прошлого века. Вспоминаю, как мы, мальчишки, оседлав коней, отправлялись вдоль дорог, по которым когда-то ходили вьючные караваны, а теперь курсировали автомобили и поезда. Как сейчас вижу силуэты женщин, что, собравшись в урочный час, выводили на кошмах и тканях народные орнаменты, разъясняя дочерям их значения и смыслы. Детская охота за свинцом, который плавили и заливали в асычные биты с соблюдением всех тонкостей. Короткая пора любования цветением диких тюльпанов, ради чего ребята целой ватагой ездили на велосипедах за многие километры от дома. Путь был нелегким, но гораздо труднее было удержаться от желания нарушить пугающие запреты аксакалов («не рви зелень – усохнешь как лист») и все же собрать несколько букетиков, чтобы преподнести дорогим сердцу людям.

Этот небольшой экскурс в страну своего детства я предпринял с единственной целью: показать, что культурная инициатива Елбасы, что называется, затронула глубинные струны и сразу вызвала гамму позитивных ассоциаций и аналогий. За этим я усматриваю мощный консолидирующий заряд, созывающий к совместному творческому поиску всех людей, независимо от их этнической, языковой, культурной, религиозной, расовой принадлежности.

К конструктивному взаимодействию располагает и выбранная Президентом морально-этическая тональность. В статье нет ни малейшего намека на собственное возвеличение за счет принижения других народов, как об этом пишет сам Нурсултан Абишевич. Напротив, он призывает смотреть на Великую степь с универсальных гуманистических позиций, согласно которым истинность знания не зависит от того, где и кем оно получено, знание является общей собственностью и не подлежит отчуждению в пользу отдельного лица или группы, стремление к истине должно преобладать над всеми другими мотивами, все научные достижения должны подвергаться публичной критической оценке, наука должна носить созидательный характер.

Содействовать тому, чтобы граждане были достойны своей истории, хорошо знали ее и умели грамотно донести до других ее ключевые вехи, продолжали славные традиции предков и на каждом новом витке развития подражали их лучшим достижениям – не в этом ли круг первостепенных забот каждого родителя, каждого учителя и каждого главы государства?

НА ПОНЯТНОМ ЛЮДЯМ ЯЗЫКЕ

Всякая теория состоятельна, если она подкреплена методикой и имеет практическое применение.

Если в преамбуле и первой части «Пространство и время национальной истории» Елбасы, сформулировав актуальную проблематику и определив предметное поле своей программы, ответил на вопрос «Что делать?», то во второй части своей статьи «Модернизация исторического сознания» он отвечает на вопрос «Как это сделать?».

Выше я уже отмечал значительную социологическую ориентированность данного труда Елбасы. Думаю, не ошибусь, если скажу, что проекты «Архив-2025», «Великие имена Великой степи», «Генезис тюркского мира», «Музей древнего искусства и технологий Великой степи», «Тысяча лет степного фольклора и музыки», «История в кино и на телевидении» – это заявка на создание авангардного культурно-гуманитарного, а значит, и медиакластера, основанная на результатах скрупулезного научного изучения в разных социологических областях и направлениях: социологии знания, науки и образования, искусства, культуры, досуга, возрастных групп, массовой коммуникации, общественного мнения и т. д.

Еще каких-нибудь 30 лет назад ученика или студента, отвечавшего урок истории не по учебнику, а по художественным фильмам вроде «Миллионы лет до нашей эры» или «Триста спартанцев», подняли бы на смех.

Сейчас ситуация кардинально изменилась, и не считаться с этим нельзя. Академическая и университетская наука, некогда свысока смотревшая на массовую культуру, меняет свое отношение к ней, стремясь превратить ее из сомнительного попутчика в надежного союзника. Сама масскультура стремительно захватывает все новые территории и врывается в самые закрытые и консервативные сферы.

Давно сбылись тогда еще смутные предвкушения гуманитариев XX века о грядущем синтезе наук, искусств и технологий: это будущее уже наступило.

Не плестись на поводу у этих общемировых тенденций, а оседлать их и двигаться с пользой для себя – именно такой сигнал видится в инициативе Елбасы об актуализации многовекового наследия наших предков, сделав его понятным и востребованным в условиях цифровой цивилизации.

