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PROBLEMS OF SOIL EROSION HAZARD OF SOUTHERN SLOPES OF AZERBAIJAN AND WAYS OF ITS SOLUTION

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The presented article describes in detail the natural conditions, geological structure, climatic conditions of the soil and vegetation cover of Sheki-Zakatala cadastral district of Azerbaijan. Analyzed the diagnostic indicators of soil and the degree of erosion of vertical zoning of the foot to subnival Greater Caucasus region, as well as the issues of preventing degrade soils.

Keywords: Fertility, erosion, degradation, ravine, gully, relief

As in all mountainous regions of Azerbaijan southern slope of the Greater Caucasus, which includes Sheki-Zagatala cadastral area also has quite a difficult environment, where widespread subalpine and alpine meadows, which have enormous environmental and climatic importance of the forest, as well as extending the broad area of arable land , Which under the influence of natural and anthropogenic factors are to varying degrees subject to erosion processes. Summer pasture subalpine due to poor development of the grass cover, excessive grazing especially in early spring, are a major cause of erosion, which not only quantitatively but also qualitatively cause significant damage to the soil cover, washing fertile upper humus layer, forming on the slopes ovrazhno-Beam network.

In connection with the development of the livestock country, at this stage of the protection of mountain meadows, creating a stable food supply, the study of their demands for nutrients is especially important where the Sheki-Zagatala cadastral area of the total area of 8840 km2, located on the southern slope of the Greater Caucasus, has Considerable potential in the development of the food base. Summer pastures of this zone are mainly represented by a low-level mesophilic herbaceous vegetation of the family of cereals, along with which are also represented by fescue (Festura L.) and others.

The purpose of our quest is to carry out a comprehensive analysis of a number of environmental factors that contribute to the development of erosion, determining the degree of damage soil fertility and to identify the best ways for the settlement, the protection and restoration of fertility.

Sheki-Zagatala cadastral district, located on the southern slope of the Greater Caucasus, borders on the north and northeast. The main watershed ridge of the Greater Caucasus, in the south-west by the Alazani Valley, in the west and north-west Belokan and Mazimchae with Georgia, in the east and southeast of Ismayilli and Oguz, between elevations of 600–3466 m above sea level.

Geologically and geomorphologically, the region has a fairly complex structure, where high mountains and steep slopes alternate with foothill areas and plains, which in turn contributes to the development of a fairly variegated climate, a variety of vegetation cover The complexity of the morphological structure, the presence of steep slopes, as well as anthropogenic forcing has a significant value of the intensity of surface runoff, which in turn enhances the development of erosion processes, thereby creating a wide ravines, which in the final step is beamed by changing geomorphological image of the whole area.

B.A. Budagov [3] in geomorphological relation divides the territory into 4 zones:

a) highlands; b) the middle mountains; c) Low mountains and d) Plains.

The highlands are located at an altitude of 2000–3466 m above sea level. The relief is represented by a strongly dissected erosion-denudation form. Soil-forming rocks mainly consist of clays, limestones and shales. For this zone is characterized by intense mudslides, causing significant damage to the environment, especially in the destruction of soil fertility.

The mid-mountain region is located at an altitude of 1000–2000 m above sea level and is characterized by the presence of a dome-shaped and stepped watershed. The slopes of the mountains are strongly dissected and the erosion-denudation relief dominates. Soil-forming rocks comprise shales, limestones and sands are encountered basalts, gabbros, hydromicas, andesite etc.

The low mountain range is located between isogypses 600–1000 m above sea level. The surface is represented by narrow belt islands, separated by wide valleys. Soils are formed on sediments of the 3rd (Paleogene, Neogene) and 4-period Cenozoic.

The plain zone is located at an altitude of 200–600 m above sea level, where mainly alluvial-proluvial deposits are located, on which fertile soils intensively used in agriculture are developed.

In the Sheki-Zagatala zone E.M. Shikhlinsky [14] distinguishes 3 types of climate: 1) moderately warm, characteristic for the plains areas with a relatively mild winter; 2) a moderately warm wet type with a uniform distribution of precipitation throughout the year, covers the foothills of the zone and 3) a cold climate with humid winters characteristic of the foothill and mountain areas of the zone.

The minimum air temperature is 0.50 °C in January, and the maximum temperature is at 23.60 °C in July. The average monthly temperature of the soil varies within the limits of –10 °C –30,70 °C. The minimum soil temperature in –10 °C is in January, the maximum is 30,00 °C (July) and August is 30,70 °C months.

The temperature of the soil surface determines the intensity of the biochemical processes occurring in the soil, and the intrasoil temperature has a significant effect on the microbiological processes taking place in the soil profile.

The annual amount of precipitation varies with the increase in the hypsometric level and corresponds not to the plain 939 mm, but in the highlands 1400 mm.

The average annual relative air humidity is 71 % fluctuating over the season from 59 to 87 %.

In the hydrogeographic aspect, the rivers of the Sheki-Zagatala zone are characterized by mudflows. The source of the rivers of the region on the Main Caucasian ridge.

Agrychay and the left tributaries of the Kura River. The tributaries of Alazani, are pp. Mazymchai, Balakenchay, Catechay, Galachay, Muhahchay, Kurymychay. These rivers with sleeves, especially on steep slopes, erode the soils under forest and meadow formations, which is particularly intense in the period of prolonged and intensive precipitation.

Large rivers of the zone also include p. Galachai with numerous Chinzar, Dabat, Alamkhau, Kuril, and others. And also Muhahchay, Kishchay, Shinchay, Kuntu, Zausid, and others.

The change in temperature and precipitation along vertical zonality, contributes to a regular change in the species composition of the vegetation cover, which is divided into 3 zones: a) Alpine and subalpine meadows; B) mountain meadow; (C) Plains.

The first geobotanical studies in the Sheki-Zagatala zone were carried out by N.I. Kuznetsov [7], later by L.I. Grossgeim [5], V.D. Hajiyev [4], L.I. Prilipko [8] and others.

Alpine meadows are mainly represented by representatives of the family of cereals and legumes. Here there is a mountainous flower (Coronaria L.), cowwort (Heracleum L.), thyme (Thymus L.), ziziphora (Ziziphora L.).

Subalpine meadows located at an altitude of 1800–2600 m are represented by mesophilous perennial vegetation and are widely used in the form of summer pastures.

In the forest zone there are oak (Quercus L.), hornbeam (Carpinus L.), wild chestnut (Castanea Mill), walnut (Juglans regia), hazelnut (), loquat (Mespilus L.), and on plains elm (Ulmus L.), Populus L., Plantago L., Blackberry, Juniperus L., Carex L., Paliurus spina christi, wild garnet and shrubs.

Studies of the soil cover, their genesis, geographical distribution on the southern slope of the Greater Caucasus, is associated with the name of Academician G.A. Aliev [1]. Later studies were continued on the basis of large-scale maps of 1: 10000 and 1: 50000, a map of the current state of soils of the Greater Caucasus 1: 100000 scale, a state cadastre [9] and a monograph of the current state of soils of the Greater Caucasus [6] Subtypes of Sochi-Zagatala zone soils:

1. Underdeveloped mountain meadow (Dystric Regosols);
2. Hardly soddy mountain meadow (Dystric Regosols);
3. Loose turf mountain meadow (Dystric Regosols);
4. Leached brown mountain-forest (Eutric Combisols);
5. Stepped mountain-brown (Chromic Combisols);
6. Meadow-forest (Umbric Leptisols);
7. Alluvial meadow (Eutric Fluvisols).

The incompletely developed mountain meadow soils are located on the territory of summer pastures and cover 236.8 hectares or 0.17 % of the total area. The relief of the territory consists of mountain slopes with a southwestern slope. There are outcrops of rocks in some places. Soils are mostly thin with an extremely rare plant cover.

According to the granulometric composition of the soil, medium loamy soils with a content of physical clay (< 0.01 mm), 33.28 % and silt (< 0.001 mm), 6.44 %. In connection with sparse and rare vegetation, the value of humus is 2.14 %, total nitrogen 0.13 %, total phosphorus 0.21 %. The sum of the absorbed bases is 30.10 mg / eq. On 100 gr. Soil.

In the complex of absorbed bases, Ca is the major fraction, amounting to 25.7 mg / eq, with Mg being 7.2 mg / eq and hydrogen 6.6 mg / eq per 100 g. Soil.

The densely soddy mountain meadow soils are located on different sites of summer pastures, amounting to 1005.4 hectares or 0.82% of the total area.

The vegetation cover representing meadow vegetation, created a sod layer on the surface of the soil. On most of the soil being low-powered, horizon A is formed on the parent rock. The granulometric composition of soils according to the grading of RG Mamedov [11] is heavy loamy, with a content of physical clay (< 0.01 mm) of 44.40%, and a clay fraction (< 0.001 mm) of 8.12%. The rich vegetation cover contributed to a sharp increase in humus, as indicated by the high value of humus, amounting to 11.53-15.31%. The total nitrogen and phosphorus, respectively, were 0.58 and 0.38%. The sum of the absorbed bases is quite high, amounting to 29.00–36.00 mg / eq per 100 g of soil. The complex is dominated by Ca, amounting to 19.6–25.4 mg / eq, Mg 4.8–6.6 mg / eq, and hydrogen 4.6–5.9 mg / eq per 100 g of soil. The presence of a high value of hydrogen is associated with an acidic medium (pH = 5.2).

Loose turf mountain meadow soils are formed on summer pastures with a total area of 11,107.5 hectares or 8.28%. The relief consists of slopes with different exposures and wide ravines. 11094.5 ha These lands constitute pastures, and 13 hectares of shrubs. According to the morphological description of the profile, the upper horizons have a brown color, shining towards the lower horizons and having a light brown color and a lumpy structure. Due to the leaching of the soil, they do not boil.

According to the granulometric composition of the soil, heavily loamy, with a content of physical clay (< 0.01 mm), 42.06–32.36% and physical silt (< 0.001 mm) 3.00-13.96%.

The hygroscopic moisture of soft turf of mountain meadow soils varies from 2.0-4.0%, the humus varies widely from 8.25 to 17.80%, which characterizes these soils as highly humified soils (10). The values of total nitrogen and phosphorus along the soil profile vary, respectively, from 0.52 to 0.65 and 0.21 to 0.29%. The sum of the absorbed bases is 23.24–21.20 mg / eq per 100 g of soil.

Bioclimatic conditions promote not complete decay of organic substances, in connection with which the accumulation of humus occurs.

The soddy mountain meadow soils are granular and loamy according to the granulometric composition. The content of physical clay on non-leached soils is 42.80–62.20%, on medium-leached soils 32.60–60.00%. These soils are highly structural. The bulk mass along the soil profile is 0.96-1.10 g / cm3 and the minimum value is obtained on the sod layer. On non-leached soils, the bulk mass along the profile varies from 2.18 to 2.72 g / cm3, on average leached 2.91 to 3.12 g / cm3.

The total porosity on the upper horizons of non-leached soils is 69–71% and is estimated as expanded.

According to Mammadov G.Sh. [10] based on the bonitet calculations, the highest score of 90 is for mountain forest brown cultivated soils occupying 61140 hectares or 0.71% in the whole country. In addition, mountain-meadow turf soils -89 and mountain-forest-meadow soils-86 were also given high bonitet ratings. Minimal meadow primitive values were obtained in 20 points, and mean-63 meadow (alluvial-meadow) Table).

Erosion processes, being one of the factors of exogenous forces, plays an important role in the formation of the landscape as a whole. Regardless of the change in the relief, on forest plots and territories covered with grassy vegetation, exogenous processes are very poorly manifested. The decisive factor preventing erosion processes is the vegetation cover. Erosion processes are especially evident in areas with a weak vegetation cover. Anthropogenic impact on the environment, cultivation of crops on the slopes of mountains, carrying out plowing along the slopes, intensive development of pastures, deforestation, etc. are the main factors that intensify erosion processes and, accordingly, soil degradation. As a result, the upper humus horizon drifts down the slope. There is a deterioration in the physical properties of soils, especially water permeability of soils, which contributes to increased runoff [12], as well as the removal of fine particles enriched with mineral elements [13].

Excessive grazing of cattle on summer pastures and pastures, especially in early spring, contributes to the destruction of the turf of the soil, thereby creating furrows, which in turn intensifies the erosion of meadows.

On steep slopes, the soil cover is thin, easily eroded, resulting in the parent rock entering the surface, the degradation of which accelerates. On the plowed slopes accumulated water in the furrows, sharply worsens the physical properties of the soil and contributes to the development of beam erosion.

In addition to mudflow phenomena on the southern and north-eastern slopes of the Greater Caucasus, landslides are widespread, which also cause significant damage to the national economy.

Points of soil quality of mountain regions of Azerbaijan (According to Mamedov G.Sh., 2000)

No.	Soil name	Bonus points	Area	
			Ha	%
1	2	3	4	5
1	Mountain meadow primitive	20	150980	1.75
2	Mountain meadow turf	89	218440	2.53
3	Mountain-forest meadow	86	54920	0.64
4	Mountain-forest brown residual-carbonate	76	4500	0.05
5	Mountain forest brown cultivated	90	61140	0.71
6	Flood-meadow (alluvial-meadow)	63	671670	7.77

Conclusions

Analyzing the above, it is necessary to state the fact that with the development of erosion processes, the republic annually loses tens of thousands of tons of agricultural products, and therefore timely implementation of anti-erosion measures and its integrated application is considered a necessary problem that meets the modern requirements of the day.

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THE PROS AND CONS OF USING AUTHENTIC ENGLISH SONGS TO LEARN THE ENGLISH LANGUAGE

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The article touches upon the issue of using modern songs in the English language learning. It provides analysis of some various mistakes in lyrics: grammar, vocabulary, spoken reductions and others. The work presents the argumentation in favour of using authentic English songs for teaching and self-study English.

Keywords: the English language, vocabulary, English songs, medical students, comprehension of spoken English

"Music is the soul of language", –
Max Heindel, Danish-American astrologer, and mystic.

If you like listening to music, your hobby can be helpful for your English. Good song helps not only to have a rest but it's also helpful for learning new vocabulary. However, the majority of people considers that listening to the songs is not good way for learning language, because the text of songs often contains slanguage and foul language.

Grammatical rules are also broken in such lyrics. There is some truth in these words. But it doesn't mean that the authors of the lyrics don't know their own language. They only want to make the language of their songs simpler and bring closer to the speaking language which has wrong grammar phases, unusual word order, abbreviation, grammar mistakes. In general spoken language has many language deviations that we can't admit in writing official language and in grammatically correct oral speech.

Despite this, there are many songs with grammatically correct sentences and various useful vocabularies. Nevertheless, one should accept that some obliqueness exits in the texts of songs. They are: the omission of endings, spoken reduction, breaking grammar rules, non-observance of sequence of predicate and object, wrong forms of verbs in conditional sentences.

1. The omission of endings. When we listen to the songs in English we often can notice the pass of endings in different words. We can see it in lyrics of almost all modern English songs. Here are some examples:

***

Give me sugar
Give me something sweet
I've spent a lifetime
Feelin' *incomplete* [1]

***

I won't let you get me down
I'll keep ***gettin'*** *up when I hit the ground [2]*

***

There's no one left in the world
I'm ***gunslingin'****, – [3]*

As we can see there are apostrophes instead of last letters in written form of these words. There are many examples of lyrics with such words without last letters. The authors of these songs make their lyrics more rhythmical by this way.

2. Spoken reduction. It is short forms of common words that we use in our speech, when we speak fluently. For example, "gonna" is a short for of "going to". If you try to pronounce "going to" fluently it will sound like "gonna". Here are some examples of these grammar constructions in modern songs:

***

Cause we are the ones that want to play
Always want to go, but you never ***wanna*** *stay* ***(wanna = want to)***
And we are the ones that want to choose
Always want to play, but you never want to lose, [4]

***

Come on, come on, turn the radio on
It's Saturday and it won't be long
Gotta *paint my nails, put my high heels on* ***(gotta = got to)***
It's Saturday and it won't be long…", [5]

***

Hey, slow it down
Whataya want from me ***(Whataya = What do you)***
Whataya want from me
Yeah, I'm afraid
Whataya want from me…", [6]

3. Breaking grammar rules.

– *Double negation.* It is often used for making phrases more expressive:

***

I struggle, fight dark forces
In the clear moon light
Without fear... insomnia
I ***can't*** *get* ***no*** *sleep,* [7]

– Using pronouns in wrong form.

***

We don't wanna be like them
We can make it to the end
Nothing can come ***between***
You and I, [8]

– The amplification of degree of comparison of adjectives with the help of additional irregular forms.

***

I say you ***the bestest***
Lean in for a big kiss
Put his favorite perfume on, [9]

***

Such a lonely day
And it's mine
The most loneliest *day of my life,* [10]

4. Non-observance of sequence of predicate and object.

***

I just want you for my own
More than you could ever know
Make my wish come true
All I want for Christmas
Is you, [11]

***

The open wound she hides
She just keeps it bundled up
And never lets it show
She can't take much more of this
But she can't let it go
And that's ok, ***she don't*** *want the world,* [12]

5. Wrong forms of verbs in conditional sentences

***

If *I* ***would have known*** *it could have been you*
If I had the chance, if I had the chance I'd make us brand new
I never wanted to be, wanted to be your remnants
No, but if I, ***if*** *I* ***would've known***
If *I* ***would have known*** *it could have been you, been you*, [13]

***

If ***I was*** *a rich girl (na, na....)*
See, I'd have all the money in the world, if ***I was*** *a wealthy girl*
No man could test me, impress me, my cash flow would never ever end
Cause I'd have all the money in the world, if ***I was*** *a wealthy girl*, [14]

There are only some examples of breaking rules in songs which are written in English. Practically we have much more examples. It can be explained by incessant development of the language or by authors' wish to make their song more "alive" by including in their lyrics words or phrases from our daily speech. This expedient makes lyrics more understandable and more harmonious to the music with which they sound. It can be called like visual-expressive way of language as well as metaphor, epithet or sarcasm. This visual-expressive way of language makes modern songs more native for their audience that consists of great number of young people.

For the most part foreign songs are helpful for improving the comprehension of spoken English and pronunciation, useful for expanding our vocabulary. There are many websites on the internet which use this method for teaching English. It is based on the comparing the written form of lyrics with the song, that person is listening at the moment.

We conducted young people survey (50 people at age 17–20) and its results helped us to draw the conclusions on trends of learning English among the students of Karaganda State Medical University. Most students said that they often listen to English songs (80% of total number of people). Also student were interviewed about influence of English songs listening on process of learning this language. 66% of respondents hold that listening songs helps to improve the English pronunciation. Less people find that English songs are helpful for expanding their vocabulary and for learning new grammar (only 18% and 8%, respectively). Great number of respondents knew about educational websites which use songs for teaching English language (42% of students). 36% of interviewed have heard about these websites but didn't use them.

In conclusion, we would like to say that listening of English song is one of the most widespread methods used by young people when they study English on their own. This is illustrated by often using the websites with released lyrics of songs and by listening to music on their mobile phone while they are going to university, walking in the park, or doing chores around the house.

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INVESTMENT POTENTIAL EVALUATION ON THE BASIS OF REGION COMPETITIVE ADVANTAGES IDENTIFICATION FOR THE PURPOSE OF FOREIGN INVESTORS' ATTRACTION

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In the article the problem of investment potential complex evaluation for the purpose of the region competitive advantages identification and their use in the region investment image forming is considered. The authors offer the investment potential evaluation complex methodology based on the scientific approach, reliable statistical indicators, rating agencies analytical data and allowing the region competitive advantages identifying, its investment image forming with the use of private potentials in which the region is the leader and also the potential unformed separate subspecies development directions active searching. The investment potential evaluation methodology based on the region competitive advantages identification was tested on the Yaroslavl, Kostroma, Vladimir and Ivanovo regions data and showed its practical importance.

Keywords: investment attractiveness, investment potential, investment image, foreign investor, regional economy

Investment attractiveness forming is the priority direction of the regional economy development ensuring capital raising and stimulating its social and economic development. The basic element of the region investment attractiveness management is the evaluation of investment potential existing level and its comparison with close regions for the purpose of competitive advantages identification and proper investment policy elaboration.

The author's research of foreign countries regions investment attractiveness and practical experience of investments attraction in Russia proves that foreign investors take apprehensively the regions with medium or low investment attractiveness. The region investment attractiveness can be managed but it needs a serious approach to the question of the existing potential: that is industrial, infrastructure, financial, labor, touristic etc. The directions of its effective use for investors attraction can be carried out only after all its components analysis and its importance in the regional economy development evaluation. That's why the investment potential evaluation as the basis of the region investment image forming and investment strategy development is so important for the region.

