International Academy of Science H&E

NATURAL ZEOLITE IN MEDICINE

SWB
Bourgas–2010

It is recommended for printing by Scientific Coordination Council of World Organization for Scientific Cooperation WOSCO (London)

The head of the program «ZEOLINE» is *Ph.D.* Tamila Shirin Khalilova

Natural zeolite in medicine. SWB. Bourgas, 2010. – 302 pp.

In the present collection are given the results of researches of different scientific research institutes of a medical and biologic profile for research of natural zeolite of Aydag deposit of Tovuz region of Azerbaijan.

ISBN-978-9952-451-07-8

SWB
Bourgas–2010

CONTENT

INTRODUCTION

F.E. Sadikhova
Az.SIDI named after A.Aliyev,
epidemiology and microbiology department

Ecological pollution of human environment has an adverse consequence in the form of various diseases caused by occurrence and accumulation of pathogenic components in an organism.

These components can be as the autoantibody, the circulating immune complexes (CIC), atherogenic lipoproteids, endogenous and exogenous toxins, prions, viruses and microorganisms.

Thereupon it is necessary to note the development of directions in medicine with a purpose of working out of methods of cleansing of an organism from foreign microorganisms, compounds, toxins, etc. with application of natural sorbents, in particular zeolites.

Successes in the given direction are significant enough: from antique medicine to therapeutic apheresis (from the Greek "apheresis" means clearing) with using of unique affine sorbents.

In the present collection are given the results of researches of different scientific research institutes of a medical and biologic profile for research of natural zeolite of Aydag deposit of Tovuz region of Azerbaijan.

In Azerbaijan during the last years the industrial production of modified and cation-substituted forms of the noted zeolite is adjusted.

The collection of works presented to your attention contains the results of studying of adsorptive properties of the investigated zeolites concerning viruses, bacteria; results of the revealed immunological and therapeutic possibilities.

The authors express their sincere gratitude to the reader for kind wishes.

CHAPTER I

ZEOLITE IS A BIOACTIVE MINERAL

K.T. Kahramanova
Scientific and Production Company «YENI TEX» Ltd.

The first report on natural zeolite was published in 1756 by Swedish scientist Kronsted. Crystals of zeolite-stilbite were swelled when heated, and Kronsted called them "boiling stones" [1].

Later there already have been discovered the properties of natural zeolites, due to their unique crystal lattice.

Swedish scientist K.V.Scheele and the French scientist A.F.Fontana in the seventies of the XVII century found that zeolite crystals can be reversibly dehydrate without a significant violation of their crystal structure and morphology. In further researches by scientists from different countries were established the adsorption capacity of zeolites to various molecules.

In the 70-80 years of last century, natural zeolites have been used extensively in various areas of the economy mainly as an adsorbent for the purification of gases from water, the separation of a mixture of gases, the wastewater treatment as filters for the afterpurification of drinking water, as well as catalysts. In further studies it was found that the zeolites have unique adsorption and ion exchange properties. So the study of adsorption activity compared with activated carbon for tricyclic antidepressants (amitriptyline), trichlorfon, digitoxin, sodium arsenate, mercuric chloride, phosphorus compounds, arsenic,

heavy metals showed that the absorbing activity of the investigated zeolite does not concede, and in some cases exceeds 1,5-2 times the adsorbing activity of the activated charcoal. But perhaps the most interesting possibilities of zeolites, natural aluminosilicates have been discovered in the medical field. What was the interest due to this side of the application of zeolites?

Some authors consider that the correction of the imbalance elemental composition of the human body by enriching the diet by one or another product containing the necessary mineral elements is erroneous [2].

Deficiency or excess of certain elements in the human body usually is the result of deficiency or excess of these elements that run through the food chain: from the soil – to the plants and animals – to a man. In the developing shortage of any element the food correction is not enough, even if for this purpose are used the products from other regions, soils of which are enriched with essential trace mineral. Only the individual selection of mineral and other products aimed at normalization of the microelement balance of the body will do a real and effective assistance in a pathological state.