Мысли об обновленном, свежем и не отягощенном прежними стереотипами языке, расширении жанрово-стилевого и даже родо-видового диапазона гуманитарного дискурса Великой степи – еще одна яркая сторона новаторской отваги Нурсултана Назарбаева. Сегодня мы наблюдаем только начало этого процесса, но если это произойдет, то нет сомнений, что в результате казахстанская нация создаст множество новых ниш в глобальном культурном развитии и поднимется на качественно новую цивилизационную ступень.

В каждом большом и общезначимом деле есть своя заглавная движущая сила. Полагаю, что в реализации этого начинания Елбасы роль «коренного коня в упряжке», «мозгового центра» и «банка информации» по праву должна быть отведена тюркологии – комплексу гуманитарных дисциплин, изучающих языки, историю, литературу, фольклор, культуру народов, говорящих на тюркских языках.

В разговорах о состоянии этой области научного знания часто приходится слышать сетования на то, что в последние десятилетия тюркология переживает кризис, выразившийся в дефиците высококвалифицированных кадров, разрозненности усилий тюркологов разных стран, отсутствии у них крупной и авторитетной площадки и т. д.

Ответ на эти и другие вопросы представлен в проекте «Тюркская цивилизация: от истоков к современности». Поэтому тюркологов можно только поздравить с этим многообещающим шансом на профессиональный подъем, объединение и возрождение былого авторитета тюркологической науки.

Много веков назад тюркский мир и в целом номадная цивилизация обеспечили человечеству мощный модернизационный прорыв. **И сегодня пришло время заявить всему миру об этом богатом культурно-цивилизационном наследии нашего народа и достойно принять эстафету исторического созидания от предыдущих поколений. Именно в этом и заключается главный идейный посыл статьи Елбасы «Семь граней Великой степи», и он обращен к каждому из нас.**

РАКИШЕВ
БАЯН РАКИШЕВИЧ
(к 85-летию со дня рождения)

Исполняется 85 лет со дня рождения и 65 лет трудовой, научной, педагогической и организационной деятельности действительного члена Национальной академии наук Республики Казахстан, заслуженного деятеля РК, академика Академии горных наук России, международной академии наук и искусства, доктора технических наук, профессора Казахского национального исследовательского технического университета им. К.И.Сатпаева Баяна Ракишевича Ракишева.

Он родился 15 марта 1934 г. После окончания с отличием Казахского горно-металлургического института с 1957 по 1965 г. работал на Коунрадском руднике Балхашского горно-металлургического комбината в должностях начальника смены, цеха и карьера. В 1964 г. без отрыва от производства успешно защитил кандидатскую диссертацию.

В 1965-1976 гг. доцент, в 1977-1987 гг. заведующий кафедрой теоретической механики, в 1988-2015 гг. заведующий кафедрой открытых горных работ, в 1980-1993гг. научный руководитель проблемной лаборатории новых физических методов разрушения горных пород и отраслевой лаборатории технологии буровзрывных работ КазПТИ им. В.И.Ленина. С 2016 года по настоящее время он работает профессором кафедры «Горное дело» Казахского национального исследовательского технического университета им. К.И.Сатпаева.

Б.Р.Ракишев в 1967-1974 гг. декан факультета Автоматики и Вычислительной техники, в 1980-1985 гг. – проректор, а в 1985-1992 гг. – ректор Казахского политехнического института им. В.И.Ленина. Он внес большой вклад в дальнейшее развитие института, расширение его материально-технической базы, укрепление связи с производством и наукой. В те годы КазПТИ им. В.И.Ленина был одним из ведущих высших учебных заведений большой страны.

Баян Ракишевич создал стройную теорию разрушения реального массива горных пород действием взрыва ВВ. Разработал аналитические методы определения расположения зарядов ВВ в массиве, гранулометрического состава взорванной горной массы, затрат энергии ВВ на дробление, перемещение и графо-аналитические методы определения размещения разнородных пород в развале, параметров технологий буровзрывных и экскаваторных работ, обеспечивающих наименьшие

количественные и качественные потери. Совместно с учениками создал комплекс программ для автоматизированного определения перечисленных результатов взрыва.

Сформулировал новое аргументированное определение системы открытой разработки полезных ископаемых, принципиально отличающееся от известных, предложил новые классификации систем разработки, технологий и технологических комплексов открытых горных работ. Установил закономерности перемещения горных выработок в карьерном пространстве и изменения объемов вскрытых и готовых к выемке запасов горных пород. Разработал математические модели стабилизации качества многокомпонентной руды для оперативного управления внутрикарьерным усреднением и состоянием минерального сырья на каждом из этапов переработки для выбора наиболее прогрессивных, экономически эффективных технологий его добычи и переработки. Совместно с учениками создал системы автоматизированного управления указанными процессами.