The regional investment potential is the cumulative ability of the region own and borrowed resources to provide the investment activity with the presence of favourable investment climate for the purposes and in scales determined by the regional economic policy [1]. The study of native and foreign literature devoted to the problems of regions investment image forming and generalization of the researches in this area allowed the authors to offer the following algorithm of the region investment potential evaluation:

1. The definition of the objectives of the investment potential evaluation (it can be: studying of investment potential separate components, identification of potential underutilized opportunities, region development strategy correction, searching of the new ways of investment image forming etc.).
2. The selection of the regional investment potential evaluation methodology. The Rating Agency "Expert RA" [8], The Council under the Russian Federation Ministry of Economic development and Russian academy of sciences for the studying of productive forces [6], The National Rating Agency (NRA) [7], The Agency for strategic initiatives [5] research and evaluate the Russian regions investment attractiveness.
3. Necessary evaluation information receipt. The data of the Rating Agencies, Federal state statistics service, the investment regional portals etc. can be the information sources.
4. The regional investment potential evaluation by means of the chosen methodology. The obtained evaluation results processing.
5. The use of evaluation data for the purpose of taking management decision on the region investment attractiveness forming, the development strategy carrying out on the basis of the new investment image forming.

The authors offer the investment potential evaluation complex methodology based on the regions competitive advantages identifying (fig. 1). The methodology is based on the scientific approach, reliable statistical indicators, rating agencies analytical data. The results of the investment potential evaluation methodology based on competitive advantages allow to form the region investment image using private potentials and to search actively the directions of the potential unformed separate subspecies development.

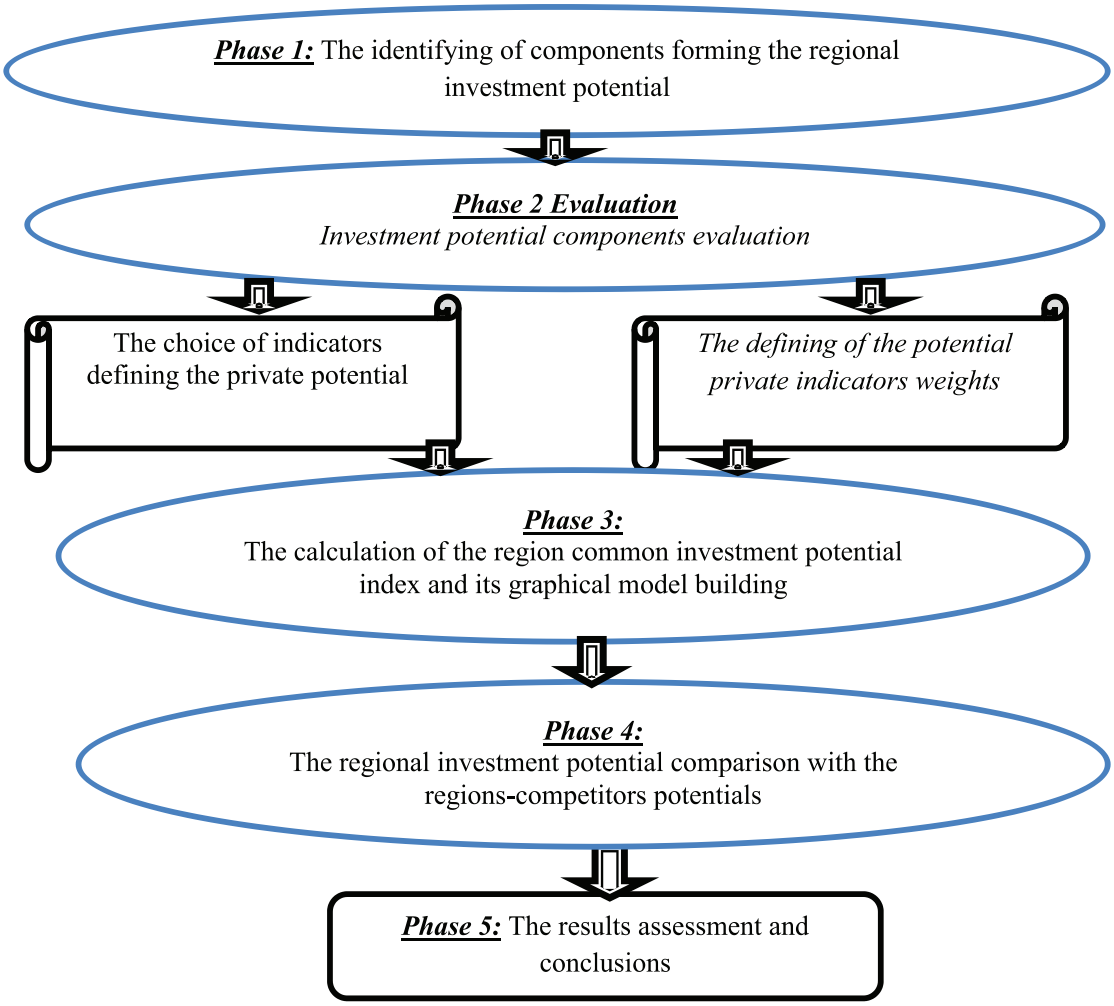

Fig. 1. Regional investment potential evaluation complex methodology

Let's consider this phases in more detail.

Phase 1. We will consider the regional investment potential through the potentials which forming it, that is: industrial, labor, consumer, infrastructural, financial, innovative, natural and touristic.

Phase 2. Into the composition of the private indicators used for regional investment potential identification such potentials as industrial, labor, consumer, infrastructural, financial, innovative, natural and touristic are included (presented in the table 1).

The numeric value of each indicator presented in the table 1 is calculated with the use of the following formula:

$$P = \frac{p_c}{p_{\max}} * 100\%, \quad (1)$$

where P is the calculated private potential indicator,

p_c – the index value in the region evaluated,

$p_{\max}$ – the maximum value among all regions.

On the third phase the calculation of region total investment potential is carried out and its graphical model building is implemented. For this purpose the each potential indicators are summed and then they are divided on the amount of the indicators of presented private potential and at least the sum received is multiplied by the potential weight (formula 2):

$$I = \frac{\sum_{j=1}^{n} pi,j}{ni} * di, \quad (2)$$

where I is the potential calculated;

n – the number of indicators in the potential;

pi,j – j indicator i potential;

di – the weight of i potential, percentage.

For the purpose of private indicators weights determination let's use the "Expert RA" Rating Agency data [8]:

– industrial potential – 0,7;
– labor potential – 0,7;
– consumer potential – 0,65;
– infrastructural potential – 0,6;
– financial potential – 0,6;
– innovative potential – 0,4;
– natural resource potential – 0,35;
– touristic potential – 0,05.

Phase 4. The comparative analysis of the regions is necessary for the potential evaluation in the context of competitiveness and for separate region investment attractiveness gradation determination.

Let's carry out the evaluation of the investment potential of the Ivanovo, Yaroslavl, Kostroma and Vladimir regions on the basis of the algorithm offered by the authors.

For the purpose of the Ivanovo, Yaroslavl, Kostroma and Vladimir regions investment potential evaluation eight potential subspecies in the dynamics from 2011 to 2016 were determined [2; 3; 4].

While analyzing the industrial potential data presented in the table 2 we can say that the highest values for the period from 2011 to 2016 the industrial potential achieved in Vladimir region, Yaroslavl region is following behind. The Ivanovo region industrial potential is lowest among all the regions considered.

Table 1

The indicators used for regional investment potential identification

1. Industrial potential: – GRP (gross regional product) per capita, amount in roubles – the number of industrial enterprises in the region, units
2. Labor potential: – average number of economy employed people, thousands of people; – life expectancy, years; – professional and educational level, availability of education.
3. Consumer potential: – actual final consumption of households per capita, amount in roubles; – the living area total area per capita per capita, square meters.
4. Infrastructural potential: – operational length of Railways for General use, kilometers; – the density of public paved roads per 1000 square kilometers of territory, kilometers.
5. Financial potential: – organizational activity balance financial result, millions of rubles; – the distribution of operating credit institutions, units.
6. Innovative potential: – organizations carrying out the scientific researches and elaboration, units; – the volume of innovative goods, works and services, millions of rubles.
7. Natural resource potential: – mining operations, millions of rubles; – the land agricultural area, thousands of hectares.
8. Touristic potential: – the number of travel companies, units; – the annual tourist flow, number of people.

Table 2

The regional industrial potential in the period from 2011 to 2016

Region	Industrial potential, %						
	2011	2012	2013	2014	2015	2016	The place among the regions evaluated
Ivanovo region	27,79	25,76	25,55	28,7	25,48	26,18	4
Yaroslavl region	50,61	47,74	50,82	54,32	53,76	53,69	2
Kostroma region	39,62	37,17	39,13	40,11	39,13	38,08	3
Vladimir region	70	70	70	70	70	70	1

The *labor potential* data received are presented in the table 3. For all assessed regions a high value of this potential is witnessed. This circumstance suggests that a large part of the population is working age people with sufficient level of professional education.

The great importance for the region has the consumer potential because when choosing the investment territory the potential investor quite often pays attention exactly on this indicator.

It may be noticed that Yaroslavl region during the six years has maximum consumer potential (table 4). The Ivanovo region consumer potential is on the fourth place and gives way to Kostroma and Vladimir regions. The average level of the Ivanovo region consumer potential witnesses about the low aggregate purchasing power of the population which in its turn flows from the labor payment average level and population income per capita.

Let's calculate the regional infrastructural potential (table 5). While business organization the highest level of the territory infrastructure preparation allows saving resources and making much profit compared to regions with worse prepared infrastructure.

Table 3

The regional labor potential in the period from 2011 to 2016

Region	Labor potential, %						
	2011	2012	2013	2014	2015	2016	The place among the regions evaluated
Ivanovo region	68,7	68,7	69,5	69,4	69,2	69,6	2
Yaroslavl region	70	70	70	70	70	70	1
Kostroma region	69,1	68,5	69,7	69,3	69,4	69,4	3
Vladimir region	68,7	68,1	68,7	68,7	68,6	68,9	4

Table 4

The regional consumer potential in the period from 2011 to 2016

Region	Consumer potential, %						
	2011	2012	2013	2014	2015	2016	The place among the regions evaluated
Ivanovo region	57,6	57,8	59,4	59,7	59,0	58,1	4
Yaroslavl region	64,2	63,9	63,3	63,9	63,3	63,6	1
Kostroma region	62,3	60,9	59,7	59,9	58,2	59,6	3
Vladimir region	60,7	60,60	62,2	61,9	61,7	61,8	2

Table 5

The regional infrastructural potential in the period from 2011 to 2016

Region	The regional infrastructural potential, %						The place among the regions evaluated
	2011	2012	2013	2014	2015	2016	
Ivanovo region	41,2	34,9	41,2	41,2	41,2	40,9	3
Yaroslavl region	47,9	39,9	45,7	44,9	44,6	45,1	2
Kostroma region	33,6	29,6	34,6	32,4	32,4	32,8	4
Vladimir region	59,9	60	60	59,7	59,3	60	1

Table 6

The regional financial potential in the period from 2011 to 2016

Region	Financial potential, %						The place among the regions evaluated
	2011	2012	2013	2014	2015	2016	
Ivanovo region	11,3	25,4	28,1	22,1	27,4	27,3	4
Yaroslavl region	45,2	39,5	52,8	40,9	21,5	29,7	3
Kostroma region	21,1	26,4	30,9	32,7	35,3	33,5	2
Vladimir region	39,0	42,9	42,9	42,9	45,0	45,0	1

The financial potential identification on the level of each region is the starting point in the carrying out of any consolidated program and development forecast. The financial potential of the region contains the financial resources available to the region, not only in the actual present, but also in the future, that is the resources that can be brought to the region development. The financial potential values by the regions in the dynamics are presented in the table 6.

The analysis showed that Vladimir region has the highest value of collection of financial and monetary resources which are necessary for sustainable economic activity maintaining. Ivanovo region takes the last place among the considered regions by the level of the financial potential.

Innovative potential is collection of innovative resources which provide the opportunity of innovative activity and innovative technology, production and service creation [10]. On the basis of the date presented in the table 7 it is clearly that Vladimir and Yaroslavl regions have the highest innovative potential.

The values of regional natural resource potential in dynamics are presented in the table 8. As of 2016 Vladimir region potential exceeds Ivanovo region potential in two times.

Table 7

The regional innovative potential in the period from 2011 to 2016

Region	The regional innovative potential, %						The place among the regions evaluated
	2011	2012	2013	2014	2015	2016	
Ivanovo region	34,5	13,3	12,8	13,0	13,9	11,7	3
Yaroslavl region	37,1	37,0	38,8	38,4	40	33,4	2
Kostroma region	5,9	5,8	5,6	6,5	6,5	5,8	4
Vladimir region	21,2	35	34,4	34,7	33,7	34,4	1

Table 8

The regional natural resource potential in the period from 2011 to 2016, %

Region	The natural resource potential, %						
	2011	2012	2013	2014	2015	2016	The place among the regions evaluated
Ivanovo region	19,6	19,9	18,8	16,1	15,6	16,4	4
Yaroslavl region	24,2	32,9	26,4	22,9	21,9	23,5	2
Kostroma region	17,7	18,1	17,3	16,8	16,5	18,7	3
Vladimir region	32,9	32,9	32,9	32,9	32,9	32,9	1

Table 9

The regional touristic potential in the period from 2011 to 2016, %

Region	The regional touristic potential, %						The place among the regions evaluated
	2011	2012	2013	2014	2015	2016	
Ivanovo region	4,3	3,5	3,2	2,9	3,32	3,3	2
Yaroslavl region	3,1	2,8	2,7	2,7	2,6	2,8	3
Kostroma region	2,8	2,3	2,1	1,7	1,8	2,1	4
Vladimir region	5	5	5	5	5	5	1

Table 10

The common regional investment potential in the period from 2011 to 2016

Region	Investment potential, %						The place among the regions evaluated
	2011	2012	2013	2014	2015	2016	
Ivanovo region	264,99	249,26	258,55	253,1	255,1	253,48	4
Yaroslavl region	342,31	333,74	350,52	338,02	317,66	321,79	2
Kostroma region	252,12	248,77	259,03	259,41	259,23	259,98	3
Vladimir region	357,4	374,5	376,1	375,8	376,2	378	1

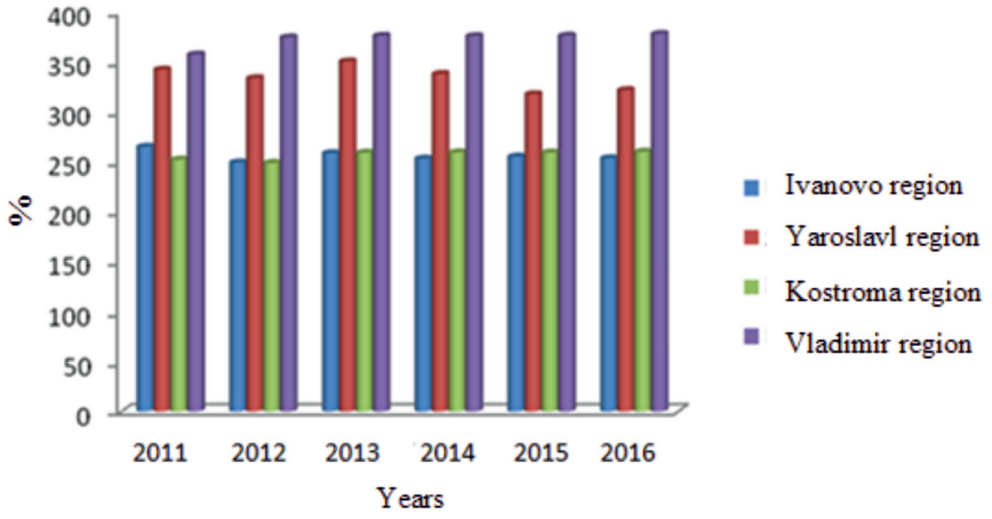

Fig. 2. The regional investment potential in the period from 2011 to 2016, %

The values of the touristic potential in dynamics are presented in the table 9. The touristic potential of all regions considered are at enough high level.

After calculation of all private potentials we can find out the investment potential common indicator of each of the researched regions. The data received are presented in the table 10.

For the purpose of a more visual image of the investment potential let's build the diagram reflecting the quantitative indicators of the given data (fig. 2).

After analyzing the main indicators influencing on the regional investment potential the authors come to the conclusion that Vladimir and Yaroslavl regions take the leading positions by the investment potential level. Ivanovo and Kostroma regions investment potential take the medium place; moreover the dynamics stays stability throughout the analyzed period.

The investment potential management policy for the purpose of foreign investor attracting should be carried out correctly. It should be the region investment image forming with the use of competitive advantages and on those potential components focusing, where the region is the leader, and at the same time unformed private potential directions actively forming, maintaining and developing.

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THE SHANGHAI COOPERATION ORGANIZATION (SCO) AND SECURITY PROBLEMS IN CENTRAL ASIA: EXPERIENCE FOR KAZAKHSTAN

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This article analyses the peculiarities of the evolution of the Shanghai cooperation organization (SCO), prospective directions of activities of the security problems in Central Asia. Today, the organization meets the requirements of geopolitics, the basic trends in the world economy, carried out systematic work on the consistent achievement of the key objectives of effective implementation of all joint decisions. Special attention is paid to issues of overcoming new challenges, threats to stability and security. The Shanghai cooperation organization has created a set of mechanisms or arrangements capable of managing security processes in the region. Placing at the forefront of the fight against "three evil forces" the organization began to take shape in the structural and legal way. In General, the fight against terrorism in the framework of the SCO, the struggle of the participating countries, and not the Shanghai cooperation organization, serving a unifying framework to coordinate the work of the security services of all six countries in the fight against "three kinds of evil". The fight against terrorism has become the most successful area of cooperation, in General, for a good elaboration strategy. It has wide and fruitful cooperation between all competent authorities of the member States of the SCO, as in the exchange of information and coordination of practical work.

Keywords: Shanghai Cooperation, security problems

The Shanghai Cooperation Organization (SCO), created in June 2001 by the efforts of Russia, China, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan, has now become a full-fledged regional organization of a new type, built on the principles of mutual trust and mutually beneficial cooperation. For a short historical period of time, the SCO has evolved from a consultative mechanism of neighboring countries to settle border issues and strengthen confidence-building measures in the military field to a multidisciplinary international organization with significant military and economic potential.

Starting with cooperation in the fight against international terrorism, separatism and political extremism, it expanded the scope of its activities to the economic sphere, and then to such areas as health, education, culture, tourism, etc. [1, p. 78], which indicates that the Organization was created not only to contain destructive forces, but also to bring the peoples of the participating countries closer for further growth of their economies and improvement of the well-being of citizens.

The SCO's development strategy for the SCO up to 2025 will allow to raise the SCO to a new level of cooperation. Many international organizations and individual countries show interest in cooperation with the SCO in various fields, and some express their intention to become its members. Despite the short period of its existence, the SCO as a new geopolitical reality attracts the attention of the world community, which naturally raises the question of the prospects for its further development. In the conditions when the West has taken a course on the international political and economic isolation of Russia, the task is to neutralize this confrontational scenario, for which it is necessary to increase the geopolitical weight of such international and regional associations based on the principle of multipolarity and distancing from the West. The SCO is among them.

The SCO's system-forming element is the counteraction to international terrorism, separatism and political extremism. Currently, these forms of threats have added one more – cyber-terrorism, which is a serious challenge for the entire international community, both for individual states and for business structures [2].

A serious legal framework for cooperation of member states in this field has been formed. The culmination of building up the SCO's security efforts was joint military exercises. At present, this direction of activity by the efforts of the Russian side still continues to firmly hold the priority on the agenda of the SCO.

The dissatisfaction of the West with the independent foreign policy of Russia and China in the international arena, the growth of their economic and military-technical might, and the emerging strategic partnership between Moscow and Beijing challenge the dominant position of the United States in the world, which forces Washington to intensify efforts to destabilize the domestic political situation not only in these Countries, but also in countries that are their closest neighbors. Thus, large-scale riots in Ukraine were initiated, which led to a coup d'état. In turn, student unrest in Hong Kong (the so-called "umbrella revolution" and the "occupy cent" movement) [3] showed that the threat from the West exists not only for Russia but also for China.