In different corners of the globe in food are often used the clay-sedimentary rocks that have plasticity. Indigenous Siberians gladly ate delicacies prepared from kaolin and milk. Kaolin Clay is named after the Chinese province of Kaolin, which was first found and where the first local residents discovered its medicinal properties.

There are folk remedies from clay which, together with the addition of vinegar and the juice of plantain, horsetail decoction is used as an ointment in the treatment of completely

open wounds and ulcers. Medicinal properties of this ointment are explained with the tonic effect of clay on the living cell, preventing the emergence of certain types of cancer [3]. The matter is that the micro and macro elements in natural minerals, clays and zeolites are the most accessible forms for the living organism of both man and animal, not in vain the animals with the full natural diet (moose, elk, deer, even bears, grouse, capercaillie) consume large enough quantities of zeolites for the restoration of mineral homeostasis and maintaining it at a proper level of health. For example, elk, and deer do not come into the marriage games, unless they restore the composition of the internal environment of their organism, "eating" 10-20 kg of mineral rocks. Varnish for them is the flooded sour-cream rocks – cudurites, consisting of almost entirely of zeolites, montmorillonites, opalites, hydromica, chlorites and many others. Perhaps this is a manifestation of an instinct of conservation of genus, the condition for the emergence of a viable healthy offspring. Comparative analysis of rocks from the places of eating by animals and passed their digestive tract (washed from excrement), it was found that the animals consume the soil for mineral homeostasis of their body. Chemical elements entering into the body of animals with plant foods are inadequate for the normal functional activities, as supplemented by natural resins; the excess is removed from it by using the same ion exchanger.

It is with stone-eating by animals there began the study of biological properties of natural zeolites led by Academician of RANS V.I.Bgatov [4].

Zeolite is a crystalline aqueous aluminosilicate, containing as cations the elements of groups I and II of the periodic

system, in particular sodium, calcium, potassium, magnesium, infinite aluminosilicate framework which is formed at the junction through the common vertices of tetrahedra AlO_4 and SiO_4. In the nature there are more than 30 types of zeolites, differing in crystal-structure and composition (5). Skeletal framework of zeolites is varied. Natural zeolites are divided into 7 groups, differed by a modification of the framework (Fig.1). There are needle types zeolites which are not authorized for using in medical and food practices. Only clinoptilolite which has an oval structure, was approved for using in food and medical practice. Zeolites of even one species, but from different fields may also have different properties. In Azerbaijan, large Aydag clinoptilolite deposit is located in the Tovuz region, reserves of which are about 28 million tons.

In the structure of clinoptilolite there are three types of channels, forming a two-dimensional system.

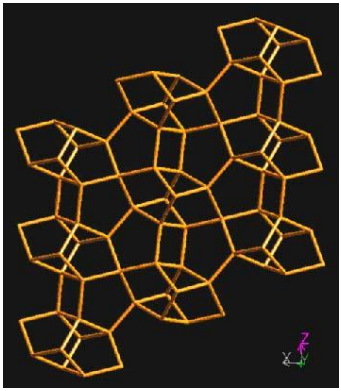


***Fig. 1.** Crystal structure of zeolite-clinoptilolite*

Sizes of windows in the zeolite, formed by 5, 8 and 10-membered rings – 4,0-5,6 angstrom in 8-membered rings parallel to the horizontal axis; 4,4-7.2 angstroms, in the 10-membered rings and 4.1-4,7 angstrom – in 8-memberedrings 50^o to horizontal axis.

Cations are localized in three types of places – two on the walls of the channels and one at the intersection of 8-membered rings. Water molecules in the channels are coordinated with cations. Because of such sizes of pores, clinoptilolite exhibits sorption properties not only in relation to ions of macro-and micronutrients, but also to compounds with small sizes (methane, hydrogen sulfide, water, ammonia, carbon monoxide and dioxide, nitrogen oxides, etc.), not engaging in direct interaction with vitamins, amino acids, proteins and other complex organic compounds.