Научными работами, выполненными на высоком теоретическим уровне и оригинальными практическими разработками, получившими признание горной общественности, академик Б.Ракишев внес большой вклад в горную науку и промышленность, создал научную школу в области эффективного разрушения массивов пород и разработки полезных ископаемых в режиме рационального использования недр, подготовил 9 докторов, 30 кандидатов технических наук, 4 докторов PhD, сотни инженеров и магистров.

Академик НАН РК Б.Ракишев является автором более чем 700 научных и учебно-методических работ, в том числе 13 монографий, 6 аналитических обзоров, 13 учебников и учебных пособий, 45 авторских свидетельствах и патентов на изобретения, более чем 80 статей в дальнем зарубежье.

За заслуги в области научной, педагогической и организационной деятельности Б.Р. Ракишев награжден орденами «Парасат» (2013 г.) и Трудового Красного Знамени (1986г.), Почетной грамотой Верховного Совета Казахской ССР (1984 г.), Почетной грамотой Министерства Высшего и среднего специального образования СССР (1984 г.), тремя медалями СССР (1970, 1986, 1990 гг.), двумя медалями РК (2005,2015 гг.) знаком «Отличник высшего образования СССР» (1984 г.). В 2004 году ему присвоено почетное звание «Қазақстанның еңбек сіңірген қайраткері», он лауреат Республиканской премии им. К.И.Сатпаева (2003 г.).

Баян Ракишевич и сейчас ведет активную научно-исследовательскую и педагогическую деятельность, являясь научным руководителем целевой программы, проектов МОН РК. Регулярно выступает с научными докладами на Международных симпозиумах и конференциях по горному делу в странах дальнего (США, Австралия, Бразилия, Болгария, Италия, Индия, Иран, КНР, Канада, Турция и др.) и ближнего зарубежья, пропагандируя достижения казахстанской горной науки и промышленности. Является членом постоянно действующих оргкомитетов международных научных симпозиумов и научных журналов Казахстана, России, Украины и Узбекистана. Регулярно выступает с интересными статьями в журналах « Доклады НАН РК», «Вестник НАН РК».

Поздравляя Баяна Ракишевича с юбилеем, желаем ему здоровья, благополучия и дальнейших творческих успехов.

Министерство образования и науки РК,
Национальная академия наук РК,
Казахский национальный исследовательский
технический университет им. К.И.Сатпаева,
редакции журналов «Доклады НАН РК»,
«Вестник НАН РК»

БАЙМУКАНОВУ ДастанбекуАсылбековичу – 50 лет

Президиум Национальной академии наук Республики Казахстан, редакция издательство НАН РК «Ғылым» и редакционная коллегия журнала «Вестник Национальной академии наук Республики Казахстан» сердечно поздравляют Баймуканова Дастанбека Асылбековича с 50-летием.

Баймуканов Дастанбек Асылбекович (19 марта 1969 года рождения, г. Алматы) – доктор сельскохозяйственных наук (2007), доцент (2004), член-корреспондент НАН РК (2012). Окончил зооинженерный факультет Алма-Атинского Ордена Трудового Красного Знамени зооветеринарного института с отличием (1991).

Трудовая деятельность Баймуканов Дастанбека Асылбековича неразрывно связано с научной работой. Работал младшим, старшим, ведущим научным сотрудником отдела верблюдоводства Казахского научно-исследовательского института каракулеводства (1991-2003 г.г.); заведующим лабораторией цитогенетики, главным научным сотрудником отдела животноводства ТОО «Юго-западный НИИ животноводства и растениеводства» (2003-2014 г.г.), главным научным сотрудником отдела разведения и селекции молочного скота, технологии выращивания и адаптации молочного скота ТОО «Казахский научно-исследовательский институт животноводства и кормопроизводства» (2014–2016 гг.); заведующим лабораторией «Проблем животноводства и растениеводства» «Научно – исследовательский институт проблем агропромышленного комплекса и водных ресурсов» Южно – Казахстанского государственного университета имени М. Ауэзова (с 2013 г. по 2018 г.).