Moreover, these events, similar to the wave of "Arab revolutions" in the Middle East, were directed by a single and the same scenario known to all, which had previously been used during the "Rose Revolution" in November 2003 in Georgia, the "Orange Revolution" in December 2004 in Ukraine, the Kyrgyz "tulip revolution" in March 2005. Naturally, all these so-called "revolutions" were organized with the financial support of the West. For example, according to french sources, about $ 52 million was spent on the revolution in Kyrgyzstan [4]. "Color revolutions" in the post-soviet space are unfolding according to a single scenario, based on the information war and the manipulation techniques. External forces (a number of well-known funds, institutes and NGOs) under the guidance of the State Department and the CIA of the USA worked out well-proven and well-proven methods (besides financial assistance, the leaders of the protest movement received detailed instructions on organizing mass riots) under the control of the current regime.

In case of insufficient social base for rapid destabilization of the situation in certain CIS countries, the US relied on the use of the national factor, since the incitement of nationalist conflicts within the country makes it very easy to aggravate the internal political situation. A special role is played by NGOs.

It is indicative that in many inter-ethnic clashes, which occurred, for example, in the last decade in Central Asia, the foreign track is clearly traced. This also concerns to the clashes in Andijan (Uzbekistan) in 2005, and the interethnic pogroms in 2010 in Osh (Kyrgyzstan), whose active "observers" were employees known for their interference in the internal affairs of other countries of the United States Agency for International Development (USAID) And US-controlled NGOs.

The opportunity to influence the Central Asian media is not overlooked, and not on the state ones, which are tightly controlled by the authorities, but on private ones. For example, USAID recently launched a new project "Support for access to information" in Kazakhstan, Tajikistan and Kyrgyzstan for a total of $ 3.8 million for 3 years. Its goal is to assist non-state media in the region in the process of their transition to digital broadcasting, the improvement of the legislative framework of the media sphere, and the activation of regional cooperation of independent media. As expected, the audience of independent television companies by 2017 will increase by 40 % [5]. Simply put, loyal personnel are being trained, a network of so-called "independent media" is growing, which will later engage in politics. This is how the new opposition is grown and the basis for possible future use of networked information technologies is laid. According to experts, in the Central Asian region there are quite favorable conditions for applying modern schemes of information impact on the type of scenarios previously worked out in North Africa and the Middle East [6].

The mobilization of Islamic terrorists in the Syrian conflict is much more active than in other similar conflicts of recent times, and the corresponding ideological processing of the "contingent" is conducted in all the Central Asian republics without exception. It facilitates the sending of fighters to Syria visa-free regime, established by Turkey with the countries of Central Asia and Russia.

The authorities of the post-soviet republics are trying to prevent the departure of their citizens to Syria. In the countries of the region, new normative acts were adopted. However, the return of citizens to their homeland after participating in the fighting in Iraq and Syria is the main source of alarm for the authorities of Central Asia.

The current situation in the world is characterized by the fact that international terrorism (for example, the DAIS) began to adopt such methods and take such scale that it is effective to parry its threats and actions can be extremely difficult without adequate connection of military capabilities. In this connection, the question arises of the need to create a military structure of the SCO.

Apparently, the main reason for this situation was the SCO's cornerstone principle of non-interference in internal affairs and respect for the sovereignty of all participating countries. This principle, combined with chronic regional disunity, severely limits the possibility of collective action by the Organization [7]. Therefore, military cooperation is one of the most controversial aspects of its activities. On the one hand, this cooperation is not among the SCO's main priorities. On the other hand, it is of great practical interest for all participating countries. Russia here is the leader of this track, as it is present in all spheres of global security, participates in resolving the main regional conflicts in the world.

The work of the SCO is limited by consultations and meetings of representatives of international organizations and Security Councils of the SCO countries, and in practical terms – the conduct of command post and tactical exercises held at least once a year under the auspices of the SCO Regional Antiterrorist

Structure (RATS). Apparently, at present, the SCO, with Russia's involvement in the security sphere, is focusing on cooperation with the CSTO, which already has Collective Rapid Response Forces in its composition.

At a meeting of the heads of the military departments of the SCO member states in St. Petersburg in July 2015, a decision was taken to establish an apparatus of national military advisers under the aegis of the Organization. Such a structure can serve as a "generator of ideas" for guiding the habits of recommendations on the use of the capabilities of participating countries in the field of security [8].

Thus, at present the antiterrorist component is actively growing in the SCO. At the summit of the Organization in Ufa in July 2015, a program to combat terrorism, separatism and extremism for 2016–2018 was approved. The structures of the SCO over the past year have stopped at the stage of preparation of 317 crimes of a terrorist and religious extremist nature [9]. The task of developing the SCO Convention on Combating Extremism is on the agenda. At the same time, it recognizes that the Organization has not yet mastered all the integration mechanisms for ensuring regional security and the security of participating States. It is obvious that the existing relationships within its framework can not yet fully guarantee a sufficient counteraction to the growing challenges and threats. The formation of an effective system of international security faces the problem of the lack of a real mechanism for an adequate, legally justified response to these challenges.

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THE COMPARATIVE ANALYSIS OF FINANCING STATE PROGRAMS FOR DEVELOPING TOURISM AND CULTURE IN ALTAI REGION, KEMEROVO AND NOVOSIBIRSK REGIONS

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The article shows the analysis of programs aimed at the budget and developing tourism and culture in several Siberian regions: Altai region, Novosibirsk and Kemerovo regions. Tourism is a significant part of economic and cultural state policy and, thus, it is an object of the greatest attention of media as well as state structures. The financing of tourist programs in various regions of Russia has a significant difference. Nevertheless, each region deals with its budget and development objectives on its territory in its own way.

Keywords: tourism, tourism development, state budget programs, comparative analysis, Siberian regions, recreational resources

Tourism is a complex and versatile sphere with its role in the world economics steadily growing every year.

In the beginning of the XXI century tourism became one of the leading directions of socio-economic, cultural and political activities of the Russian Federation in its regions [1].

Tourism is viewed as a substantial part of innovative development of our country in a long-term outlook, economically profitable and environmentally friendly branch of national economics [2].

Altai regionhas a wide range of natural and cultural resources and, therefore, can offer practically all kinds of tourism. Meanwhile, neighbouring Kemerovo and Novosibirsk regions have its tourist zones, which can easily compete with Altai region. Each of them has its advantages, and these objects can become the most significant tourist regions of Russia if combined with a highly developed infrastructure.

Nevertheless, the procedure of financing these regions by the state programs has noticeable differences [3, 5, 7, 8].

In spite of officially approved state programs financing procedure, its analysis, problems revelation and their further improvement can raise state programs implementation effectiveness.

For the analysis the following tourism development programs were studied:

- "Tourism development in Altai region" in 2011–2016;
- Long-term target program "Tourism development in Novosibirsk region" in 2012–2016;
- State program of Kemerovo oblast "Youth, sports and tourism of Kuzbass" in 2012–2016.

We are conducting a comparative analysis of these programs' passports in order to reveal some problems of the state tourism development program financing procedures in the regions of our interest.

The first important detail is an insignificant difference between programs passports in wording goals and objectives. Starting with the title of the examined state program of Kemerovo oblast, it is noticed that the development of tourism in this region is placed on the same footing as forming and application of the state youth policy and state policy in the sphere of culture and sports. Whereas, the key target of tourism development program in Altai region is its stable developing and promoting of the Altai tourist product to Russian and external markets [4].

The mentioned strategy does not anticipate the aim of creating a tourist complex to be integrated into Altai region economics as it is written in the Novosibirsk region's program.

The goals of the mentioned program appeared to be similar for Altai region and Novosibirsk region. They are aimed at creating favourable tourist climate in the regions, forming a positive image and providing tourist activity development. In a general way, the rest materials of the state tourism development program passports in the studied regions are similar.

Further we are considering the examples of the program realization on the basis of 2015 year in each case.

In Altai region during the survey period the development of tourist infrastructure and tourist service market forming were continued. The program "Tourism development in Altai region" in 2011–2016 contributed to the implementation of the major projects in Altai region: building the Belokurikha-2 resort, providing the development of the motor touring cluster "Golden gates", creating the tourist-recreational cluster "Barnaul – a mining city". The tourist route "The Small Golden ring of Altai"

started its functioning; the new interregional transborder 2,000 km length tourist route "The Big Golden ring of Altai" and the route "Kossack's horseshoe of Altai" were tested for the first time.

Within the bounds of "Tourism development in Novosibirsk oblast in 2012–2016" program there were built 10 new tourist-recreational objects in Novosibirsk oblast, 3 objects of tourist infrastructure were reconstructed and there were held 2 congresses on the territory of the region in order to inform about the tourist potential of Novosibirsk oblast. Cash resources were assigned to support tourist cluster named "Ob sea".

Concerning Kemerovo oblast, it has an intensely developed tourist infrastructure and big tourist complexes such as "Sheregesh", "Tanay" and others. Experience shows that funds allocated for the state program aimed at tourism development in this region are enough to support the already existing tourist cluster. The general supply is mostly forwarded to the advertisement and stable tourism development in the region.

The programs are realized by means of holding various events. Thus, there were held 40 events in Altai region during 2015, 3 events were held in Novosibirsk region and 1 event took place in Kemerovo.

One of the most actively developing directions of the Russian Federation is cultural policy. By the example of state programs "Culture development in Altai region" in 2015–2020, "The culture of Novosibirsk oblast" in 2015–2020, "The Kuzbass Culture" in 2014–2020, we are examining procedures of their financing in Altai region, Novosibirsk and Kemerovo regions.

Comparing the sources of financing culture development state programs during 2015 in the regions of our interest, we can conclude that each of these programs is financed practically in full from the subject budget. In Altai region 95% of means for carrying out the program came from the regional budget, almost 3% came from local budget and only 1% was from federal budget. We see approximately the same distribution of funds in the programs of neighbouring regions. In Almost 98% of funds for carrying out culture development program in Novosibirsk region came from regional budget and only 2% came from extrabudgetary sources, federal and local budgets.

In Kemerovo region 96% of funds came from regional budget, 2% came from extrabudgetary sources and 2% came from the federal budget.

The sources of financing state programs on culture development in Altai region, Kemerovo and Novosibirsk regions in 2014–2016, thousands of roubles

Source of funds	year	Altai krai	%	Kemerovo oblast	%	Novosibirsk oblast	%
Federal budget	2014	9723	1,33	26607	1,90	16681	0,76
	2015	9604	1,29	21991	1,64	16671	0,76
	2016	9103	1,23	25889	1,91	16567	0,79
Russian Federation subject's budget	2014	713100	97,27	1343030	95,89	2142753	97,77
	2015	713202	95,87	1288555	96,38	2131753	97,80
	2016	706912	95,51	1277607	94,39	2051276	98,41
Local budget	2014	20300	2,77	0	0,00	16001	0,73
	2015	21131	2,84	0	0,00	16261	0,75
	2016	24097	3,26	0	0,00	16660	0,80
Extrabudgetary sources	2014	0	0,00	28797	2,06	16200	0,74
	2015	0	0,00	24181	1,81	15000	0,69
	2016	0	0,00	47789	3,53	0	0,00
Natural and legal persons' funds	2014	0	0,00	2190	0,16	0	0,00
	2015	0	0,00	2190	0,16	0	0,00
	2016	0	0,00	2190	0,16	0	0,00
Total investment	2014	733123	100,00	1400624	100,00	2191665	100,00
	2015	743937	100,00	1336917	100,00	2179685	100,00
	2016	740112	100,00	1353475	100,00	2084503	100,00

It is significant that the budget for carrying out the culture development program in Kemerovo region consisted of insignificant part from natural and legal persons' funds, which demonstrates that crowdfunding is being practiced in Kemerovo region. It means that citizens and enterprises have an opportunity to financially support responsible for the state program executives.

Conclusion

Tourism development programs in different regions of the Russian Federation are being successfully carried out. However, the major problem is that the state budget remains the main source of financing. The funds from natural and legal persons constitute only a small part of financing the development of tourism programs, which means insufficient confidence of private investors in the programs realization.

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INDEXES OF LABOUR QUALITY, FORMED UPON COMPETENCE APPROACH

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The article suggests a formulation for content of labour quality index. A conclusion is made that evaluating labour quality requires implementation of competence approach and index of competence that includes a set of labour-person competences.

Keywords: competence, labour quality, competence approach, indexes of quality

Evaluation of labour quality often takes place through terms "high-quality" and "low-quality" labour that are usually easily understood from context. And though it is acceptable in real practice, we should underline that high-quality labour is abilities of a labour person that are adequate to technological requirements of modern social production, and low-quality labour that does not have any special characteristics, cannot exist at all. Therefore, it is necessary to form an index of labour quality that will describe level of correspondence between labour and technological requirements of modern production at individual and social level (totality of labour).

Let us refer to theory and practice of managing commodity quality. Index of quality (for commodities) in quality management is understood as quantitative characteristic of one or several characteristics of commodity that are included into its quality, studied in application to certain conditions of its production and exploitation (consumption) [1]. At the same time each commodity has their specific nomenclature and indexes that depend on its purpose, conditions of its production and exploitation, and many other factors. Nomenclature of indexes if finally formed at the stage of designing a commodity, as at this moment they are put into the construction. Then, at the step of production these indexes find their realization. At the stage of exploitation (consumption) indexes become individual characteristics of a commodity, outline it in a line of its analogues, form its consumer characteristics and, therefore, make it attractive and competitive.

Quality of labour as a commodity at labour market depends not only on its exploitation characteristics of quality (basic consumer value), but also on a whole line of other consumer values that describe labour quality directly or indirectly. In this context all consumer values can be conditionally classified according to several categories that differ from each other in temporal factors of action: "basic" and "additional". The latter include "constant", "temporal", "attending", "included" values. Therefore, quality of labour can be studied as a function of totality, formed of labour values, or sum of them.

Basic values are consumer values that are put into content of labour at the stage of design and characterized by exploitation indexes of quality that include indexes of purpose (functional): education level, professional structure of education, social-professional mobility of individual, and also totality of labour on the whole. The listed indexes describe quality of labour during the its whole life cycle. They can improve, change, but their initial structure remains unaltered. These indexes define basic consumer value of an individual that serves as a foundation of comparing them to their competitors.

Additional values do cannot alter basic quality of labour, put into it in process of design, but strengthen or develop abilities of an individual (as well as totality of labour) in selection or employment (or in analysing structural quality of total labour), and it results in growth of consumer value of recruited workers. These values include constant, temporal, attending, and added consumer values that enrich basic indexes of labour quality.

Constant values are such additional consumer values that stay in force during the whole professional life cycle of a worker, but have an indirect relation to basic values. For example, professional image, prestige of educational institution, certificate, documents of qualification improvement or re-training, popularity of the former places of employment, etc. These values have different ratings. Their influence upon an employer allows for increase in consumer value of a recruited worker. In certain case influence of these values only can provide a long period of professional life for an individual, even if their basic indexes are exceeded by competitors. Professional image of a worker

(popularity, fame, etc.), for example, can serve as a signature of a popular artist.

Temporal values are additional values that have a direct relation to the look and quality of labour, but have a temporal period of action, sometimes during a season, and usually act not as long as life cycle of an individual does. They are defined by conjuncture of market. As a rule, these values allow an individual to sustain a high demand for their labour at a certain market segment.

Attending values are additional consumer values that are not related to labour quality directly, but can simplify or complicate conditions of its obtaining or exploitation: condition labour market infrastructure, transportation infrastructure, etc. the attending values can provide for increase in labour market demand or its decrease.

Added values are informational values: advertisement, exhibitions, contests that have no direct or indirect relation with quality of labour, but through repeating information on values that relate to labour quality, can increase its value in the eyes of many employers. Added values can include rumors, opinions, life quality. Influence of added values can be temporal (for example, advertisement of certain professions) or constant (social traditions) [2].

Further we suggest formulating content of labour quality index that will evaluate objectively traits and characteristics of labour that can meet "current" and "planned" technological needs of modern production.

Evaluating presence of certain characteristics and traits (knowledge and experience) of a person, that are required for efficient activity in a given professional area, index of competence level is used. In Latin "competens" is translated as fit, suitable, able, aware [3]. In translated context general competence of a person characterizes their ability to carry out real, live action, and in its professional aspect it represents qualification characteristic of an individual's ability to transform live labour (their workforce) into materialized labour (product) in terms of modern production. Competence shows presence of potential readiness of an individual to solve problems with their knowledge of trade, including substantial (knowledge) and procedural (skills) components, and implies constant update of knowledge, information, required for successful implementation of it in the changing professional environment [4], in other words, possession of operative (current technological needs of production) and mobile (planned technological needs of production) skills.

Thus, professional competence of an individual is possessing the corresponding competences (totality of corresponding competences) that include their personal attitude towards them or action subject that form its basic values (exploitation indexes).

In competence approach towards evaluating labour quality a profession defines what competences must a person possess or what professional area of their competences is. As a result, we can state that labour is of high quality if its competence meets current and planned technological requirements of production, and degree of satisfaction defines quality level of labour, in other words, the higher level of satisfying production requirements is, the higher is quality of labour. Therefore, a professional area can accurately formulate its requirements (indexes) towards quality of labour (composition and structure of competence or set of competences), and problem of an individual is to recombine their knowledge and skills in definite competences that are required in current professional area. So, psychological foundation of professional competence is one's readiness for constant change through improving their qualification and developing their professional skills, in other words, an individual who do not develop, will never possess a high-quality labour. Therefore, any professional competence implies constant urge for improvement, obtaining new knowledge and skills, enriching professional activity. Improving competence, or professionalism of an individual is the necessary condition of increase in labour quality for modern production, as it is defined now only by current technological requirements of production, but also planned, future aspects, directed towards modernization, novelties, and change.

So, according to the information, provided above, we come to the following conclusions: first of all, evaluating labour quality must facilitate competence approach and index of competence that include a set of competences of labour-person; secondly, level of labour quality is defined by degree of satisfying current and planned technological requirements of production.

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Short Reports

DIRECTIONS OF INNOVATIVE DEVELOPMENT OF THE FURNITURE ENTERPRISES

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In article the problem of innovative development at the industrial enterprises of furniture branch is considered. In modern conditions quickly growing scientific and technical progress gives prerequisites to the enterprises for updating and modernization of cars and the equipment. At the same time dynamically changing environmental conditions force the furniture enterprises to consider and make strategic decisions for a long-term outlook. The main objective at a research of problems of effective and innovative development of the enterprises consists in improvement and developments of new methodical approaches on formation and development of a control system of innovative development of the current activity of the furniture enterprises. Now the industrial enterprises including furniture, exist in fierce competition, on the one hand in the market there is a big stream of import production, with another, less qualitative production at cut prices at domestic market.

Effective innovative development of the enterprise depends on various factors including resources, external at use, energy, the personnel potential and also a consumer sector. During the determining and introduction of a control system of innovative development the enterprise has to react in due time to changes, reveal the factors defining these changes, find necessary ways of adaptation of to conditions of effective functioning.

The management of innovative activity at the furniture enterprises assumes development of market infrastructure which is characterized by stimulation and maintenance of all innovative structure of the enterprise and also to carry out the current changes in engineering procedure. Thus, the problem of rational and effective use of innovative developments in the social and economic conditions which developed in our country, is of particular importance and demands development of new alternative approaches for creation of a control system of effective innovative development of the enterprises. Also, It should be noted that innovative development at the enterprises is necessary for improvement of process of production in branches and increases in its investment attractiveness [1].

Creation of a control system of effective innovative development of the furniture enterprises for production of the furniture production new from the innovative point of view, to some extent can be based on the saved-up potential of the Russian innovative developments. At the same time there is a problem of shortage of the investment capital for bringing these developments to a resulting effect – release of innovative production. On the one hand, introduction and development of new innovative materials and more durable accessories demands investment of considerable money. And on the other hand, investment into the Russian innovative developments is characterized by certain risks in the conditions of constant intensive entry into the competitive market of the latest foreign innovative production which according to the characteristics is more attractive to the consumer.

Now act as the main directions at the organization and management of effective innovative development of the main directions of the furniture enterprises: development of a furniture plate, DSTP, accessories and finishing materials. New innovative materials have to be characterized by considerable environmental friendliness, durability, thermo and vibration resistance. As a result the finished innovative product has to receive consumer appeal, a number of new properties, such as: durability, loss of weight of a product, speed and simplicity of assembly.