The presence of trace elements, unusual exchange properties, sorption properties of zeolites have resulted in demand in different fields of science, including medicine, and in completely different fields of medicine ranging from dietary supplements and ending with the means to treat diseases of various organs. Food interest in zeolites, clay or mineral sorbents is not so much fashion as call of the time. There are two main reasons: environmental pollution and changes in quality of food. Today, this balance is undergone a monstrous aggression. Changing of production technology and food processing brings to decreasing of the content of many essential elements and increasing of other dangerous heavy metals.

Many samples of supplements – Russian "Litovit", Croatian "Megamin", Azeri-German "Azeomed" were multilaterally studied and investigated on the safety on requirements for the

pharmacological committee, studies to explore the mechanism of their action on the human body. Only on "Litovit" were successfully defended 15 Ph.D. and 3 doctoral dissertations. Elements, necessary for the body to build and functioning of cells and organs, are called biogenic elements. Content of 70 elements in the body is relatively constant. There was established biogenesis of 30 elements [6].

Table 1.

Chemical composition

Component	SiO_2	Al_2O_3	Fe_2O_3	TiO_2	CaO	MgO	P_2O_5	K_2O+ Na_2O	As	Pb	Cu	F
Quantity	71,5	13,1	0,9	0,2	2,1	1,07	0,033	5,03	0,0015	0,002	0,02	0,025

Table 2.

Microelement composition mg/g

Component	Mn	Zn	Ga	Th	Rb	Y	Zr	Nb	Ba	Ce	Mn
Quantity	242	45	20	12	110	22	235	22	232	52	242

Biogenic elements, which exceed 0.01% of body mass are referred to the macroelements.

These 12 items classified 99% of all living tissues contain only six elements: C, N, O, N, P, Ca. The elements of K,

Na, Mg, Fe, Cl, S refer to oligobiogenic elements. Their content ranges from 0.1 to 1%. Biogenic elements, total content of which amounts about 0,01% are referred to the trace elements. The content of each of them is 0,001% (10^{-3} – 10^{-6} %). Elements whose content is less than 10^{-5}% refer to ultramicroelements. In the organism of a man and animals there are: Ga, Ti, Al, As, Cr, Ni, Se, Ge, Sn, as well as the impurity elements (Te, Sc, In, W, Re, and others), but data about their number and biogenic role are not clear.

Lack of the following metals can cause various diseases:
Co-slowing down of growth of the skeleton;

Mg – muscle cramps;

Fe – anemia;

Zn– damaging of skin;

Cu – weakness;

Mn – sterility, the deterioration of growth;

Mo – slowing down of cell growth;

Co – pernicious anemia;

Ni – quickening of depression, dermatitis;

Cr – symptoms of diabetes.

Si – atherosclerosis, growth disorder of the skeleton, the weakness of the blood vessels;

F – caries;

I – disruption of the thyroid gland;

Se – muscle, cardiac weakness.

In the synthesis of proteins are involved Mg, Mn, Fe, Co, Cu, Ni, Cr;

in hematotis – Co, Ti, Cu, Mn, Ni, Zn;

in the breath – Mg, Fe, Cu, Zn, Mn, Co.

About a third part of enzymes (and there are about 2000) are activated, for example, transition metals. Positive metal ions are grouped around themselves with negatively charged parts of molecules (ligands).

In the composition of inorganic substances in the body there are more than 22 chemicals. So if a man's weight is 70 kg, then the share of Ca is – 1700 g, K – 250 g, Na – 70 g, Mg – 42 g, Fe – 5 g, Zn – 3 g, etc. The overall percentage of metals in the body is about 2,1 kg. Elements, whose content is no more than 10^{-3}, are parts of enzymes, vitamins, hormones and other important substances.

So for protein, carbohydrate and fat metabolism is required Fe, Co, Mn, Zn, Mo, V, B, W.