Тема кандидатской диссертации «Селекционно-генетические параметры верблюдов казахского бактриана созакской популяции молочного типа» (Специальность 06.02.01 – Разведение, селекция, генетика и воспроизводство сельскохозяйственных животных) (2000 г.).

Тема докторской диссертации «Селекция верблюдов породы казахский бактриан южно-казахстанского типа молочной продуктивности»(Специальность 06.02.01 – Разведение, селекция, генетика и воспроизводство сельскохозяйственных животных) (2007).

Дастанбек Асылбекович Баймуканов дважды был удостоен Государственной научной стипендии Министерства образования и науки Республики Казахстан для талантливых молодых ученых (1997-1999 гг.; 2002-2003 гг.). В 2012 г. по конкурсу Вы были избраны член-корреспондентом Национальной академии наук Республики Казахстан по специальности «Животноводство».

Д.А. Баймуканов в настоящее время работает главным научным сотрудником комплексного отдела молочного скотоводства ТОО «Казахский научно-исследовательский институт животноводства и кормопроизводства» Национального аграрного научно-образовательного центра.

Научную работу Вы сочетаете с образовательной деятельностью в стенах ведущего аграрного ВУЗа Республики Казахстан работая по совместительству профессором кафедры «Физиологии, морфологии, биохимии имени академика Н.У. Базановой» Некоммерческого акционерного общества «Казахский национальный аграрный университет».

В настоящее время в рамках единого образовательного пространства стран ЕАЭС Вы совместно с учеными Российского государственного аграрного университета – МСХА имени К.А. Тимирязева и Чувашской государственной сельскохозяйственной академией занимаетесь разработкой учебников и учебных пособии для студентов высших учебных заведении, обучающихся по направлениям 36.03.02 «Зоотехния» (РФ), 5В080200 «Технология производства продуктов животноводства» (РК). В рамках данной программы изданы 5 учебников и учебных пособии, запатентованы 1 изобретение. Ваша интеграционная работа в сфере науки и образования были удостоены Золотой (2013 г.), Серебряной (2017 г.) медалью с вручением Диплома Всероссийской сельскохозяйственной выставки «Золотая осень».

Д.А. Баймуканов член редакционной коллегии научного журнала Национальной академии наук Республики Казахстан «Вестник: Хабаршы Национальной академии наук Республики Казахстан» (с 2015 г.), «Известия: Хабарлары: Серия аграрных наук» Национальной академии наук Республики Казахстан» (с 2017 г.), научного журнала стран ЕАЭС «Аграрная наука» (с 2017 г.), Федерального журнала "Пищевая индустрия" (с 2018 г.).

Д.А. Баймуканов – ведущий ученый в области генетических исследований сельскохозяйственных животных. Его научные интересы охватывают широкий спектр актуальных проблем в области сельскохозяйственной биологии, в частности генетики сельскохозяйственных животных. Он внес значительный вклад в разработку новых генетических методов селекции верблюдов, крупного рогатого скота молочных пород и лошадей в табунном коневодстве, представляющих в комплексе как крупное научное достижение. Доказал необходимость внедрения генетической паспортизации отечественного и импортного молочного скота, с целью профилактики распространения генетических болезней (2013). В процессе проведения экспериментальных работ разработаны комплексные селекционно-генетические методы ускоренного воспроизводства высокоценных генотипов верблюдов, крупного рогатого скота черно – пестрого типа отечественной селекции, казахских лошадей джабе и кушумской породы обеспечивающих сохранение, использование и развитие их генетических ресурсов.

На основе установленных теоретических принципов и инновационных разработок нашло практическое применение:критерии отбора по маркерному фенотипическому признаку и цитогенетическому статусу, включающие дифференциацию потомства при рождении;новая технология оценки племенной ценности животных в мини-стадах, включающая оценку генетического потенциала производителей и маточного поголовья; отдельные результаты цитогенетических исследований успешно используются для дальнейшего изучения структуры клеточного ядра, строения и эволюции хромосомного набора – кариотипа, в комплексной оценке и прогнозировании изменений состояния кариотипа под влиянием антропогенных воздействий – селекции, с целью ее контроля и нераспространения нежелательных мутаций.

Селекционно-генетические исследования проведенные Д.А. Баймукановым в животноводстве позволили ускорить селекцию по выведению высокопродуктивных верблюдов породы казахский бактриан, туркменский Арвана и казахский дромедар за счет выранжировки животных носителей нежелательных хромосомных мутаций по установленным фено- цитогенетическим маркерам.