Process of the organization of innovative activity for creation of new developments in the furniture industry demands coordinate joint efforts of experts which one furniture enterprise can not have. At the same time it is desirable to have a number of developments as it will give the chance to reduce risk of failure in a portfolio.

The groups for the solution of production problems created from workers and employees of different production divisions and staff services of the enterprise of furniture branch to whom the management of the enterprise pays constant attention and support become the most perspective form of involvement of workers to management of effective innovative development. These groups received different names in the different countries: groups of quality control, group on increase in productivity, group on improvement of production [7].

The strategy of development of innovative activity of the furniture enterprises is developed according to the purposes of its functioning, in this regard all scientific and research projects have to be considered as one of the main ways of achievement of a main goal at the studied enterprises.

Research process at the furniture enterprises is based on the basis of strategy of perspective development of its innovative activity developed with use of various productive and economic methods which in total make scientific and financial methodology of formation of this strategy of the enterprises. The production and financial methodology represents the system of the general rules principles and also special receptions and methods of economic research. They make theoretical base of the theory of innovative management.

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ECOLOGICAL BASES OF ENVIRONMENMENTAL MANAGEMENT WHILE PRESERVING SUBTROPICAL LANDSCAPES OF THE BLACK SEA COAST OF THE CAUCASUS

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The researching of the landscapes based on focusing on endangered native species and invasive forest species suggests an ecological approach to the development of technologies for the implementation of these projects in the subtropics of the Krasnodar region. The object of attention of ecologists and dendrologists became the area around urban space of Sochi along created bypass roads. Scientifically sounded project execution will get landscapes that can become a model of combining unique representatives of caucasian flora with introduce species.

Keywords: Flora of Caucasus, community structure, introduce and native species, creating landscapes

The study of founding conditions of the assortment of parks and forest parks along the Black Sea coast of the Caucasus for quite a long time has provided an extensive material on the justification of the right approach to the creation of such communities. According to the results of the acclimatization of introduce species of ornamental plants designed range and suggested the scientific basis for its enrichment. Exotic variety of alien species successfully took its niche in the community of the Caucasus forests as part of Park zones [8]. The work made by several generations of scientists and specialists in the field of plant introduction reached significant progress in the enrichment of the Black Sea coast of the Caucasus valuable exotics.

Scientists have developed the range of tree and shrub species and successful experience of forest parks in the resort area of the Black Sea coast can be confidently used by modern specialists. Creating landscapes based on endangered native species and *invasive* forest species suggests an ecological approach to the development of technologies for the implementation of these projects. Competent and experienced dendrologists and employees of forestries can develop and successfully implement them. There are all the prerequisites for the proposed approach to solve the problem. The key to is to understand the opportunities of ecologically based impact on the formation of the modern landscape, in both natural and artificially created ecosystems.

Currently, the environmental focus has proven to be the territory of the newly created Sochi, The Black Sea zone bypass roads around urban space resort, where it is necessary to apply measures not only in reconstruction, but also to establish landscapes in places directly exposed to anthropogenic effects. Without active influence on the composition of those Territories happens uncontrolled succession. The result of this unmanaged process can provoke colonization of space around the bypass roads in the region of low and low ornamental species Acacia type.

Scientifically based activities for creating landscapes in areas adjacent to the road network will create a unique color of the green belt surrounding the city territory. It is necessary to launch a project allowing seamless connections and Park and green zones. Created landscapes may serve as a model of combining unique representatives of Caucasian flora with invasive species, obtained over a long period of growth opportunity to be part of plant diversity of wild flora and with high decorativeness [11].

Each species has a number of functional traits that contribute to sustainability and community, providing it with species diversity. Functional traits of species, plant community, composing can solve many tasks in different types of plant communities. An example of such a combination of coherence based on functional signs can serve as distribution tiers of forest communities on needs of plants in light intensity from light demanding to shade-loving plants. Subsequent manifestation of signs relations of plants to light intensity in a zone of growth is reflected in their morphological features. As a result, the set of symptoms increases, most of them had no already any direct relevance to the functioning of the plant community. Variation of the functional traits in species community testifies to differentiate their ecological niches. In the number of works were traced some changes of the functional traits in species composition of communities of the environment and gradients during successions.

The process of the formation of a long-term, even it is a man-made. In addressing the problems of selecting plant species introduced

in the community or communities formed the newly occupied territories, presupposes the existence of ecological competence occurrence introducend plants in men the existing composition of vegetable communities not excluding the possibility of changing Aboriginal dominants of biological and landscape diversity of the subtropical zone of Colchis wood foreign species. The ecological basis for conservation and enrichment of species of wood and shrub composition of forest communities has the value assessment of the impact of such replacement. The rules provided for the introduction of the importance of the preliminary trials of introduced species to prevent clogging of forest crops of low forms of trees and shrubs. However, the 150-year history of spontaneous introduction of tree and bush species from subtropical regions of the world enabled by "trial and error" to weed out of the garden of flora species are not environmentally suitable niches for the occurrence of these populations in cultural and community composition of wild flora of the Black Sea region. For quite a long period introductions on the Black Sea coast appeared about 5000 species new for the region of subtropical plants among which there were even representatives of the tropics [6].

Almost 150-year experience of introduction of tree and bush species on the Black Sea coast of the Caucasus from the subtropical regions of the world has contributed to the unique landscape of this natural park greenhouses. [8, 9, 11]. Ecological characteristics of the region left the right choice for those types, biological features which correspond to the climatic conditions of the Black Sea region. In their number, obviously, plants primarily consisted of capable combination of environmental factors to reach flowering with the formation of full seeds. The number of introducend species of tree and shrubbery, who have attained full acclimatization in terms sufficiently large black [11, 12]. Exotic variety of these species successfully took its ecological niche in the community of the Caucasus forests as part of Park zones. Thus, the work of several generations of scientists and specialists in the field of plant introduction made significant progress in the enrichment of the Black Sea coast of the Caucasus valuable exotics [9].

Colchis subtropical wet forest landscapes in Olympic construction zone under the circumstances need active recovery. Problem solving, first of all, lays in association with the creation of the forest communities that are able to preserve a favorable environmental conditions. Anthropogenic impact on the forest recovery process of colchis type with all year long-green undergrowth is based on change preceding the natural composition of ecosystems and is characterized by large spatio-temporal borders [3]. Transformation of natural landscapes according to the laws of succession passing does not provide full restoration of forest ecosystem parameters [7]. New forest community formed on the basis of the generic breeds with presence invasive floristic component will differ considerably in species composition. Ecological regularities passing successions will be fully monitored anthropogenic influence considerably changing under the influence of the main forestfounding species [5]. As a result, the pattern of species diversity within a particular community can be a manifestation of his emergense, reflecting overall distribution resulting space between invasive and native species in conditions of formation ecological niches [10].

Community structure, built in lieu of Aboriginal dominants foreign, can be linked to data changes of this kind, which creates a new Wednesday for other species in this community. On the basis of the ecological and biological characteristics of the dominant species, reflecting the nature of their domination, there are conditions for the formation of emergense. The conditions determining this possibility include a favorable combination of population bases the whole communities with environmental conditions this biocenosis [1]. It is also assumed that the change of aboriginal dominants foreign views should not lead to a substantial increase in the level of their domination of significant effects on the species richness of communities [2].

Any deviation from the literate science-based conservation action of the North-West Caucasus causes irretrievable losses in forest communities [4]. As a result, 78 species of vascular plants of the Black Sea region has became the property of the Red Book of Russia. A part of the Red Book of Sochi entered 200 representatives of flora of the region, or 10% of the total number of species [13]. This statistic makes it necessary to draw attention to the creation of the community based forest flora Black Sea environmental laws based their natural occurrence or under direct human intervention. This intervention must be built on respect for the sequence of creation of sustainable communities on the principle of emergence vegetation in natural conditions. But following the specified principle will create an

algorithm of seaweeds at each particular site. First of all, you need to determine the species composition of the forest providing a mix of local native species recognized the situation of endangered. The involvement of representative invasive species as a dominant should be based on wide experience studying their ability to coexist with other species on the principles of the emergense.

Thus, the ecological bases of environmental management while preserving subtropical landscapes in the Black Sea coast of the Caucasus must become the main key to success in creating sustainable forest communities on the newly assimilated territories among The Black Sea Coast of the Caucasus.

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SIGNIFICANCE OF FUNCTIONAL CHARACTERISTIC OF BLOOD SERUM ALBUMIN IN LABORATORY DIAGNOSTICS OF OVARIAN CARCINOMA AND PREDICTING POST-SURGICAL COMPLICATIONS

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Comparative research of functional characteristics of blood serum albumin among patients with ovarian carnicoma and healthy women has revealed a significant disturbance in conformational and detoxication characteristics of albumin in case of ovarian carnicoma. It has been shown that parameter of albumin conformation can be used in early diagnostics of actively-developing ovary tumors, and defining index of detoxation efficiency of albumin can serve as perspective factor of predicting post-surgical complications in case of surgical treatment for patients with ovarian carnicoma.

Keywords: albumin, ovarian carnicoma, post-surgical complications

Ovarian carnicoma (OC) is one of the most aggressive types of oncologic pathology, and this disease is diagnosed in 65–70% of cases at later stages of its development, when a prediction can be unfavourable. 5-year survival potential for patients with stage I of this pathology equals 75,2%, stage II – 41,1%, stage III – 35%, stage IV – 17% [5]. Therefore, searching simple and reliable methods of early diagnostics for malignant ovary formations remains one of urgent problems in modern onco-gynaecology.

Nowadays studying disturbance in molecular structures and conformational characteristics of different mediators, formed in an organism under the influence of malignant tumor plays a great part, as well as active search for new, more informative indexes in evaluation of an organism's. The available objects of research are conformational characteristics and other physical-chemical characteristics of basic proteins of human organism, particularly blood serum albumin.

Transportation and conformation characteristics of albumin depend on location of three-dimensional structures that connect sites in its molecule and can be disturbed in case of different pathologic conditions: endotoxemia, hepatic failure, gestosis of the pregnant, schizophrenia, oncologic pathologies [2, 4, 6, 8, 9].

In this regard a great attention should be devoted to researching functional characteristics of blood serum albumin among patients with OC, discovered for the first time, that can be defined by a rapid and aggressive growth of tumor, it allows us to define degree of blockage in centers of albumin connection as well as evaluating detoxication function of liver.

Objective of the research is to evaluate possibilities of using conformational index of blood serum albumin as an additional test in laboratory diagnostics of OC and also evaluate the significance of serum albumin detoxication activity in predicting post-surgical complications.

Materials and methods of research

109 women in age from 19 to 80 years were observed in Russian Oncological Center of N.N. Blokhin, among them – 59 patients with OC of stages I-III (age median 52 years) and 50 healthy women (age median 48 years). Functional characteristics of albumin were studied at the moment of patients' acceptance in the clinic before treatment.

Studying conformational and detoxication characteristics of serum albumin (ATA-test) was carried out via method of back probe spectroscopy with implementation of digital paramagnet resonance (DPR-spectroscopy) [10].

Statistic analysis of research results was carried out with programme "Statistica" (the data was presented by median and lower and higher quartiles), non-parametric method, and implementation of U-criterion of Mann-Whitney in independent groups.

Results of research and their discussion

It was established that conformation of serum albumin is significantly altered in blood serum of patients with OC.

When molecules of physiologically-active substances of endogenous and exogenous origins enter blood they associate with molecules of blood plasma proteins. Such association decreases toxicity of substances that enter blood flow significantly. However, in case of neoplastic processes increase in concentration of incomplete metabolism products in blood of patients as well as accumulation of various tumor matabolites in blood leads to blockage or allosteric changes in centers of connection at molecule of albumin thus causing disturbance in complex-forming and transportation function [7].

Parameters of functional activity of serum albumin in patients with ovarian cancer and healthy women

Groups/indicators	DR	DTE %
Healthy women (n = 50)	1,579 (1,281–1,994)	113,70 (97,20–130,60)
Patients with ovarian cancer (n = 59)	0,812 (0,605–1,133) p < 0,001	64,50 (39,80–80,40) p < 0,001

Thus, among patients with OC index of specific albumin conformation DR was lower than among the practically healthy women by 49 %. It proves an expressed change in albumin conformation in blood serum of patients with OC and allows us to recommend DR index in early diagnostics of actively-developing malignant tumors.

Low values of DR among patients with OC in relation to the index of healthy women is explained by local alterations in structural-functional condition of albumin, as well as decrease in its conformational mobility and lability due to blockage of connection centers of albumin by various tumor metabolites and toxic ligands.

While studying detoxication ability of blood serum albumin we discovered that index of DTE is practically two times lower among patients with OC than in control group (64,5 % and 113,7 % correspondingly, table).

The earlier research [3] showed us the efficiency of DTE parameter in early revelation (day 1) of developing purulent-septic compications among oncological patients, exposed to surgery of gastrointestinal tract cancer.

In order to evaluate efficiency of using DTE values, patients with OC were divided into two groups: group 1 – with DTE level of higher than 40 % (low risk of post-surgical complications) – 42 patients, group 2 – with DTE level below 40 % (high level of developing purulent-septic complications after the surgery, including patients who suffered decomposition of ovary tumor) – 17 patients. Analysis of the data demonstrated that in group 1 frequency of post-surgical complications equaled 9,5 %, and in group 2 – 23,5 %.

Thus, among patients with OC with initially lower detoxication efficiency of blood serum albumin frequency of post-surgical complications was 2,5 times higher than among patients with high level of DTE.

The received data confirm the results of our earlier work on evaluating clinical-economic efficiency of implementing ATA-test in predicting purulent-septic complications and effectiveness of their therapy after surgical intervention for oncologic patients where prognostic significance of defining DTE levels before the surgery was proved as well as economic effect of revealing groups of patients with high risk of early post-surgical complications [1].

The results of evaluating efficiency of albumin detoxication activity can be used in attending patients with OC while undertaking surgical treatment and opportune revelation of purulent-septic complications that can disturb flow of post-surgical period, prolong the period of patients' presence in the hospital and increase treatment costs.

Conclusion

Comparative research of functional characteristics of blood serum albumin has revealed significant disturbance in conformational and detoxication characteristics of albumin among patients with ovary cancer in relation to healthy women. It has been demonstrated that parameter of albumin conformation DR can be used in early diagnostics of actively-developing ovary tumors, and defining index of albumin detoxication activity DTE can serve as a perspective factor of predicting post-surgical complications in case of treating patients with OC through surgery.

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SELF-ASSESSMENT OF ACTUAL NUTRITION OF FOREIGN STUDENTS OF THE PREPARATORY FACULTY

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25 boys and 29 girls aged 18 to 20 years from Europe, Asia, Africa, who were studying for 5-6 months by the time of the survey at the preparatory faculty of Rostov state medical University participated in self-assessment of actual nutrition. Some forms of inadequate actual nutrition among the students were identified: overeating, irregularity, imbalance, disturbance of ration proportions. Possible reasons for this are the lack of students' awareness in nutrition, insufficient understanding of the principles of healthy nutrition, lack of knowledge about the components of products, high intellectual load and the associated lack of free time, difference in cultural food traditions, the lack of the familiar food. For the purpose of correction of dietary style and nutrition of students, we have developed and put on notice the guidance based on WHO recommendations.

The analysis of foreign students' nutrition at the initial stages of the educational process is one of the ways of overcoming the existing adaptation problems [1, 5, 6, 7], because balanced diet along with physical activity are important parts of healthy lifestyle [4]. 25 boys and 29 girls aged 18 to 20 years from Europe, Asia, Africa, who were studying for 5-6 months by the time of the survey at the preparatory faculty of Rostov state medical University passed the self-assessment of actual nutrition. A questionnaire approved by the Ministry of Health and modified by us was offered to the students [3]. To the question, "Do you eat healthy food?" there were 16.7% of affirmative answers, 16.7% of negative answers and the remaining 66.6% – "Not always". About 60% of questioned indicated that sometimes (48.1%) or often (11.1%) they overeat; around 65% sometimes (50%) or often (14.8%) abuse of fatty foods, about 89% sometimes (51.9%) or often (37.0%) – abuse of sweets, about 85% sometimes (42.6%) or frequently (42.6%) – abuse of starch. According to 37.0% of the respondents, the reason of eating unhealthy food is the lack of time; 13% of students believe that the reason is their laziness; the remaining 33.3% chose the answer "other". 13% of respondents indicated that they do not strive to eat healthy, the other 87% said that they are trying to stick to healthy food, eating more fruits and vegetables (48.1%), fish and meat (44.4%), cereals (11.1%), dairy products (11.1%). The vast majority of respondents (61.1%) believe that it is necessary to eat properly for the maintenance of health or for medical reasons, another 31.2% consider that it helps improving appearance, 12.9% suppose that it is just a common trend. More than half of respondents indicated that they notice how nutrition affects their health and appearance (51.9%); the remainder did not notice the perceptible effect. It should also be noted that the vast majority of the patients (88.9%) do not smoke or drink alcohol, more than half of the surveyed (51.9%) do sports. But only 66.7% of the respondents have no complaints about the health condition.

Thus, we have identified some manifestations of the actual nutrition inadequacy among students of the preparatory faculty: overeating, irregularity, imbalance, disturbance of ration proportions. Possible reasons for this – lack of awareness of students in nutrition, insufficient understanding of the principles of healthy nutrition, lack of knowledge about the components of products, high intellectual load and the associated lack of free time, difference in cultural food traditions, the lack of the familiar food. For the purpose of correction of dietary style and nutrition of students, we have developed and put on notice the guidance based on WHO recommendations [2].

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COMPARATIVE CHARACTERISTIC OF FREQUENCY ELICITATION AND PREVALENCE OF TYPES HEAVY AND THE CONTENT OF FREE EASY(K,Λ) CHAINS IMMUNOGLO BU LINS AMONG PATIENTS WITH MULTIPLE MUELOMA AND POTENTIAL DONORS BONE MARROW

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The article presents the results of studies elicitation form of the immunoglobulins among patients with multiple myeloma of kirghiz nationality type of IgA in 44% of cases, IgD in 12% of cases, IgE in 4% of cases, biclonal tumor (Ig A, IgE) in 4% of cases, IgM in 0% of cases, non-secretory myeloma in 0% of cases and the frequently occurring form types of IgG in 36% of cases and also detection in the form of the type IgG1λ-chain in 32% of cases, IgG2k-chain in 26% of cases, IgG1k-chain in 38% of cases, IgG2λ-chain in 29% of cases, IgAk-chain in 68% of cases, IgAλ-chain in 0% of cases, IgEk-chains in 50% of cases, IgM in 0% of cases, IgDλ – chains in 100% of cases and biclonal tumor (IgAk, IgEk) in 100% of cases compared with patients with multiple myeloma of the Russian-speaking population inhabitants of Kirghizia. In detail described clinical and laboratory parameters and elicitation of rare forms of immunoglobulins type Ig A-myeloma, IgE, IgD and biclonal tumor (IgA, IgE) among patients of the kirghiz nationality, where the flow of the disease is more malignant, which dictates the need for a timely approach to the choice of therapy. Elicitation, also the increased the content of free easy (k,λ)chains of immunoglobulin's type IgAk-chain in 5% of cases, the Ig Gk-chain in 20% of cases, the IgGλ -chain in 15% of cases and the IgAλ -chain in practically 100% of cases among the kirghiz population in healthy voluntary bone marrow donors on compared with patients multiple myeloma of kirghiz nationality. When planning closely related, unrelated bone marrow transplantation, it should take account and research on according to the indications of potential bone marrow donors on content of free light chains of immunoglobulin's in serum blood with a prophylactic purpose.

To date, the level morbidity of multiple myeloma among malignant tumors according to domestic and foreign literature is about 1%. This tumor occurs mainly in the elderly, the average age is 68-70 years, but Last years have incline to rejuvenate the disease. In China, the prevalence morbidity of multiple myeloma is 1: 100 000 population in year [7]. The morbidity in Europe is 6 on 100 000 population in year [9]. In the multinational country as Kirghizia, the morbidity of multiple myeloma on the 6,019,000 population 4-5 patients in year and the elicitation among the kirgiz population averages 1-2 patients in year, at about 0.00001%. One of the most frequent manifestations of the biological activity of tumor plasma cells is the production of monoclonal immunoglobulins. At disease of multiple myeloma for install an immunochemical variant is necessary investigation in the blood serum on the content of types IgA, IgM, IgG, and if necessary-IgD and IgE.

The authors of [5] in the results of the studies note that, at multiple myeloma, the immunochemical variant of the type IgAk-chain with a chronic renal failure of $II_{A\ and\ B}$ -III degree and anemia, frequently with low survival.

It should be noted that, taking into account the clinical and hematological characteristics and complications of at IgA-myeloma, is necessary a timely approach to the choice of therapy and the use of auto transplantation of hematopoietic stem cells or at availability of HLA-identical donor, regardless of the age of the patient conduct the allogeneic bone marrow transplantation [4].

The works, aimed at studying studies on indications or with a prophylactic purpose on the types of heavy and the content of free easy chains of immunoglobulins in patients with multiple myeloma and bone marrow donors among different of ethnic people and nationalities, to us did not meets.

The aim of our study is to determine of frequency the elicitation and prevalence types of heavy and the content of free light (k, λ) chains of immunoglobulins in patients with multiple myeloma and among potential donors of the bone marrow of kirghiz nationality.

Materials and methods of research

The research group included of National Register of hematopoietic stem cells Kirghizia-86 voluntary donors of kirghiz nationality, typed from 2004 to June 2017 years on the types of heavy and the content free easy (k,λ)chains immunoglobulins. A total 27 women and 59 men, the ages of 18 and 50 year old, who resided temporarily in St. Petersburg, Russia. Analyzes (sera blood) research – 86 voluntary donors of hematopoietic stem cells of kirghiz nationality on the IgA, IgG, IgM, IgD, IgE, of them were tested. -8 examined in the laboratory "InterMed" and 78 donors in the laboratory of hybrid technology CNIRRI FASR, St. Petersburg the Ministry of Health of Russia. Included the materials of previously studied patients with multiple myeloma [3] and from 2004 to 2016 year were examined are included. 43 primary patients with multiple myeloma, of them (4 kirghiz nationality and 36 Russian-speaking residents of Kirghizia) in the St. Petersburg Research Institute of Epidemiology and Microbiology named after Louis

Pasteur, the St. Petersburg Clinical Hospital of the Russian Academy of Sciences, the Eurasian center of oncohematology, immunology and therapy. And the total group consisted- 115 patients with different stages of the disease course, of them 24 kirghiz nationalities and 91 patients of the Russian-speaking population of Kirghizia. A total 43 women and 72 men, all citizens of the Kirghiz Republic, the age of patients ranged from 33 to 90 years. The diagnosis of multiple myeloma was based on standard criteria, including the classical triad: plasma cells in the bone marrow of at least 10%, bone damage of varying degrees – from osteoporosis to osteolysis, monoclonal protein in the blood and /or urine. At each patient took into account clinical and laboratory indicators, immunological variants of production of immunoglobulins of heavy and light chain types [1, 2]. Patients were distributed on the stages flow by until now of the recognized system staging multiple myeloma, proposed by Durie B.G.M., Salmon S.E. [6], and the International Staging System Multiple Myeloma (ISS, 2005) [8].

In the immunology laboratory of the National Center for Cardiology and Therapy in city Bishkek, were spend studied in blood sera – 115 patients on the IgA, IgM, IgG and according to indications on the IgD, IgE. Of these 51 patients with multiple myeloma from the hematology department of the National Hospital of the Ministry of Health of the Kirghiz Republic from 1995 to November 1999 were research (blood serum) on immunoglobulins IgA, IgG, IgG1, IgG2, IgM, IgD, IgE and easy (k, λ) chains in the laboratory hybridoma technologies of CNIRRI FASR, St. Petersburg the Ministry of Health of Russia. Analyzes (blood serum) of patients with multiple myeloma were delivered by avia delivery in mini-refrigerated containers at minus 10°.

Statistical processing of the results obtained included the analysis of standard criteria. To assess the reliability of differences in the occurrence of certain features between the control group and the MM group of patients, and donors, used $\chi 2$. Determination of the value of p corresponding to the value found. $\chi 2$ was conducted on a computer program, taking into account one degree of freedom. All mathematical calculations and general statistical analysis of the results obtained were carried out with the help of a personal computer using the application package for spreadsheets – Microsoft-Excel M version 7 for Windows 95, Windows-2010, Statistica-5, Statistica-6.

Definition immunoglobulins types of heavy and free easy chains in the serum blood

The immunoglobulins were typed methods in a direct solid-phase immune-enzyme analysis. Paraproteins were immobilized on a solid phase sera diluted 1:105 and 1: 106 on 0.1 m carbonate-bicarbonate buffers pH 9.5. Heavy chain isotypes and light chain types of myeloma immunoglobulins were determined using conjugant's of monoclonal antibodies (MCAT) with horseradish peroxides. Typing was conducted in the laboratory of immunology at the Kirghiz Research Institute of Cardiology and Therapy in city Bishkek and in the laboratory of the hybrid technology CNIRRI FASR, St. Petersburg the Ministry of Health of Russia.

Results of research and their discussion

The results of our studies among patients with multiple myeloma of Kirghiz nationality and patients with multiple myeloma of the Russian-speaking population of Kirghizia, as can be seen from the presented fig. 1, according on the frequency of detection of immunochemical variants of immunoglobulins at the comparison showed, that among the patients of MM of kirghiz nationality immunoglobulins detection such as IgA in 64% of cases, IgM in 0% of cases, IgG in 8% of cases, IgD in100% of cases, IgE in 50% of cases, biclonal tumor (Ig A, IgE) in 100% of cases, non-secretory myeloma in 0% of cases.

In patients with MM of the Russian-speaking population of Kirghizia, immunoglobulins detection such as IgA occur in 36% of cases, IgM in 100% of cases, IgG in 92% of cases, IgD in 0% of cases, IgE in 50% of cases, biclonal tumor (Ig A, IgE) in 0% of cases, non-secretory myeloma in 100% of cases.

On the significance of differences between patients with multiple myeloma of kirghiz nationality and the control group on the frequency of occurrence of immunoglobulin types, there are statistically highly significant differences, $p < 0.05$.

At comparing the frequency of detection of immunoglobulin types in patients with MM among kirghiz nationality IgA in 44% of cases, Ig M in 0% of cases, IgG in 36% of cases, IgD in 12% of cases, IgE in 4% of cases, biclonal tumor (Ig A, IgE) in 4% of cases, non-secretory myeloma in 0% of cases (fig. 2).

At the comparison are detected among patients with multiple myeloma of kirghiz nationality type IgG1λ-chain in 32% of cases, IgG2k-chain in 26% of cases, IgG1k-chain in 38% of cases, IgG2λ-chain in 29% of cases, IgAk-chain in 68% of cases, IgAλ-chains in 0% of cases, IgEk-chains in 50% of cases, IgM in 0% of cases, IgDλ-chains in 100% of cases and biclonal tumor (IgAk, IgEk) chains in 100% of cases. In patients with multiple myeloma of the Russian-speaking population residents of Kirghizia are recognize type IgG1λ-chains in 68% of cases, IgG2k-chains in 74% of cases, IgG1k-chains in 62% of cases, IgG2λ- chains in 71% of cases, IgAk-chains in 32% of cases, IgAλ -chains in 0% of cases, IgEk-chains in 50% of cases, IgM in 100% of cases, IgDλ-chains in 0% of cases and biclonal tumor (IgAk, IgEk) chains in 0% of cases (fig. 3).

It is shown in fig. 4, that in patients with multiple myeloma of kirghiz nationality there is a variant of IgAk-chain type in 95% of cases, IgGk-chains in 80% of cases, IgGλ-chains in 85% of

cases and no detection IgAλ-chain. In compared to potential donors of hematopoietic stem cells of kirghiz nationality, who considered themselves to be practically healthy people, but when studying by the indications on content of free light chains of immunoglobulins in serum blood, where IgAk-chains were detected in 5% of cases, IgGk-chains in 20% of cases, IgG-λchains in15% and IgAλ-chains in almost 100% of cases.

Thus, and in healthy kirghiz donors, at prophylactic studies were detected high titers of IgA, IgG with increased k and λ-chains.

Conclusion

The immunochemical variant is of no small importance and the revealed high titres of the heavy types and the content of free light chains of immunoglobulins are one of the diagnostic criteria at multiple myeloma. In terms of prevalence, the incidence of multiple myeloma is less common among kirghiz nationality on the compared with patients with multiple myeloma of the Russian-speaking population of Kirghizia**.** At our observation among patients with MM of kirghiz nationality at the primary staging diagnosis the elevated titers of rare forms of immunoglobulins were more often recorded as IgAk-chains, less IgD λ- chains, IgEk-chains and biclonal tumor (IgAk,IgEk). It should be noted that among potential donors of the bone marrow of the kirghiz nationality, at prophylactic studies, can be found high titers IgA, IgG with increased k-λ chains.

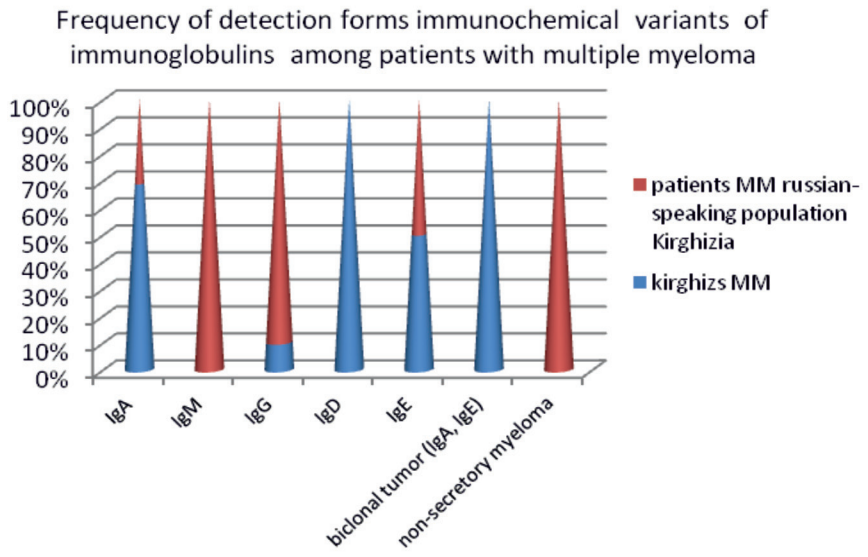

Fig. 1. Comparative the characteristics of spread of immunochemical variants immunoglobulins among patients multiple myeloma inhabitant Kirghizia

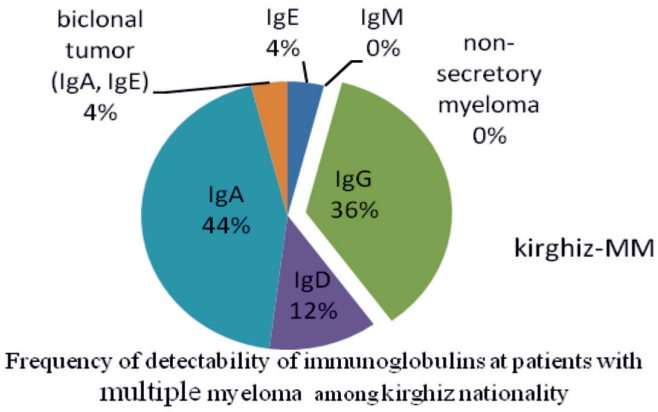

Fig. 2. Frequency of detectability types of immunoglobulin's at patients with multiple myeloma among kirghiz nationality

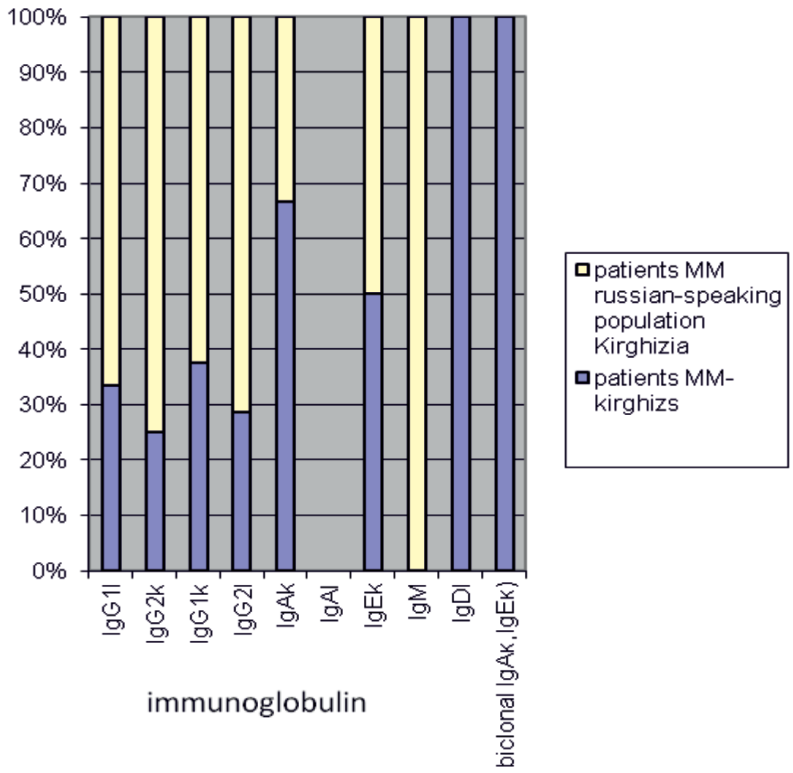

Fig. 3. Comparative characteristics of isotypes heavy and light (k, λ) chains of immunoglobulins among patients with multiple myeloma of kirghiz nationality and Russian-speaking population of Kirghizia

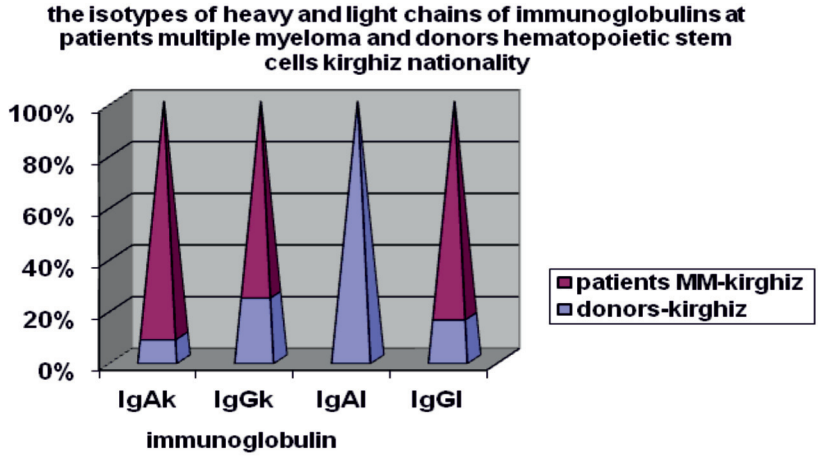

Fig. 4. Frequency the detection among kirghiz nationality of isotypes heavy and the content of free easy chains (k,λ) immunoglobulins in patients with multiple myeloma and donors of hematopoietic stem cells

However, in occasion coincidence bone marrow donor on the all significative of the studies and including immunogenetic indices of the main histocompatibility complex of the HLA-A*,B *, C*, DRB1 *, DQB1 * system, but if the donor has elevated titers on the content of free light chains of immunoglobulins, it is necessary to eliminate the donor from bone marrow donation. In this connection, in order to obtain good results in the post transplant period, the have important value of qualitative selection of the bone marrow donor is importance. Search in the assortment of donors should be carried out by the immunosecelektive method, preferably where the patient before lived

and now resides, and to study modern features of the state of health of donors. Voluntary bone marrow donors, according to testimony, should be examined before inclusion in the National Registry of hematopoietic stem cells and before bone marrow sampling on of heavy and the content of free light chains the immunoglobulins with a prophylactic purpose.

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THE STUDY OF THE ADAPTATION PROCESS TO THE EDUCATION AT THE PREPARATORY FACULTY OF THE MEDICAL UNIVERSITY OF GIRLS FROM FOREIGN COUNTRIES

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Two groups of girls 18-19 years were surveyed: primary group – students of the preparatory faculty for training foreign citizens; control group – students – citizens of the Russian Federation. The adaptive capabilities of the girls' organisms were assessed according to statistical, geometrical and spectral characteristics of heart rate variability. More than 40% of women–foreign citizens did not adapt to the changed conditions of life, which was manifested by the predominance of central mechanisms of heart rhythm regulation in relative functional rest and low level of functional reserves of the organism. The most sensitive indicator of functional reserves of the cardiovascular system is an index of centralization.

For various reasons adaptation process of foreign students proceeds with difficulties [1, 3]. To assess the state of adaptation mechanisms, manifestations of adaptive changes of the organism of participants of educational process heart rate variability (HRV) method is widely used. [2, 3, 4, 5].

The aim of the study was to assess the peculiarities of adaptation of girls from foreign countries studying at the preparatory faculty of Rostov state medical University on indices of HRV. The study involved 2 groups of girls 18-19 years old: the primary one – foreign students (36 people); the control group – students – citizens of the Russian Federation (31 people). The body's adaptive abilities of the girls was assessed by HRV, analyzed in five-minute segments of ECG, registered in terms of relative functional rest. Mechanisms of regulation of cardiac rhythm were assessed according to statistical, geometrical and spectral characteristics [5]. Most statistical and geometric indices of HRV among girls of the primary group differed significantly from those of girls in the control group and testified lower reserve adaptation possibilities. The duration of RR-intervals and their dynamics of most of the girls from the main group indicated the increased tone of the sympathetic centers. The ratio of the sympathetic and parasympathetic effects was evaluated using Baevsky tension index (TI). Mean group values in the primary group were significantly higher than in the control group. 77.4% of girls in the control group had balanced sympathetic and parasympathetic impact on cardiac rhythm; 55.6% of girls in the primary group and the rest had the tension of the sympathetic centers of various intensity. All the patients from the control group had moderate tension, from the primary group – 27.7% of women had moderate tension, the rest had prominent or overtension, which is an indicator of violations of the adaptation mechanisms. The disturbance of the autonomic balance with a predominance of sympathetic influences on girls of the main group was also confirmed with significantly low power HF and their significantly lower contribution to TP and more TP representation in LF. According to sympathovagal index LF/HF the autonomic balance or moderate tension of the parasympathetic centers, which is typical for functional rest, was revealed in the majority of women (93.5%) from the control group. Only 6.5% of girls had moderate tension of the sympathetic part of the autonomic nervous

system (SP ANS). In the main group moderate and prominent tension of SP ANS were detected in 41.7% of girls and the autonomic balance or moderate tension of the parasympathetic centers in the rest of the surveyed. Another important indicator of the ratio of regulatory influences on heart rate is the index of centralization (IC). Significantly increased values of IC were detected in girls from the primary group: 70.5% of them had central mechanisms involved in the management of cardiac rhythm in conditions of functional rest, whereas only 12.9% of girls had that in the control group.

Thus, according to the heart rate variability indexes, we detected that more than 40% of female students at the preparatory faculty for foreign citizens had unsatisfactory adaptation to the changed conditions of life, that was manifested by the predominance of central regulation mechanisms of heart rhythm in relative functional rest and low level of functional reserves of the organism. The most sensitive indicator of functional reserves of the cardiovascular system is an index of centralization.

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DETERMINATION OF THE LIMITATION OF VITAL ACTIVITY USING FUNCTIONAL CLASSES IN CHILDREN WITH INFECTIO

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Implementation of the International Classification of Functioning, Disability and Health (ICF, 2001), WHO requires detailed development of the application of this classification for HIV / AIDS in children, which will determine the degree of disability, rehabilitation potential and prognosis for this population.

In HIV-infected children at risk of disability, the following disabilities were identified: self-care, orientation, communication, learning, behavioral control, progressing as immunodeficiency increases and are shown in Table.

To solve this problem, we have adapted a methodology for determining functional classes (FCs) in order to establish the degree of disruption of functions, the main categories of vital activity in children with HIV / AIDS [363].

We have developed clinical and expert criteria for the degree of impairment of body functions, limitations on vital functions due to HIV / AIDS, developed functional classes and methods for their use in medical and social expertise in children with HIV / AIDS and in persons at risk of disability. To determine the functional disorders, we took into account the clinical symptoms, the stage of the disease, the degree of immunodeficiency, the viral load, the presence of concomitant diseases, aggravating the course of the underlying disease, complications.