Сформировано уникальное стадо крупного рогатого скота черно –пестрой породы в АО АПК «Адал» Енбекшиказахском районе Алматинской области, последовательно отобранное по цитогенетическому статусу.

В настоящее время занимается проблемными вопросами селекции – генетики – разведения и воспроизводства крупных видов сельскохозяйственных животных – верблюдов, лошадей и крупного рогатого скота молочных пород.

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Вами за 28 лет научно –педагогической работы опубликовано 350 научных работ, 7 монографий по цитогенетике и селекции верблюдов, 2 учебных пособии «Верблюдоводство» и «Коневодство», 26 авторских свидетельств и удостоверении на изобретения по верблюдоводству, 23 патентов РК на изобретения по селекции (межвидовой гибридизации) верблюдов и технологии получения кисломолочной продукции из верблюжьего молока, 9 инновационных патентов РК на изобретения по селекции верблюдов и технологии содержания верблюдов, 3 селекционных достижений по верблюдоводству, 2 патента по селекции крупного рогатого скота молочного направления продуктивности, 2 авторского удостоверения на изобретение по отбору молочного скота для селекции, 30 книг и брошюр по актуальным вопросам развития племенного и продуктивного верблюдоводства. Вами подготовлены 2 кандидата сельскохозяйственных наук, 1 PhD по технологии производства продукции животноводства.

Под Вашим непосредственным участием реализовано немало новаторских дел удостоенных благодарственными письмами и дипломами Министра сельского хозяйства РФ и Президента НАН РК. Ваша культура, высокий профессионализм, трепетное отношение к коллегам будет служить примером для каждого, кто Вас знает и работает с Вами.

Уважаемый Дастанбек Асылбекович! В день Вашего юбилея желаем крепкого здоровья, счастья и процветания Вашим родным и близким, благополучия и творческого долголетия.

Президиум
Национальной академии наук
Республики Казахстан

ДАРЫН АҒАШЫ ӘРҚАШАН ЖЕМІСТІ

Химия математикамен қатар органикалық және бейорганикалық синтез арқылы өз зерттеу нысандарын өзі туғызатын сирек ғылымдардың бірі. Мұндағы жетістіктер жиналған білімнің қорына ғана емес, сонымен қатар зерттеушінің интуициясына түйсігіне, болжау қабілетіне, өткір фантазиясына, зор еңбекқорлығына, мақсатқа жетуге деген ұмтылысына, күнделікті ұсақ-түйек істердің ішінен ең маңыздысын анықтай білуіне тәуелді.Химия ғылымында табысты жұмыс істеу үшін Табиғатқа сұрақ қою және оған тапқан жауаптардан ләззат алу деген қасиетті қабілетті ғұмыр бойы сақтай білу қажет. Өз бойында осы қасиеттерді ғылыми адалдықпен, күрескерлік және азаматтық ұстанымдармен ұштастыру нағыз ғалымның сипаты болып келеді.Болат Ахметұлы Жұбановтың өмірі мен ізденіс жолдарын ғылымдағы лаулап жанудың нағыз үлгісі деуге болады.

Педагогикада тұлғаның негізі балалық шағында, жанұясында қалыптасады деген қағида белгілі.Болат Ахметұлы 1929 жылы 4 ақпанда Ақтөбе облысы Темір ауданының № 9 ауылында кейінірек композитор, академик болған қазақ музыкалық мәдениетінің негізін қалаушы Ахмет Жұбановтың жанұясында дүниеге келген.

Жұбановтың жанұясындағышығармашылық көзқарас балалардың жан-жақты дамуына жағдай жасады, дегенмен олардың мамандық таңдауында музыка мен химия ерекше орын алады. Ахмет Жұбановтың ұлдары Болат пен Қайырдың химияға бүкіл өмірлерін арнағандықтары бұл ғылымның да шабыт пен ойдың асқақтығын талап етуі музыкадан кем болмағанынан шығар! Әрине, Болат Ахметұлының өмірлік кәсіптік кеңістігін анықтауына ғылыми-техникалық прогрестің химия ғылымын алдыңғы қатарына шығарған заманның да әсері болғаны сөзсіз.