The severity of violations in functional classes in children with HIV / AIDS and the risk of disability has allowed us to distinguish the following grades: FC 1 (0-25%) – mild violations; FK 2 (26-50%) moderate disorders; FC 3 (51-75%) – severe disorders; FK 4 (76-100%) is a significant violation, which was determined according to clinical and laboratory methods of the study.

Conclusion

The limitation of certain categories of life activity and disability, as a rule, results in a health disorder predominantly with moderate, severe and marked persistent impairments of body functions (II, III, IV degree). Minor disorders of body functions (I degree) are relatively rare causes of disability and disability.

Quantitative assessment of disability in HIV-infected children at risk of disability

Functionality class	Clinical and laboratory characteristics	Limitation of life activity
1	2	3
FC 1 (0-25%)	● Asymptomatic flow ● Persistent generalized lymphadenopathy (PGL) ● Level CD4 – клеток более 25% Level RNA HIV < 10 000 copies/ml (in children older than 5 years)	Self-service-FC0 Orientation-FC0-1 Communication-FC0-1 Training-FC0-1 Behavior Monitoring -FC0-1 Motor activity-FC0-1

Table continuation

1	2	3
FC 2 (26-50%)	● Moderate disruption of physical development, nutrition for no apparent reason, not responding to standard therapy ● Hepatosplenomegaly ● Papular pruritic rashes on the skin ● Seborrheic dermatitis ● Onychomycosis ● Angular Cheilitis ● Marginal gingivitis ● Recurrent ulcers of the oral cavity (2 or more cases within 6 months) ● Increased parotid gland ● Recurrent or chronic infections of the upper respiratory tract or middle ear ● Herpes zoster I Laboratory test data: ALT – increase to 3 norms γ – globulins – from 8% to 14% PCR – detection in the blood DNK VSV, CMVI, candida ELISA – specific antibodies of HSV, CMV, candida Immunological study – the level of CD4 cells – 20-24% HIV RNA level < 20 000 copies / ml (in children over the age of 5 years) II Ultrasound of the liver – hepatomegaly moderate, moderate diffuse changes in the liver parenchyma, enlarged portal vein.	Self-service- FC1-2 Orientation – FC1-2 Communication – FC1-2 Training-FC1-2 Behavior Monitoring – FC2-3 Motor activity – FC1-2
FC 3 (51-75%)	● Severe impairment of physical development, nutrition, not responding to standard therapy ● Unexplained lingering diarrhea (> 14 days) ● Unexplained lingering fever (> 1month) ● Candidiasis of the oral cavity (in children older than 2 months) ● Hairy leukoplakia of the mouth ● Pulmonary tuberculosis ● Severe recurrent, prolonged bacterial pneumonia (2 or more episodes in 6 months) ● Acute necrotizing ulcerative gingivitis / periodontitis ● LIP (lymphoid Ipterstic pneumonitis) I. Laboratory test data: Anemia (< 80g / l), neutropenia (< 1000l / μl) or thrombocytopenia (< 100 000l / μl) for 1 month or more ● ALAT – increase from 3 to 5 minutes ● γ-globulins – from 6% to 8% ● PCR – detection in the blood of DNA of HSV, CMV, Toho, candidiasis and other infections ● ELISA – specific antibodies of HSV, CMV, Toxo, candida and other infections ● level of CD4 cells – 15-19% ● HIV RNA levels – more than 20 000 to 55 000 copies / ml (in children over the age of 5 years) II. X-ray – upper-left infiltrate, atypical manifestations ● Radiographically – two-sided low-annual (more often interstitial, ● less often reticulonodular) infiltrates (LIP clinic) ● Ultrasound of the liver – hepatomegaly expressed, mild fibrosis with portoportal septums. ● Sputum boobs – detection of mycobacterium tuberculosis	Self-service - FC2-3 Orientation – FC2-3 Motor activity – FC2-3 Communication – FC2-3 Education – FC2-3 Behavior Monitoring – FC2-3

End of table

1	2	3
FC 4 (76-100%)	Severe depletion or other form of eating disorders, physical development not responding to standard therapy ● Pneumocystis pneumonia ● Recurrent severe, bacterial infections (2 or more episodes per year) ● Chronic skin or area around the mouth, caused by HSV (more than 1 month) ● Candidiasis of the esophagus, trachea, bronchi or lungs ● Disseminated or extrapulmonary tuberculosis ● Kaposi's sarcoma ● Toxoplasmosis of the central nervous system ● Any disseminated endemic mycosis, including cryptococcal meningitis ● Cytomegalovirus infection in a child older than a month (outside the liver, spleen and lymph nodes) ● Visceral herpes ● HIV-encephalopathy Lymphoma of the central nervous system or B-cell lymphoma ● Progressive multifocal leukoencephalopathy ● Cardiomyopathy due to HIV ● Nephropathy due to HIV ● Leukemiosarcoma or other HIV-associated solid tumors I. Laboratory test data: ● The general analysis of blood – anemia (Hb 70,0 g / l and below), leukocytes <3,0 * 109, lymphopenia ● ALAT – increase in excess of 5 norms ● γ-globulins – from 4% to 6% ● PCR – detection in the blood, in cerebrospinal fluid of HSV, CMV, Toho, candidiasis and other infections ● ELISA-specific antibodies of HSV, CMV, Toxo, candida and other infections ● Reduction in CD4 count < 15% ● HIV RNA levels – more than 55 000 – 100 000 copies / ml (in children over the age of 5 years) II. Rentgenologically – bilateral reticulonodular infiltrates, more pronounced in the radical zone and extending around the periphery, an abundance of focal shadows – a "cotton" radiograph (PCP clinic) ● Ultrasound of the liver – fibrosis with portoportal septums. ● MRI, CT – foci of meningoencephalitis, demyelination in the hemispheres or in the brain of the posterior cranial fossa	Self-service - FC3-4 Orientation – FC3-4 Communication – FC3-4 Training – FC3-4 Behavior Monitoring – FC3-4

Expert diagnosis in the examination of children with HIV / AIDS, including the identification of a set of functional indicators (Table), on the basis of which the degree of impairment of functions, the main categories of life activity is established, reveals the level of rehabilitation opportunities, and the need for various types of medical and social rehabilitation allowed differentiating rehabilitation the activities of patients with HIV infection and improve their quality of life.

Out of 17 HIV-infected children, one patient is not included in the FC. In 2 (11.7%) children, moderate clinical and functional disorders (FC-2), marked clinical and functional disorders (FC-3) in 15 (88.3%) were revealed. All patients had indications for disability registration.

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SOME METHODOLOGICAL ASPECTS OF THE INTRODUCTION TO THE "LIFE SAFETY" COURSE

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At present innovative pedagogical technologies are actively employed in the educational process at Higher Educational Institutions. One of them the technology of active and interactive learning has been effectively used in the "Life Safety" course at the Minin University (Nizhny Novgorod, Russia). The authors present a very successful variant of a lesson on "Debatable problems of "Life Safety", a follow-up class after the lecture dedicated to "Theoretical Basis of "Life Safety". The subject matter of the class was V.I. Vernadsky's noospheric theory and prognosis for a safe development of our civilization. In the article the authors cover the methodological aspects of the organization of such a lesson. They describe how a combination of mini-projects and a "round table" discussion can really become active and interactive learning. To actively participate in the activities of the lesson students were to go over a profound amount of textual material on the topic to prepare their mini-projects and illustrate their view of the problem with their drawings. The result surpassed all expectations: practically 100% of the students enthusiastically discussed the most essential aspects of Vernadsky's noospheric theory and its warnings, thus, increasing the effectiveness of the classroom work and the cognitive interest of the students.

Keywords: "Life Safety", methods of active and interactive learning, discussion problems, V.I. Vernadsky's noosphere doctrine

The course "Life Safety" at Higher Educational Institutions is aimed at forming a safety culture [1, p. 6], which will answer the challenges of the modern civilization level development. This discipline is one of the core disciplines in the preparation of future graduates at the K. Minin Nizhny Novgorod State Pedagogical University (Minin University). The Minin University offers the "Life Safety" course for bachelors and masters, both in humanities and sciences, pedagogical and non-pedagogical professions.

The problems covered in the "Life Safety" course include not only life safety, labor safety, safety of institutions and organizations in emergency situations, issues of environmental protection [1]. i.e. issues related to practical security aspects, but also the study of modern security problems and sustainable development of our civilization.

Here it should be noted that the introductory topic of the course, entitled "Theoretical basis of Life Safety" is particularly important because it helps to form a new conceptual apparatus of the students which will enable them to discuss and evaluate global problems of our civilization security.

During the introductory lecture the lecturer sets out a list of the main problems of "Life Safety" and highlights the most complex and controversial issues which should become the target of a practical class.

From this point of view V.I. Vernadsky's concept of noosphere is one of the most important issues. A great Russian scientist V.I. Vernadsky offered his doctrine of the noosphere in the first half of the 20th century [1, p. 7].

In his works he envisioned the inevitability of the onset of a fundamentally new era of human development which will be focused on the relationship of human life activity consequences and the state of the environment. Vernadsky's noospheric theory is of particular importance at the present stage of the technosphere development and an increasing number of anthropogenic disasters.

Noospheric ideas are popular among representatives of different sciences, e.g. in the field of philosophy, futurology, sociology, ecology, life safety and others. Lately there appeared even noospheric pedagogy [3].

An interesting project under the title "Vernadsky's Noospheric Concept Reflection in Philology" was presented by Kapustina S.N., Polyakova E.G., Tarasyuk N.I., graduates of the Intel program "Education for the Future" "Noosphere: The 21st Century", at the regional contest of educational projects organized by the Department of Education and Science of the Tambov Region [4]. The authors of the project designed a concept map "The Noosphere and I" which may serve as part of basis for class discussion.

During the discussion of such complicated issues there may arise certain problems because

1) first of all, not all scientists share similar views on the prospects for human development, many scientists have different opinions about the aggravating ecological crisis and its causes besides students may also have different opinions of these approaches;

2) secondly, even basic definitions of some concepts on the safe life of the whole mankind,

for example, "sustainable development of the civilization", "the noosphere", "the technogenesis", etc, cause discussions among scientists;

3) thirdly, according to the new curricula the discipline "Life Safety" is studied by both sciences and humanities students during the first year at the University, when they do not yet have sufficient skills to conduct a discussion, i.e. they learn to do it during the class.

The purpose of the research is to consider several methodological aspects of organizing a successful lession on the debatable problems of the course "Life Safety".

Material and methods of the research

In the system of higher education active and interactive learning methods can be system-forming methods uniting all other generalized pedagogical technologies [2]. The use of active and interactive learning methods is especially important when considering the issues of "Life Safety", the subject which is practice-oriented, even when considering debatable problems.

The study was carried out at the Nizhny Novgorod State Pedagogical University (Minin University).

First-year students of the School of Design took part in the pedagogical experiment. Their major is "Professional Training", the profile "Design".

The choice of the experimental group depended on the fact that "Life Safety" is not their major. On the other hand, to involve such students in going deep into this "minor" subject which seems to be so far from their "artistic" future profession the lecturer has to look for some kind of "bridges" between their major and minor disciplines, on the other, the participants of the pedagogical experiment were expected to have artistic abilities and be creative personalities because first-year students of the School of Design had successfully passed a drawing and painting test at the entrance exams to the university.

At the lesson, we used a combination of the project method and the "round table" discussion format. As part of their task "The noosphere, our future or today's reality?" students were asked to express their view of the concept "noosphere" both verbally and in the form of a drawing. The use of the artistic abilities in learning was described in the article "Noosphere Artist's Eye" [6].

Results of research and their discussion

As it is mentioned above our research was carried out at the Minin University in 2017. When teaching the discipline "Life Safety" we choose different active and interactive forms of lessons, including lessons-debates.

The experimental lesson (90 min) consisted of several stages:

1. Warning-up (brief overview of the material of the preceding lecture) (10-15 min),
2. Presentation of the mini-projects and drawings;
3. "Round-table" discussion and evaluation of the product;
4. Self-reflection.

The "warning-up" stage was a short (10 min) question-answer session, e.g.:

1. What great discoveries were made at the beginning of the 20th century?
2. What great scientists in the field of ecology do you know?
3. What is V.I. Vernadsky famous for?
4. What is noosphere from his point of view?
5. Why is his idea relevant today?

The second stage, topical multimedia presentations of the groups' mini-projects and individual illustrations of the project, took up about 40 minutes.

The "round-table" discussion, the evaluation of the projects by students experts, took up to 30 minutes. The remaining 10 minutes were dedicated to the students' self-reflection (filling in printed forms).

Educational objectives of our project included the forming students' ability to analize and unite information, correlate new information with the "old" one, set and achieve certain goals, learn to work with partners, present the results of the research activity both in the verbal and visual forms.

Key competences included information competence, a communicative competence, critical thinking, interpersonal communication in a group, public presentation of the product.

The educational goal of the lesson is teaching students how to form and express their attitude to global problems of life safety. The upbringing goal of the lesson was described in the article by Nedelyaeva A.V, Gorokhov A.I. [5].

While preparing their project students:

a. learn to find and use relevant material;

b. learn to work in small groups which they form themselves depending on the choice of the topic. The members of the group carry out information search, the joint result of which will be presented in the multimedia format and individual projects, in our case, illustrations;

c. learn to express their point of view coherently and logically, base it on facts;

d. learn to make use of their creativity and artistic view of the problem;

e. learn to evaluate their own individual activity and achievements.

The format of a free discussion of such a complicated and controvercial topic as "Theoretical Basis of Life Safety" proved to be most effective in introducing the novice students to the metalanguage of the "Life Safety" discipline.

As it was stated presentation of the projects and their assessment constituted the main part of the lesson.

The group project included a theoretical basis and a practice-oriented conclusion. Individual projects were small sketches or drawings illustrating the topic of the project. The students themselves acted as experts on their group-mates' projects. They assessed each other's work according to the following matrix: 1) the logics of the theoretical basis of the topic, 2) the correlation between the title and the content, 3) the composition of the work.

In their projects students quoted V.I. Vernadsky, noting that the noosphere is the "sphere of mind", the sphere of interaction between society and nature, where human activity becomes the determining factor in the development of civilization, thus stressing the central idea of Vernadsky's doctrine, the unity of the biosphere and humanity [3].

The projects reflected both the global environmental problems, the problems of technogenesis, and various ideas about the noosphere. Students actively discussed the question, "Can human civilization develop without technogenesis?". Most of the students answered, "No, it's impossible yet". There were other ideas, e.g. Emelyanova L. in her illustration to the project "*The Future of our Civilization is in the Hands of Man*" presented her visual embodiment of the idea in the form of a sleeping person, who in the end should "wake up" and think about his influence on Nature. The images of planets and other of space objects were expected to remind us that we are only a tiny part of a huge world called the "Universe" (See the drawing 1 below).

The title of other projects, for example, "Today's World is the Noosphere?", "The Unity of Man and Nature", "The World of the Future", etc. gave rise to an interesting and dynamic discussion.

The use of the project activity in the "Life Safety" course demands a high degree of the student's activity and creativity which is preconditioned by "the novelty and uniqueness of the project product" otherwise "there will appear a serial reproductive repetition of the actions and a well-known pattern" [7].

The Future of our Civilization is in the Hands of Man

As reflection of the individual work of every member of the group, they filled in a self-assessment printed form containing multiple choice answers to 5 questions [4]. The results were the following: when answering the first question, "What is your contribution to the work of the group?" – 56% of the students chose the answer "I actively participated in the work of the group, performing my tasks and helping in setting and achieving the objectives", 44% of the respondents chose the answer, "Sometimes I needed assistance to carry out my tasks, I needed help to set and achieve the goals", and none of the students chose the answer, "I prefer not to participate in collective work and discussions".

The next item dealt with interpersonal cooperation in the discussion. The majority (78%) chose the answer, "I shared my ideas when people encouraged me, and let other participants share theirs", which reflects a certain difficulty in expressing a student's point of view in the public discussion. The answer, "I suggested a lot of ideas for the discussion, I lead the discussion and encouraged others to share their ideas" was chosen only by 22% of the students.

The answer to the third item, "Active listening within the group", showed that 44% of the students chose the option "I maintained a balance between listening and speaking, I listened carefully to other people whom I didn't interrupt", while 56% chose the answer, "In general, I I can listen to other people, and show concern to the feelings and thoughts of other people, but not always".

The fourth question reflected a relevant ability of the students to work in a team: 44% of the students chose the answer, "I noticed how well we work together in a team, I actively participated in the discussion of the changes that were necessary for better teamwork within the group", and 56% preferred the answer, "Sometimes I helped the group to work together better, but usually I try not to interfere with the efforts of the group to conduct the discussion".

The fifth point (finding the joint solution) resulted in the prevailance (56%) of the following answer, "I helped the group in the joint decision-making", the answer, "I actively worked in the group to solve problems" received a 33% support, while 11% of the student's preferred "Sometimes I made suggestions and helped the group to make decisions".

In the questionnaire dealing with the preferences of the students in choosing the most effective methods of teaching "Theoretical Basis of Life Safety", the majority of the students (89%) noted that this lesson aroused interest, made it possible to learn more about the problem, made them think about global problems.

Conclusion

The theme "Theoretical Basis of Life Safety" can serve as an introductory topic in teaching "Life Safety" at the University level. The choice of the methods of active and interactive teaching, critical thinking and others will depend on the main objective of the class. The authors, for example, recommend a "round table" format of the discussion for the initial stage. Preparation for the "round table" may include a list of questions dealing with the debatable issues submitted to the students beforehand, texts, films, mini-project tasks, etc. to enable the students to answer spontaneous questions of the moderator arising out of the discussion itself. In any case, a solid lecture should precede the discussion.

The authors share the opinion that a combination of the method of projects (mini-projects) and a brief "round table" discussion of the problems touched upon in the projects proves to be highly effective in teaching most complicated and debatable issues in "Life Safety".

The use of the professional abilities of the students (in our case, artistic creativity) adds to the success of teaching students not their major, but minor disciplines.

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USING AUTOCAD WITH DESIGN OF THE PRODUCTION THE PHARMACEUTICAL INDUSTRY

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This article discusses the GMP standards and their use in the development of pharmaceuticals, and the use of an automated system AutoCAD. GMP standards are widely used in the development of pharmaceutical products. Presented technical documentation for project pharmaceutical production. Considering the scope of the project is the pharmaceutical industry. The project is a manufacturing enterprise provides access to the models, calculations, drawings, design, plant, machinery, appliances, etc D. which are necessary for the creation, preparation or restructuring of the technical documentation. Considered normativie GMP rules (good manufacturing practice) which is a system of standards, rules and guidelines of production to ensure high quality and safe production. In the design process provides information about safety devices, information on personnel and environmental safety. Available relatively early version of an automated system AutoCAD for design of pharmaceutical production.

Keywords: Design, standard, computer graphics

Due to the development of scientific and technical progress, methods and methods of designing are being improved. Including, electronic computing machines in engineering experiments, development of projects at different levels of production, are the basis of an automated design system. Usually, the conception of designing means a set of technical documentation or data, that is, equipping the production area. The term of 'Designing' means the main purpose of the plan. Designing includes explanatory protocols, drawings, information on costs, information on the cost of production, information on processing of raw materials and removal of industrial wastes, disposal methods of managing technological processes, installation of the device and the connection to all production areas.

The project of a manufacturing enterprise (under broad scrutiny) is a fundamental principle, calculations, drawings, designs, installations, machines, instruments, etc., which are necessary for the creation, preparation or restructuring, which is intended for comprehensive technical documentation of models. Our area of the project is the pharmaceutical industry. When designing the pharmaceutical industry, the requirements of GMP must be taken into account. GMP ("Good Manufacturing Practice") is a system of standards, rules and production guidelines for ensuring high quality and safe production. The GMP standard reflects a complete initiative, regulates and evaluates production parameters and laboratory tests.

It creates the following pharmaceutical laws in the system: licensing, import, wholesale and retail trade, laboratory services (institutes, centers, non-production control and analytical laboratories), and pharmaceutical industry programs. It creates the following pharmaceutical laws in the system: licensing, import, wholesale and retail trade, laboratory services (institutes, centers, non-production control and analytical laboratories), programs for controlling adverse preparations reactions.