Ол 1947 жылы Алматыдағы № 25 орта мектепті тәмамдап, Д.И.Менделеев атындағы Мәскеу химико-технологиялық институтына түседі. 1952 жылы институтты бітіргеннен кейін аспирантураға қабылданады. Б.А.Жұбановтың ғылыми және азаматтық көзқарасының қалыптасуына жоғары молекулалық қосылыстар химиясы саласындағы белгілі ғалымдар – КСРО ғылым Академиясының академигі В.К.Коршак және профессор Г.С.Колесников үлкен ықпал жасады. Осы ғалымдардың жетекшілігімен Болат Ахметұлы 1955 жылы кандидаттық диссертациясын қорғайды және 1956 жылға дейін КСРО ғылым Академиясының элементорганикалық қосылыстар Институтында жұмыс істейді.

Болат Ахметұлының 1956 жылдан бастап осы кезге дейінгі бүкіл ғұмыры ҚазССР Ғылым Академиясының химия ғылымдары Институтымен байланысты. Осы киелі ғылым орталығында ол поликонденсациялық полимерлер-полиимидтерді синтездеу жұмысын бастап, тиянақты ізденіс нәтижесінде небәрі 37 жасында докторлық диссертация қорғайды, сөйтіп 40 жасқа жетпей республикалық Академияның алдыңғы қатардағы институттарының бірінің директоры болады. 41 жасында ҚазССР Ғылым Академиясының корреспондент мүшесі, 43-інде – осы Академияның химико-технологиялық бөлімінің академик-хатшысы, ал 46 жасында – академигі болып сайланады.

Полимерлер химиясы саласында ғылыми-педагогикалық кадрлар дайындау мақсатында 1963 жылы Қазақ Мемлекеттік Университетінің химия факультетінде жоғары молекулалық қосылыстар химиясы кафедрасын ашу туралы шешім қабылданады. Бұл кафедраны ұйымдастыру үшін химия факультетінің деканы Б.А.Бірімжанов техника ғылымдарының кандидаты, кейінірек осы кафедраның меңгерушісі болған Б.А.Жұбановты шақырды. Болат Ахметұлы осы кафедраның оқу ісін қажетті дәрежеге қоюға, дәрістер курстарының бағдарламаларын, арнайы және жалпы практикумдарды дайындауға үлкен үлес қосты. Сонымен қатар Болат Ахметұлы кафедраның ғылыми зерттеулерінің дамуына өз үлесін қосты, оның жетекшілігімен полимерлер химиясының әр саласында ғылыми зерттеулер басталды.

Б.А.Жұбановтың ғылыми зерттеулері полимерлер химиясының әр түрлі бөлімдерін қамтиды. Ол тепе-теңдікті және тепе-теңдіксіз поликонденсациялау реакцияларының теориялық негіздерін ұсынып, жаңа мономерлер мен жоғары молекулалық қосылыстар алудың тиімді жолдарын тапқан. Синтезделген ерігіш полиимидтердің негізінде «Пластик», «Пластмасса», «Химволокно» ғылыми-өндіріс орындарымен және кабель өндіріс өкілдерімен бірігіп, термотұрақты талшықтар, қабыршықтар, лактар, бояулар және эмаль-өткізгіштер шығарған. Майысқақ айналар, коллекторлар және сәуле шағылыстырғыштары, ультражұқа конденсаторлар, микрочиптер және микроактиваторларды металмен қаптау үшін қолданылатын жаңа материалдар жасалған.

80-ші жылдардың басында Қазақстанда алғаш рет Б.А.Жұбановтың жетекшілігімен биоүйлесімдік және терапиялық қасиеттері бар полимерлер алу бағытында зерттеулер қойылды. Синтетикалық және табиғи полимерлер қатарының қолданылуымен анестезиялық әсерлі суда ерігіш макромолекулалық жүйелердің инъекциялық және үлдірлік формалары алынды. Офтальмохирургияда, асқазан-ішек трактының хирургиясында, проктологияда, сонымен қатар тері жарақаттары мен күйіктерін емдеуде функционалды және терапиялық имплланттар ретінде қолданылған биоүйлесімді полимерлік материалдар жасалды. Қабынуға қарсы қолданатын препарат глидеринниің, глаукоманы емдеуге арналған препарат пилокарпиннің полимерлік формалары, РП-3 радиопротекторлары, «Клофеоптик» атты көз дәрісінің қабыршықты формасы алынып, көздің онкологиялық ауруларының фотодинамикалық терапиясына арналған фотосенсибилизаторлардың полимерлік формалары жасалды. Полимерлер қатарының микро- және нанотүзілуінің заманауи принциптерін қолдана отырып, гормондық хроно- және пульсотерапияда қолдануға, сонымен бірге зақымданған органдарға микро- және нанобөлшектерді локальді енгізуге арналған белсендігі бақылаулы жаңа терапиялық жүйелер жасалды.

Дәнді дақылдардың, өсімдіктердің және мақтаның өсуіне оң әсері ұзарылған жаңа полимерлік жүйелер ұсынылды.

Болат Ахметұлы бойында ғалым мен педагогтың таланты бірдей үйлескен. Ол Қазақстанда полимерлермен айналысатын ғалымдар мектебінің негізін қалап, олардың еліміздегі әр түрлі өндіріс салаларында қолданыс тауып жатқан қасиеттері реттеулі жаңа полимерлік материалдар алу жұмысына жетекшілік жасап отыр.

Б.А.Жұбанов полимерлердің химиясы мен технологиясы саласында жоғары санатты кадрлар дайындауға ерекше мән береді. Болат Ахметұлының жетекшілігімен 19 докторлық және 100 кандидаттық диссертация қорғалған. Қазіргі оның шәкірттері әлемнің белгілі ғылыми орталықтарымен жоғары оқу орындарында қызмет етеді.

Б.А.Жұбановтың қалыптастырған полимерлік ғылыми мектебі елімізде де, халықарлық деңгейде де мойындалған. Академик Б.А.Жұбанов 1400 ғылыми еңбектің, 20 монографияның, 3 кітапшаныңжәне қазақ, орыс, ағылшын, неміс тілдерінде шыққан химиялық сөздіктің, химия терминдерінің қазақ-орыс сөздігінің, 350-ден астам өнертабыстардың авторы немесе авторласы. Болат Ахметұлының жұмыстары халықаралық ғылыми қоғамдастыққа кеңінен танымал. Жұбанов Б.А. 20 жылдан астам ҚазССР Ғылым Академиясының Химия ғылымдары институтының директоры бола тұра бар күшімен энергиясын ғылыми-ұйымдастырушылық жұмысқа салды.

Химия ғылымдарының институты Болат Ахметұлы Жұбановтың директор болу кезеңінде химияны дамытудағы және ғылыми нәтижелерді практикаға енгізудегі жетістіктері үшін Еңбек Қызыл ТУ орденімен марапатталды.

Б.А.Жұбановтың жетекшілігімен Алматыда бірталай ірі халықаралық симпозиумдар жүргізіліп, жан-жақты халықаралық байланыстар аясында зерттеулер жүргізіліп отыр. Ол бірталай халықаралық мерзімді ғылыми басылымдарының бас редакторы және редакция алқаларының мүшесі болды.

Ғылымды дамытудағы және жоғары санатты ғылыми мамандарды дайындауда жеткен жетістіктері үшін Болат Ахметұлы Жұбанов Қазан Революциясы, Еңбек Қызыл ТУ ордендерімен және медальдармен марапатталып, «ҚазССР ғылымына еңбек сіңірген қайраткер», ҚазССР-ның ғылым мен техникада мемлекеттік сыйлығының Лауреаты (1984 жыл), жаңа биоүйлесімді полимерлер саласындағы Қ.И.Сәтбаев атындағы Мемлекеттік сыйлығының Лауреаты (2000 жыл) атақтарын иеленді.

Болат Ахметұлының бойында жоғары мәдениеттілік, принципшілдік, демократиялық, ұйымдастырушылық талант пен химиялық мәселе ғылымдарының өзекті мәселелерін шешуде ұстанатын мемлекеттік сана-сезім үлкен адамгершілікпен, кеңпейілділікпен жақсы үйлесім тапқан. Ол әр адамды үлкен тұлға деп есептейді және оның шығармашылық талантының ашылуына барлық жағдайды жасауға тырысады.Сондықтан Болат Ахметұлының полимерлік мектебін толықтыратын жастардың ұстанатын бағыты - ұстаз бен шәкірттің ара қатынасының тазалығы, кәсіби адалдық пен жоғары адамгершілік. Б.А.Жұбанов Қазақстанның іргеліғылымының дамуындағы ірі тұлғалардың бірі болып келеді.

ЖУБАНОВ БУЛАТ АХМЕТОВИЧ

(к 90-летию со дня рождения)

4 февраля исполнилось бы 90 лет доктору химических наук, профессору, академику Жубанову Булату Ахметовичу.