The main goal of designing pharmaceutical enterprises is to create a concept of pharmaceutical production in accordance with the rules of GMP. The development of modern industries is accompanied by the existence of complex technological schemes, the creation of a cycle of the energy cycle, equipment and machines of complex construction, workers working in an aggressive environment of high pressure and temperature. In this regard, it is necessary to ensure environmental protection, the use of new materials, the reliability of process units and the safety of the service staff's life. All this requires the implementation of design works, the high quality of project documentation, the normative cost of the documents of each section of the project phase.

in Kazakhstan, starting from the first January, 2016, a common market of medicines will be formed in accordance with the relevant standards of Good Manufacturing Practice (GMP). This agreement was signed in May 2014 by the Treaty on the Eurasian Economic Union, signed by the heads of states.

Until then, unique conditions and general conditions for medicinal product trafficking had been created in the territory of EEU(Eurasian Economic Union). For this purpose, rules should be developed and adopted, including appropriate rules of pharmaceutical practice, which are consistent with European requirements.

"Good Manufacturing Practice" (GMP) allows the quality control system for finished

products to pass through its quality and access to safe and effective medicines. The relevant standard of "Good Manufacturing Practice" (GMP) (standard) is used in preclinical (non-clinical) studies of the safety of substances and (or) medicines.

Our country's pharmaceutical industry is growing in number of industrial enterprises, which have recently been updated with innovative technologies. As you know, these are time requirements. When developing pharmaceuticals GMP requires the production of any product, that is, a drug, in both cases: inside the enterprise (before the designing) and its withdrawal (from the moment of consumption until the expiration date). Before creating this product, the designer must give him a predefined image. The output of the product is closely related to technical and creative science and production. The designer-constructor should be able to know and apply the basic physical, mathematical and other disciplines. This should be due to the technical creativity of the designer, because it must give a modern look at his product. When designing production, the designer must first know the rules for the development of graphic documentation must be the master of software for necessary work, have an idea of the composition and functions of the workstation. One of the most popular graphic systems is AutoCAD. Depending on the user's qualification, AutoCAD offers a wide range of tasks: drawing, assembling, styling, multimedia and slide movies, etc. Despite the large number of settings (in the latest versions there are more than 300 of them), AutoCAD has a convenient interface and has an effective system for communicating with the user.

Brief information about AutoCAD

AutoCAD is a program that has two decades of history. For this reason, many elements of the program, which were previously relevant, lost their current or partial significance, but remained in the program interface. The former, that is, AutoCAD 2007 is an example of the on-screen menu, in which there is no mouse on the computer. The command simultaneously represents a dialog and a user program. When the user calls the application (in the main program menu or on the desired panel), the command line automatically assigns the command name. The user should write all the commands himself, but for convenience, all commands are written to the main menu and panel. But the above does not exclude the use of the command line. In fact, each command has options or requests additional information (for example, the coordinates of the point). In this case, the user must read the question and respond accordingly to the command-line dialog. You must not run or exit a new command before this command is interrupted. In an earlier version of AutoCAD, if you exit the work with any command, an error message is displayed in the window. In newer versions of AutoCAD, you do not need to manually add commands to the parameters. The option to select command options from the context menu is performed by right-clicking the mouse. AutoCAD is an original system that allows you to automate graphic design. The AutoCAD graphics package is an original system that allows you to include everything you need to do for the designer. Hand tools include automatic graphic conventions (points, slots, circles, etc.), Commands that change them (erase, move, copy, etc.), Commands for specifying properties of simple objects (thickness, type and color of graphic objects). There are instructions for setting the appropriate graphics in the system to select the desired format and scale of the page size. It is enough to specify the sizes of the designer for their location. Dimension and output lines, as well as recording tracks and recordings are automatically performed, and in the latest versions of AutoCAD provides full automation mode. In an automated environment, the designer does not need to tighten the eye when performing some of the smaller parts of the drawing, because visual controls are rendered. Corresponding corners of AutoCAD allow to increase or decrease the size of the graphic image on the screen, and also to move the border of the visible part of the screen without changing the scale of the graph. In the system, the designer can combine graphic objects with a specific name and, if necessary, draw on any graphics, which in turn does not necessarily have to reproduce often repeatedly drawn sections of the drawing. The designer can also perform images of individual parts of the drawing or assemblies on separate layers. This allows you to track the compatibility of particles during assembly. By adding or removing floors, you can remove or add parts from the set, which will allow you to select different versions of the product. Using layers in simple graphics also makes drawing easier, the main ones are located on separate layers, this will open the way for individual changes. Lines, sizes, texts, tools, etc.

AutoCAD is an unclosed system. Then you can draw drawings in other file formats (for example, COMPASS GRAPHIC, CorelDraw). You can also copy other formats to AutoCAD. Bitmap images can be changed without

changing the file format. The AutoCAD system, created by AutoDesk and created on the market in late 1982, is very popular. AutoCAD has a unique development environment, which is constantly being improved. Developers of the system tend to support the overall structure and structure of tasks. As the version of the program changes, it is usually stored by the user, with the ability to perform a sequence of interviews, and to use commands and menus.

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Materials of Conferences

PARTIAL RADIATION THERMOMETRY

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The characteristic sizes of the temperatures comparable in a momentum for an electrical charge, attributed to the short period in drawing of the logarithm of temperature, are sufficient for area of the beginning of amplitude of electrical explosion and ionisation.

The radiometric factor equal to a production for factor of radiation and factor of transfer, has values as exponential-type of relations from a wavelength in an electromagnetic radiation visible band.

In radiometric pyrometry to calibration for temperature measurements of the basic electromagnetic radiations of a radiator GI–1,55 which generates 1550 watt fixed with nominal thermal ability. In a radiator of an infrared gas plume the whole ceramic panel of radiation, with especially advanced form of apertures where to the greatest degree effective combustion of gas is applied is used.

The special form of apertures of a radiator allows to reduce gas to ashes with the minimum distribution of harmful products of combustion which gives chance to use an infrared plume in a preliminary condition of research for various statements.

Comparative measurements are made as by means of spectrum registration in a range of lengths of waves 486 – 686 nm and by means of measurement of a contact of temperature of the hot ceramic panel of radiation with the device use DT – 9208A and the standard thermocouple of tool K of type. For use of spectrometer HR2000 + in thermometric system of the standard remote measurement of temperature in a range of average temperatures special procedure of calibration with use of the basic electromagnetic radiation from the hot ceramic panel is used.

The radiometric factor – the replaced exponential-type with the relation from a wavelength ~ exp (–λ/310 nm) in a range of lengths of waves ~ 575-670 nm. Selection is relations for "diagnostic" factor of radiation, the solution from a condition that the registered radiometric temperature measured in the determined range, coincides in the given special case with the real temperature measured by a method of a contact to use of device DT – 9208 A and K type thermocouples.

Here it is necessary to notice that additional measurement of temperature by the thermocouple with a direct contact on a hot ceramic surface gives value T = 1150 ± 32, according to reference data.

Calculation determines ability of introduction of the basic radiometric factor of indicative type, in a visible spectral range of lengths of waves, for the purpose of use in the further kinetics of calculations of temperatures in electrical charges.

For prospective temperature measurements of an electromagnetic radiator we support intellectual experiment of simulation with some electrical charges of a high pressure.

While there is time when any of the electrical charges beginning an electrical category still, did not work, temperature measurement, should be conducted with use of other quantitative method which is absent now.

According to the list of development of power of a signal real original measurement of temperature possibly since some number of a spectral shot as in smaller numbers of spectral shots the registered signal actually coincides with a background signal.

Give to assume that it has registered time of reduction of a momentum for the list of the logarithm of temperature for area of electrical explosion, and ionisation at level 0,3 is equal, for example, ≤ 30 ms. Peak value of temperature equally in epicentre of white hot area to some conditional size, for example, ≈ 1 eV, the temperature corresponding to characteristic value in a spark charge in high pressure plasma. An error of the best measurements in this case – approximately equal ≥ 5 % from the size of absolute temperature. There is a size of a regular error of comparative measurement.

The offered hypothesis can be used for the first stage in two-level heating of a momentum of the purpose for the special purposes [1]: 1) ≈ 0.1 eV; 2) ≈ 1 eV. The determined first stage with a research objective can be understood without actuating of the basic generator of power, for example, with actuating of above radiator of an infrared gas plume with the whole ceramic panel of radiation [2, 3].

Conclusions

On the basis of the researches determined in given activity and in other known sources, it is probable to draw a conclusion on expediency of use of optical spectrometers for a registration kinetics of physical features of appreciable processes.

The characteristic sizes of the temperatures comparable in a momentum for an electrical charge, attributed to the short period in drawing of the logarithm of temperature, are sufficient for area of the beginning of amplitude of electrical explosion and ionisation.

The radiometric factor equal to a production for factor of radiation and factor of transfer, has values as exponential-type of relations from a wavelength in an electromagnetic radiation visible band.

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PSYCHOLOGICAL STUDIES OF THE DEVELOPMENT OF CHILDREN'S SUBJECTNESS

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The article presents an analytical review of domestic psychological research on the development of children's subjectness. The main approaches to the definition of subjectness as a psychological phenomenon are considered. Fundamental scientific works in which the formation of subjectness in ontogenesis is analyzed are designated, conceptual approaches to understanding of the structure of subjectness in childhood are set up. Specific emphasis is directed at the studies devoted to identification of the typology of children's subjectness. The possible prospect of further studies of subjectness in infant, early, preschool and junior school age is determined.

Keywords: subjectness, structure of subjectness, genesis of subjectness, levels of development of subjectness, children's age

The category of subjectness is one of the central in the scientific research of modern domestic psychology. In the works of A.V. Brushlinsky [3] subjectness is considered as a characteristic of the personality, including the relationship of a person to their own mental processes, properties and states. K.A. Abulkhanova-Slavskaya [1] defines subjectness as the ability of an individual to correlate and evaluate (their) capabilities in relation to objective requirements, conditions and aims on the whole. In the concept of E.N. Volkova [22, p. 15] by this we mean "the property of the individual to produce interdependent changes in the world, in other people, in a person. For this property there is an underlying attitude of a person to himself as an agent".

One of the principal questions of studying subjectness as an integrative property of the individual is definition of the peculiarity of its structure and the basic mechanisms of development. Most of the scientific works devoted to the development of the structure of subjectness touch upon the age periods of adulthood (E.N. Volkova [23], A.L. Zhuravlev [25], G.V. Zalevsky [24], V.A. Petrovsky [10], Z.I. Ryabikina [13], etc). Most attempts to structure subjectness constitute the identification of certain personal qualities and abilities characteristic of a mature person: activity, awareness, creativity, objectivity, responsibility, confidence, independence, reflexivity, freedom of choice, etc.

The number of studies devoted to children's subjectness is extremely limited, among them we can mention the works of O.V. Suvorova [15], M.A. Pyzhiyanova [12], U.V. Ulienkova [20], etc. In her works U.V. Ulienkova identified some approaches to determination of the structure of subjectness in senior preschool and primary school age. Formation of subjectness as an integrative personal property in six-year-old children is described by her through the characteristic of general learning capability (educability). Analyzing the formation of the child as a subject of intellectual activity, U.V. Ulienkova does not differentiate the structure of subjectness in senior preschool and primary school age and does not consider the mechanisms of its development.

Deeper and more thoroughly, the problem of subjectness is presented in the works of O.V. Suvorova [15-18], which defines children's subjectness as a property of the individual, "which is based on the attitude toward oneself as an agent realizing the transforming external (creative) and internal (self-determining and meaningful) activity that develops in conditions of polymodal (variative) socio-cultural environment" [15, p. 22]. Relying on the methodological fundamentals of the leading domestic psychological paradigms, O.V. Suvorova builds a structure of subjectness, which includes the core and peripheral components. The author understands the core of children's subjectness as "a transforming subjective activity of the personality in the child's system of relations" [15, p. 165]. The structure of the core is determined by the unity of its three elements – self-regulation, motivation and self-awareness (consciousness). The content of the peripheral field of children's subjectness is – reflection, freedom of choice, uniqueness, self-acceptance, acceptance of others, self-development. The author emphasizes that all the components of children's subjectness "exist in the interindividual form and become actual in interaction with the adult as a carrying agent of subjectness, revealing the potential for its development in the child" [15, p. 165].

Of special interest are scientific works, which are aimed at studying the formation of subjectness in ontogenesis. The original approach is presented in the works of

L.I. Bozhovich [2]. As N.N. Tolstykh [19], in the works of L.I. Bozhovich the process of personal development is largely considered through the formation of subjectness. Its formation, according to L.I. Bozhovich, occurs already in the first year of life, when the child acquires the so-called "motivating ideas" that release him from the dictates of a particular situation. This stage of the subject's development is associated with the appearance of an internal, yet unconscious motivation, which is formed under the influence of images and representations recurring to the memory.

The next stage of the genesis of subjectness in the concept of L.I. Bozhovich is associated with the appearance of a new system formation "I" in the child. "System I" includes some knowledge of the child about himself, his attitude to himself, and also contributes to the formation of the need for independent action. L.I. Bozhovich believes that the age of three is an important milestone in the development of the child, which is primarily characterized by the development of self-awareness (consciousness).

The age crisis of seven years marks, according to L.I. Bozhovich, the next stage in the formation of children's subjectness. The author introduces in his conception ideas about the place of the child in the social network, about his own internal position, mediation of the child's behavior by "generalized experiences".

An original level approach to the development of subjectness is put forward in the studies of E.A. Sergienko and her fellow research workers [4, 11]. In infancy and early childhood, subjectness is represented by proto-levels of "primary and secondary" subjectness, based on the interaction between the elements of the "I-concept" (I-ecological, I-interpersonal).

The following levels of formation of subjectness are distinguished on the basis of subject's functions (cognitive, communicative and regulative). Behavior control is considered by E.A. Sergienko as an integrative characteristic, which includes cognitive control, emotional regulation and control of actions (arbitrariness). But on the basis of the study of subject's cognitive function, the author identifies two levels of subject's development in preschool age. The "agent level" (four years old) is characterized by the fact that the child develops an awareness of the difference between his own mental development and mental development of other people, it becomes possible to predict the behavior of other people and to imagine the consequences of his own behavior. "Naive subject level" (five to six years old) is characterized by the child's ability to compare different aspects of situations and their significance for other people and for himself, the child is able to analyze human contacts and their meaning at a new level. The subsequent levels of formation of subjectness in this concept are presented as the subject of activity and the subject of life, but do not have a detailed study up to the present time.

O.V. Suvorova [15] considers the development of subjectness in senior preschool and primary school age. In her opinion, the transition period from preschool to primary school age has a strongly pronounced tendency of increase in children's subjectness, which passes prior-subjectness**,** pre-subjectness and pro-subjectness levels during its formation.

Prior-subjectness level (the lowest level of development of subjectness) is characterized by the predominance of external motivation of activities and relationships with adults and peers mediated by the playing motive, broad social motives (emotional acceptance of a peer, positive evaluation, approval, praise of an adult). Pre-subjectness level (the average level of development of subjectness) is defined by the author as critical and transitional level for the development of children's subjectness. The main characteristics of the level are the formation of not only external but also internal motives, the preservation of inadequate self-esteem in most children, the inclination toward external control with the appearance of elements of self-control (autonomous-reproductive, searching-dependent level of self-regulation).

Pro-subjectness level (high level of development of subjectness) implies the predominance of internal motivation, adequate self-esteem, the dominant levels of self-regulation are searching-autonomous and searching-dependent. Creative kind of traditional children's activities, educational and cognitive activities, high initiativity, independence in relations, and the ability to cooperate with peers are characteristic of these children.

Undoubtedly, in the studies presented above, we can see only the formulation of the initial principles of development of children's subjectness, the realization of which in the concrete psychological terms requires further clarification and development. In our opinion, of particular significance is the task to develop the question concerning the mechanisms of subjectness formation in childhood. The most promising direction in this regard is the recourse to such a psychological phenomenon as self-regulation. This approach is presented in the works of V.V. Kisova [5–7, 11], N.F. Kruglova [8],

A.K. Osnitsky [9], N.O. Sipachev [14] and other researchers.

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FIBROUS COMPOSITION AND STRUCTURE OF LAYERS IN MULTIFUNCTIONAL HYBRID MULTILAYER TEXTILE COMPOSITES

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One of the trends in the creation of technical textile materials consists in obtaining multifunctional fabrics. The simplest methods to modify textile materials by mixing fibers, modifying threads, structure and surface have a limited capacity. Multilayer multifunctional textile is represented by novel composite materials (smart textiles), in which the layers of fibrous materials having different physical and mechanical and chemical properties are arranged in the predetermined sequence, and, simultaneously, such textile composite materials meet numerous, sometimes contradictory requirements. The paper dwells on exploring the possibility of applying novel textile materials produced from untwisted yarn as the transporting layer in hybrid multilayer textile composites intended for using in the items of protecting a person from chemical contamination of the environment. It has been established that the use of fabric produced from untwisted yarn of hydrophilic siblone fibers ensures rapid penetration and transport of liquid inside composite.

Keywords: Multifunctional textile, untwisted yarn, hydrophilic fibers, capillary penetration

One of the trends in the creation of technical textile materials consists in obtaining multifunctional fabrics. The simplest methods to modify textile materials by mixing fibers, modifying threads, structure and surface have a limited capacity. The higher capacities to produce for production of goods with certain consumer properties lie in the transition to the complex layered composite textile structures.

Multilayer multifunctional textile is represented by novel composite materials (smart textiles), in which the layers of fibrous materials having different physical, mechanical and chemical properties are arranged in the predetermined sequence, and, simultaneously, such textile composite materials meet numerous, sometimes contradictory requirements [1].

Multilayer multifunctional textile composite materials have a very broad scope of application. For example: 1. The so-called motor body jackets in modern missile systems (for protecting from heat); 2. For production of protective outfit (from chemically and bacteriologically contaminated environment, fire and so on) in extreme situations (the specified requirements are: resistance to chemical reagents, protecting a person from toxic gases, water resistance, non-inflammability, airtightness); 3. In modern medicine – implants, transdermal therapeutic systems (for long-term and continuous supply of the existing in them therapeutic remedies to patients from skin into the bloodstream), etc.

In recent years, adding of non-textile inclusions into multilayer composites has made them even more multifunctional. The design of multilayer multifunctional textile materials by including in them mineral and synthetic adsorbents, provides high quality of liquid and gas absorption without significant deterioration of initial physico-mechanical properties and visual appearance of textile materials. For example, by adding the inclusions having bactericidal properties, composite gets antibacterial properties that is of high importance for those who work in bacteriologically contaminated environment. We will obtain in an integrated fashion hybrid composite, which will be capable of retaining particulate matter, gases and the certain-type bacteria, simultaneously. In that way it would be possible to address the issue of the filtration of chemically and bacteriologically contaminated liquids.

The properties of multilayer textile hybrid composite depend on the type of textile material (chemical composition of fibers, their structural characteristics, the structure of fabrics, etc.), as well as on physical and chemical properties of each layer, volume of pores, the amount of air in them and between the layers, the order and sequence of mutual arrangement of textile and non-textile layers, and their interconnection technology.

When designing multifunctional multilayer textile composites, it is necessary to clearly define their assignment and working environment. After that, there is selected the order of interconnection of fibrous materials and textile structures. The choice of connection method is an important point during the design phase, as it affects the technical properties of textile composite. First of all, it determines the presence of air, which is enclosed between the layers and the thickness of the product. The air space is also a functional layer in the construction of composite. Located between the layers, it creates the climate control system and performs the function of controlling the movement of moisture and heat. Various textile and connection materials of the construction can change

the amount of air. In addition, the volume between the layers can play the role of a functional space and be a kind of binding material.

Textile materials have the capacity to absorb the various types of substances, which are in the gaseous, vapor or liquid state. Proceeding from ambient conditions, materials are capable of retaining the absorbed substances or supplying them into the environment. It is important to carefully choose the composition and structure of the layers

The work is aimed at exploring the possibility of applying of new structure textile materials, produced from untwisted yarn as the layers in hybrid multilayer textile composites intended for using in the items of protecting a person from chemical contamination of the environment

Materials and methods of research

According this task multilayer textile composite materials have been designed. A structure of composite:

- The upper layer – transporting one, which ensures the rapid absorption of liquid inside and prevents it from getting to the surface;
- The water distributing layer, which ensures optimal distribution of moisture on the whole area;
- The inner layer, absorbing and retaining in its structure toxic substances layer (an adsorption powder of zeolite or activated carbon);
- The barrier layer of textile composite – nonwoven hydrophobic fabric. This layer creates a barrier to penetration of liquid into the environment (for example, to human skin).

Regarding this task multilayer textile composite materials have been obtained by method of thermal cementing duplication by using glue materials with double-sided adhesive ability. The advantage of this method of connecting fabrics in a multi-layered structure – is the possibility of bulk-forming of composite of cavities between the layers. Such voids can serve as reservoirs for air and liquid space or can be filled in by filler (fibers, powder, granules). This allows for controlling the properties of composite materials.

As adhesive materials for connecting textile fabrics in a composite material, there were used materials with a two-sided adhesive capacity – sealing tape made of ethylene copolymer and vinyl acetate.

As the upper layer, there was used an experimental fabric of new structure which was produced from siblone (high modulus viscose fibers) untwisted (glued) yarn. The fiber siblone – is hydrophilic high modulus viscose fibers, which have a high modulus of elasticity in the wet state.

Untwisted yarn is a fibrous composite in which the parallel fibers are glued together with an adhesive. In our case, water-soluble polyvinyl alcohol was used in the form of a staple fiber, which was added during mixing with the siblone fibers in an amount of 10-12%. In the dry state, these fibers were processed together with siblone fibers, but during the spinning process when wetting the product with hot water, they transition in the adhesive state and stick the parallel siblone fibers together. These connections are temporary, because during the finishing of fabric the adhesive is washed away [2].

The plain structure experimental fabric was produced by, using viscose threads as warp (25tex) and siblone untwisted yarn (25 tex) as weft. The technological parameters of the fabric are follows: number of warp on 10 cm – 258, number of weft on 10 cm. There has been studied the structure of the tested fabric. After finishing of crude fabric the adhesive is washed out from untwisted yarn and only the yarn remains in the structure – fibers located in parallel which are retained by fabric construction [3].

Microphotograph (Fig. 1) represent the arrangement of fibers in the longitudinal sections of untwisted yarn after finishing.

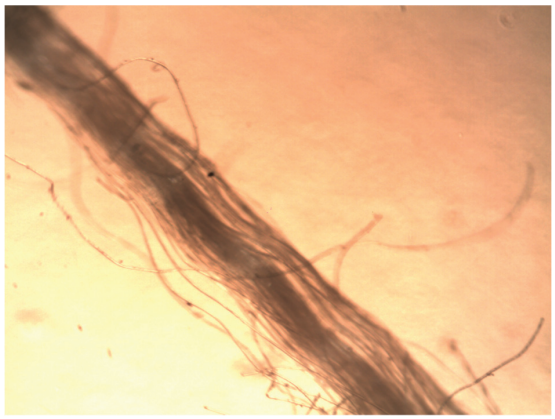

Fig. 1. Microphotograph of longitudinal sections of untwisted yarn after finishing

Fig. 2 illustrates the structure of siblone fabric after finishing: warp – ring spinning viscose yarn, weft – untwisted siblone yarn.

Results of research and their discussion

To choose correctly the composition and structure of the layers is very important. There are different methods of classification textile

materials by their structure and properties. The most appropriate is the use of the faceted classification table, the advantages of which consist in changing the number of its signs and the possibility of varying the sequence of their use. Table presents the faceted classification of multilayer textile materials (MTM). Classification attributes in the faceted classification fully reflect production technology, and provide information about the features of the MTM structure [4].

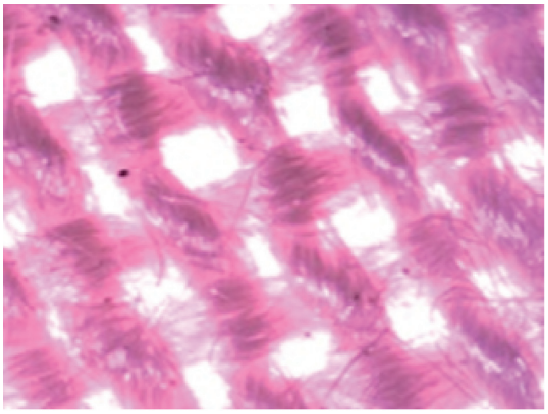

Fig. 2. Microphotographs of fabric after finishing

Each hierarchical level has its recommended faceted code numerated by 6, on the basis of which the facet formula is constructed.

In our case, the facet formula is as follows:

$$K_i = F_1, F_3, F_3, F_2,$$

where *Ki* – is a classification,
Fi – facet.

The given formula shows that MTM have been obtained by cementing method (facet 1), composed of different in the structure threads (yarn, threads texturized, complex, etc.), different structure of textile layers (fabric, knitting) (facet 3), which are connected by liquid (solution, latex, emulsion) binder (facet 2).

With the purpose of selecting textile materials for the upper transporting layer, which ensures rapid absorption of liquid inside and prevents it from getting to the surface, there were considered the capillary processes in textile materials of the various structures. It is known that the capillary processes and transportation of liquids in textile materials in fact represent the cumulative effect of capillary penetration of liquid into the spaces between fibers and filaments, i.e. into macro-capillaries. Therefore, the structural parameters of threads and materials have a significant effect on the capillarity of fabrics, knitted fabrics, and thread-like nonwoven fabrics. In particular:

1. The structure of filaments influences the capillarity of materials. Yarn construction features such as twist, diameter, crimp and fibre denier are related to rate of water transport in fibre assemblies. Water transport in yarns is only slightly influenced by wetting properties of individual fibre materials and depends mainly on wetting behaviour of whole yarn. Increase in yarn roughness due to random arrangement of its fibres gives rise to a decrease in rate of water transport.

Faceted classification of MTM

MTM classification			
By modes of production (binding layers)	Fibrous composition of layers	A structure of connected layers	Phase state of binder
1. Cementing method	1. Homogeneous composition (fibers of the same nature)	1. Homogeneous web structure	1. Solid state (powder, web, thread, net, film)
2. Stitching method	2. Blend composition (different fibrous composition)	2. Homogeneous knitted structure	2. Liquid state (solution, latex, emulsion)
3. Weaving	3. Combined composition (yarn, textured threads, filament threads, etc.)	3. Combined structure (fabric, knitting, nonwoven)	3. Liquid melt (thermal method)
4. Knitting method	4. Inverse composition (combination of fibrous-composition fabrics of 1,2 and 3 types)	4. Film-type (polymer-coated, membrane-coated)	
5. Polymer-coated		5. Bulk structure (with bulk heat insulating material)	
6. Thermal method (fiery, welding)		6. Discrete structure	

2. The height of the capillary rise in moisture is influenced by the character of the arrangement of threads in the structure, the degree of their curvature and orientation. an increase in the coefficient of compactness of fabric construction leads to a decrease in the height of the capillary rise.

3. The capillary movement of liquid knitwear is much less than in fabrics, but it is higher along the warp than along the weft. Non-woven materials have a highly developed capillary-porous structure and therefore are distinguished by high capillarity

4. The distances between the threads in the structure of materials depend primarily on the number of threads (loops) per 10 cm. If the distances between the threads lie within the radius of the macro-capillaries, a consistent increase in the capillarity value is observed with an increase in the number of threads (loops). If the distance between the threads is greater than the dimensions of the macro-capillaries, then the capillary rise occurs predominantly in the treads [5].

By analyzing the foregoing, the task has been assigned: to choose a textile material – fabric for the first transporting layer of composite, which is composed of hydrophilic threads with minimal-zero twist.

It is known that textile fabrics produced from cellulose fibers (natural or chemical and their blends) have high water absorption and capillarity values. Siblone fibers, which were used for producing untwisted yarn represent of group of high module viscose fibers which have a high modulus of elasticity in the wet state and therefore can be used for creating transport layer in the structure of a textile multilayer composite.

Thus, an experimental fabric was selected as the upper layer, which was produced from siblone untwisted (glued) yarn.. The fabric, produced from untwisted siblone yarn is characterized by a high degree of water penetration due to the identity of the structure of weft (untwisted) yarn. The parallel arrangement of fibers and the increased space between them after finishing increase the water absorption, water permeability and transport of moisture in the fabric.

Conclusion

With the purpose of selecting textile materials for the upper transporting layer, which ensures rapid absorption of liquid inside and prevents it from getting to the surface, there were considered the capillary processes in different textile materials. Textile fabrics produced from cellulose fibers (vegetable fibers, viscose, high-modulus viscose or mixed with viscose ones) have high rates of water absorption capacity and capillarity, and could therefore be used as the transporting layer. The fiber siblone – is hydrophilic high modulus viscose fibers, which have a high modulus of elasticity in the wet state. The fabric, produced from untwisted siblone yarn is characterized by a high degree of water penetration due to the identity of the structure of weft (untwisted) yarn. The structure of untwisted yarn with a parallel arrangement of fibers, ensures unobstructed and rapid penetration and transport of liquid.

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EXPLICATION OF THE ZONE OF PERIPHERAL PARENTHETIC MODAL UNITS IN THE CONTEXT OF MODALATION

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The authors give a thorough account of linguistic units that express the peripheral zone of parenthetic modal units on the scale of transitivity. The dynamics of formation of their syncretic properties that in various proportion reveal the attributes of adjective, adverb and a parenthetic modal word is presented. The modalation process is related to desemantisation and decategorisation of word forms, development of pragmatic aspects of semantics in the position of parenthetic part. Peripheral modalates' attributes are: subjective-modal semantics of categorical/ problematic reliability (truthfulness) of information (it is certain/ no doubt, looks like); its unpredictability (accidentally/by chance); indeclinability, absence of grammar categories, apartness from paradigms of adjective and adverb; presence of the suffix -o /-e in the morphemic structure, use of simple semi-compound sentence in the function of parenthetic modal component, absence of word-modifying subordinate relations with dependent words; emphasizing (setting apart) in speech; setting off by commas in written speech.

Keywords: Russian language, grammar, transposition, modalation, short adjective, adverb, parenthetic modal word

Gradual character of modalation of short adjectives in the Russian language generates structures that in modern language present different stages of this type of inter-part-of-speech transposition. Graphically the process and the result of modalation can be presented in the form of links on the scale of transitivity. As a premise it is admitted that the degree of modalation of adjectival and adverbial lexemes is different, moreover, there can be movement of the same word form in various speech environment along the transitivity scale from point "A" (stage **(Short adj./ Adverb)** [midpoint of short adj, and/ or adverb]) to point "B" (stage **Modal word** [midpoint of parenthetic modal words] through a series of intermediate stages: "Ab" (stage **Short adj. modal** [periphery of short adjective] → "ab" (stage **short adj. modal** [zone of hybrid structures] → "aB" (stage **short adj./adverb**: **Modal [**periphery of parenthetic modal words]) (on types, attributes, degrees of transposition of linguistic units in the system of parts of speech, see [1-4].

Of interest is the study of transient phenomena, manifesting next-to-last, functional stage ("aB") of modalation of linguistic units.

In relation to functional modalates such as *it is certain/no doubt, it seems/looks like, by chance/accidentally*, that reveal a zone of the periphery on the scale of modalation, it is difficult to talk about one starting (initial) point of inter-categorial transposition. The fact is that in synchrony they, as it is known, can be correlated simultaneously with two classes of words – adjectives in the short form (in the predicate function) and adverbs homonymous to them. This circumstance makes us distinguish two transition zones with different initial and one final point of modalation. Compare their explication (expression) in the context of the use of the adjective (1) and adverb (2), on the one hand, and correlative with them introductory modal word (3) on the other:

(1) Congruence (coincidence) of numbers on the documents is **accidental;**

(2) Numbers on the documents coincided **by chance (accidentally);**

(3) You, **by any chance,** know him?

There is reason to assume that from a diachronic point of view, the starting point for adverbs such as *by chance/much alike* and modal words (*accidentally, it seems/probably*) are short adjectives (*accidentally, alike*), which could be transformed into parenthetic modal words at once (4) or through an intermediate stage of an adverb (5):

(4) This **seems (feels) like** truth (short adjective) --> This is, **like,** truth as it is (parenthetic modal word);

(5) His superiority (dominance) was **undoubted** (short adjective) --> a) At the last stage he won **undoubtedly** (adverb); b) they were people who knew each other, **no doubt**, a very long time (parenthetic modal word).

The degree of modalation of adjectival and adverbial word forms in various speech environment is different. Their limitation to transposition into parenthetic (introductory) modal words is the stage of periphery of the parenthetic modal words that does not disturb (impair) the semantic identity of the original lexemes. The given type of inter-part-of speech transposition has functional character: it leads to the formation of grammatical homonyms such as *alike* short adjective / *seems/ looks like* (adverb) – *apparently/like* (parenthetic modal word).

Compare typical contexts of their use:

(6) (a) *Kyamal liked the name because it sounded* ***like*** *his favorite name: Irina* (V. Tokareva. His Own Truth) (short adjective);

(b) Savva has copied **very truly** Alyosha Popovich's sonorous tenor (M. Bakunina. Nine grams of plastic explosive) (adverb);

(c) Dmitri Fedorovich seems to have been told of insubordination (A. Azolsky. Lopushok) (parenthetic modal).

Functional modalates such as *accidentally* are syncretic by its nature. They are characterised by such attributes as:

1) subjective modal semantics of categorical / problematic reliability of the information (*no doubt/it is certain/looks like*); its irregularity (unusualness), unpredictability (*by chance*);

2) indeclinability, i.e. absence of grammar categories and paradigms of gender and number of short adjective as well as categories and paradigms of adjectives and adverbs' degree of comparison; complete isolation, apartness from any paradigms of adjectives and adverbs;

3) the presence of the morphemic suffix *-o / -e*, formed on the basis of flexion-suffixal morph in hybrids like **it is certain, no doubt, it looks like** (cf.: *They look much alike: the copy is undistinguishable from the original);*

4) the use in the function of parenthetic modal component in a simple semi-compound sentence;

5) the absence of a predicative function; compare with the hybrid forms' predicate function in two-member elliptical construction, prepositively used in asyndetic complex sentences with the explanatory relations between predicative parts: *No doubt: his superiority (dominance) was obvious (≈ There is no doubt: ...)*;

6) use in a detached position, along with the absence of word-modifying subordinate relations with dependent words;

7) intonation-semantic emphasis in speech (lowering of the voice tone, increase in speech delivery rate). In written speech modalates of this type are set off by commas.

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Short Reports

THE PROBLEMS AND PROSPECTS OF THE STRUGGLE WITH LEISHMANIASIS

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Leishmaniases are diseases caused by protozoa belonging to the genus *Leishmania.* Leishmaniasis, a vector-borne disease caused by obligate intramacrophage protozoa, is characterized by diversity and complexity. Leishmaniasis is endemic in areas of the tropics, subtropics, and southern Europe, in western Asia, and from rural to periurban area. Now the increase of migration of population in Europe (EU) and in Russian Federation (RF) due to touristic and business travels to endemic areas. Furthermore the arrival of migrants from other endemic countries significantly complicates the epidemic situation of leishmaniasis. Considered that the infection is transmitted by phlebotominae (sandflies), nematocerous diptera with a terrestrial life cycle, related to environmental degradation. Risk factors for infection include: socio-economic conditions (including malnutrition), migration and population movement, changes in the environment (urbanization, domestication of the transmission cycle and the penetration of agricultural farms and settlements into forest areas), climate changes (global warming and soil degradation).

Cutaneous leishmaniasis is one of the 10 most frequently imported diseases in tourism. Most often, cases of zoonotic cutaneous leishmaniasis (ZCL) introduced, caused by *L. major* have been introduced. At present, leishmaniasis, including ZCL, tends to spread to formerly not endemic countries. Although not all leishmanial infections lead to overt clinical disease, animals and human beings frequently do develop the disease, A characteristic feature of ZCL are: the duration of the disease is 5-7 months, significant size ulcers and preservation of well-marked scars on the skin of the sick. Another form of leishmaniasis is visceral leishmaniasis (VL) caused by *Leishmania infantum*, endemic both in EU and in RF, zoonotic also with domestic dogs as reservoirs. Not all leishmanial infections lead to overt clinical disease, but in those infected animals and persons who do develop the disease. In this case the multiplication of the parasites in the reticulo-endothelial system causes prolonged fever, anaemia, hepatosplenomegaly and weight loss. Visceral Leishmaniasis is fatal if it is not adequately treated. Leishmaniasis, a vector-borne disease caused by obligate intramacrophage protozoa, is characterized by diversity and complexity. Leishmaniasis is endemic in areas of the tropics, subtropics, and southern Europe, in western Asia, and from rural to periurban area. Now the increase of migration of population EU and RF due to touristic and business travels to endemic areas and the arrival of migrants from these countries significantly complicated the epidemic situation of these infection. At present, leishmaniases, including ZCL, tend to expand the range. Risk factors for infection include: socio-economic conditions (including malnutrition), migration and population movement, changes in the environment (urbanization, domestication of the transmission cycle and the penetration of agricultural farms and settlements into forest areas), climate changes (global warming and soil degradation). There is an increase in the number of countries from which the importation of leishmaniasis takes place in the EU and RF.

Cutaneous leishmaniasis is one of the 10 most frequently imported diseases in tourism. Most often, cases of zoonotic cutaneous leishmaniasis (ZCL) introduced, caused by *L. major*. Characteristic features of ZCL are: the duration of the disease (5-7 months), significant size ulcers and preservation of well-marked scars on the skin of the patient. To date, there is no effective method or remedy for all forms and syndromes of leishmaniasis. In addition, existing methods of treatment, as a rule, do not lead to parasitological cure, and relapses under conditions of immunosuppression are frequent. There are a number of methods for treating various forms of leishmaniasis and the preferences for the first and second line choice of therapy vary from the type of disease and are often based on the experience of physicians in a particular region [1, 2].

Early case detection followed by adequate treatment is also central to treat leishmaniasis and to control of the spread of VL from infected dogs to people Leishmaniasis. Good results of treatment so rely on sensitive and specific diagnostic tools. Although the need for accurate Leishmaniasis diagnostics is obvious, innovation in this field has been slow. Several serological tests have been developed, but they cannot show a 100% specificity, mostly in countries where other flagellates (i.e. Trypanosoma spp.) would occur none are specific for Leishmaniasis disease as such, although they these tests have proved useful in combination with a clinical case definition. New diagnostic tools are needed advisable for more than just the confirmation of Leishmaniasis. Usually Golden standard in the diagnosis relies on microscopical detection of the amastigotes in the lesions by direct visualization of the amastigotes. However, the retrieval of tissue samples is often painful for the patient and identification of the infected cells can be difficult, especially when scanty parasites occur

in the examined tissue. So, other indirect immunological methods of diagnosis are developed, including immune-fluorescent antibody test (IFAT) enzyme-linked immunosorbent assay (ELISA), antigen-coated dipsticks, and direct agglutination test at all. But they are not the gold standard diagnostic tests due to their insufficient sensitivity and/or specificity. Several different polymerase chain reaction (PCR) tests are available for the detection of Leishmania DNA. By means of this assay, a specific and sensitive diagnostic procedure is finally possible. Diagnostics of Leishmaniasis in animals are based on researches of serum (mainly IFAT or ELISA) to find antibodies G (IgG). High concentration of antibodies would confirm clinically Leishmaniasis or specify a possible infection of the infected dog without clinical signs. Detection of pathogen can help to confirm with method PCR, but this method alone would not allow to come to a conclusion concerning a clinical picture. For this reason IFAT remains the method of first choice for the diagnostic of Leishmaniasis in dogs, and controversial results should be confirmed by PCR [1].

Molecular tools are in fact useful, mostly as confirmatory tests. These techniques require skilled technicians and equipped laboratories; furthermore none of these tests can provide data about the outcome of the infection. For these reasons other techniques, for example crystallography [3]. Crystallography would appear as promising tools, mostly in diagnosis of VL both in dogs and humans. We consider that the crystallography would be a perspective method of diagnostics and prognostics of the Leishmanias both alone and in combination with other methods. Biocrystallography (Biocrystallomics) is a new synthetic biomedical science that studies human and animal biological substrates crystallization, earlier the method of biocrystallography was used for diagnostics of Trichinellosis. Estimated indicators for crystallogenesis were used: The basic indicators: 1. The structure index [SI] can be 1-Low, 2-medium, 3-high, also crystallization rate [CR] (1-Low, 2-medium, 3-high) we can see in the sample of leishmanias serum high level of CR. Supplement parameters are facia destruction degree [FDD]); chaos index [CI]) ect, but they can vary in the different samples of infected biosubstrates. So, it is possible to study biogenic crystals structure with leishmaniasis; investigation of biocrystallization estimation informativity of samples with Leishmania; estimation of prognostic role of biocrystals in comparison of IFAT titers of ELISA. Because serological tests none are specific for Leishmaniasis disease, although they have proved useful in combination with a clinical case definition and crystallography.

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