С годами достижения выдающихся ученых и талантливых педагогов, к которым, без сомнения, относится Булат Ахметович Жубанов, не тускнеют, а переосмысливаются в трудах и достижениях его многочисленных учеников, которые успешно трудятся в институте химических наук им. А.Б. Бектурова и во всех уголках страны, внося весомый вклад в развитие химической науки и отрасли Казахстана.

Глубокие фундаментальные, теоретические и прикладные исследования в области химии полимеров, а также созданная им научная школа, получили широкое международное признание и известность. Под непосредственным руководством Булата Ахметовича Жубанова, получили дальнейшее развитие теория поликонденсационных процессов. Мировой научной общественности широко известны его работы по синтезу полимеров медицинского назначения, комплексного изучения термо- и огнестойких полимерных материалов на основе малореакционных мономеров, найдены пути и способы их активации, позволяющие получать новые полиимидные, радиационноустойчивые волокна, пленки, композиционные материалы.

Проведенные исследования позволили уточнить основополагающие принципы классических реакций равновесной поликонденсации и внесли важный вклад в теорию этого научного направления.

Путь Булата Ахметовича Жубанова в науке - это путь талантливого человека, ученого с многообразием работ научных исследований, наделенного большими организаторскими способностями. Жизнь, успех и расцвет таланта этого ученого неразрывно связаны с Институтом химических наук им. А.Б. Бектурова, кафедрой химии высокомолекулярных соединений Казахского национального университета им. аль-Фараби, где являлся постоянным профессором.

Работая в своей лаборатории синтеза полимеров, Б.А.Жубанов видел, что все сотрудники вместе с ним, ощущали некий высокий душевный подъем, связанный с тем, что умели не только синтезировать реальный полимер, но и понимать сущность протекающей реакции поликонденсации, управлять ходом процесса

В 38 лет Булат Ахметович защитил докторскую диссертацию, в 40 лет стал директором Института химических наук им. А.Б. Бектурова, одного из ведущих в Академии наук КазССР, в 43-года академик-секретарь отделения химико-технологических наук НАН РК, в 46 лет избран академиком НАН РК.

Организаторский талант, годы напряженной работы в успешном решении важных проблем химической науки и промышленности Казахстана получили высокую оценку Правительства. За достойный вклад в развитие науки и техники академик НАН РК Булат Ахметович Жубанов награжден орденом Трудового Красного Знамени, орденом Октябрьской революции, удостоен звания лауреата Государственной премии КазССР в области науки и техники, Государственной премии имени академика АН КазССР им. К.И.Сатпаева за создание биомедицинских полимеров.

Высокая культура, интеллигентность, принципиальность, демократичность, организаторский талант в осуществлении творческих замыслов ученого сочетались с большой человечностью, добротой, порядочностью, заботой о молодежи. О его скромности говорит мало кому известный факт: в течение десяти лет, будучи на посту директора Института химических наук им.А.Б. Бектурова Булат Ахметович Жубанов получал заработную плату старшего научного сотрудника.

В 1958 году в служебной записке Совета Министров КазССР Б.А. Жубанов о развитии химической отрасли науки и промышленности Казахстана, докладывал, что без подготовки кадров в области химии высокомолекулярных соединений, серьезных сдвигов по развитию химии и технологии полимеров нельзя было ожидать.

В 1963 году при поддержке декана хим. факультета КазГУ им. С.М.Кирова д.х.н. Б.А. Беремжанова Б.А. Жубанов организовал кафедру по химии и технологии высокомолекулярных соединений. Надо было сделать многое. Было выделено неприспособленное подвальное помещение в административном корпусе КазГУ им. Кирова, где собственными руками студентов и сотрудников кафедры обустраивали лабораторные помещения, доставали, где могли, приборы, стеклопосуду, мономеры и многое другое. Булат Ахметович читал студентам хим. Факультета спец. курс, который можно назвать философскими. Читал он неторопливо, конспектами не пользовался, приглашая студентов к соразмышлению. Каждую реакцию рассматривал всесторонне, любил порассуждать. Аудитория слушала его, затаив дыхание, при этом неспешный мягкий голос звучал поотечески. Ему был присущ блестящий острый ум, он молниеносно реагировал на реплики аппонентов, что производило неизгладимое впечатление, обладал врожденным даром общения с людьми разного уровня и возраста, любил песни, у него была страсть к охоте, путешествиям.

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