To date, the use of natural zeolite is defined as the optimal non-specific method for complex rehabilitation of mineral homeostasis. Objective data of researches show the effective regulation of intake and distribution of biometals with highly standardized natural zeolites, regardless of source status and egochemical conditions.

Natural zeolite can not, as crystal structure, directly interact with the myocardium and other organs and tissues, excluding the intestinal wall, since it is proved that the described structure is not able to penetrate into the internal environment of the body through the intestinal wall [7].

Zeolites, as enzymatic catalysts (biocatalysts) help to normalize the activity of enzymes depending on the needs of the organism, guiding and regulating metabolism in cells. Effect of selective ion exchange is stipulated by the interaction of active centers of transport proteins and loosely coupled zeolites of micro- and macro-elements in the cavity system. In this

case is realized a seizure of mainly those biometals, due to a deficiency of which the body synthesizes the largest number of transport proteins.

The ability of metal ion to perform its role in the active center of the corresponding enzyme depends on the ability of metal ions to form complexes, the geometry and stability of the complex formed.

Biocomplexes differ in stability, and some of them are so strong that it is difficult to divide the metal and the ligands. Such enzymes are called prosteic

Replacement of metal in them leads to a complete loss of physiological activity. To these compounds refer the chlorophyll (Mg), polyphenil oxidase, vitamin B_{12} (Co), hemoglobin (Fe). In some cases, enzymes are activated by only one metal (the latter only accelerate the reaction and dissociate easily) and some enzymes can be activated by various metals. So carboxylase is activated – Co, Cu, Fe, Ca, Zn:

– Polypeptidase – Co, Zn;

– Lecithinase – Zn, Mg, Co, Zn, Mn;

– Arginase – Co, Mn, Ni, Fe.

More often these are elements with the same degree of valence.

In the composition of the zeolite there are more than 25 different elements, which were possible to determine by atomic absorption method. Hence it appears these amazing, sometimes unexpected properties of zeolites in the treatment of various diseases. Being safe and non-toxic, it eliminated from the body within 5-7 hours. With its unique properties of selective ion exchange, zeolite supplies body with the missing macro-, micro-, ultramicro-, nano-, and picoelements [4], if they are not

enough, and removes them from the body if they are in abundance, i.e. falling into the human body, trace elements of the zeolite will only work if there is lack of them in the body.

If in the body there is enough of this microelement, it will not leave the zeolite and never will be somewhere laid. Ion exchange properties of zeolite are good because of the fact that they regulate the balance of trace elements in the body. Zeolite promotes the normalization of all biochemical processes in the body, which can not properly take their course without macro-, microelements.

And in the cells there are hundreds and thousands of different biochemical reactions, which are essential not only for health but also for life of a living creature.

The main element the supplier of which is the zeolite is silicon.

Silicon is contained in zeolite as in the very structure of the zeolite, and as an admixture of quartz (crystalline silica) in the tuff.

Silicon is a key element in prolonging the life and performance of workability of practically all body systems [8]. Therapeutic effect of oxides of silicon and silicon-containing herbs and plants has been known long before our era in ancient India and China, then in the Arabian East. It is well known that the clay and talc promote healing of wounds, ulcers, and the potters, for example, don't have rheumatism.

Researches in this area belong to the beginning of last century, when it was shown that silicon compounds may perform protective and medicinal functions in the fight against tuberculosis and atherosclerosis.

In 1912 German doctor Kun determined that silicon compounds can prevent from the atherosclerosis. In 1957 French scientists M.Lepger and J.Lager described the facts which are evidence of the fact that during atherosclerosis in patients there is usually very low content of silicon in the body, compared with the healthy ones. Stroke and heart attacks occur in those with silicon content of 1.2% versus 4.7%. Diabetes comes in many etiological factors, if the silicon is 1.4%, hepatitis C virus can grow, if the silicon content has dropped to 1.6%, and cancer in the content of 1.3%.

Violation of the silicon balance in children leads to a softening of their bones leading to anemia, hair loss, joint disease, tuberculosis, diabetes, erysipelas of the skin, the stones in the liver and kidneys – all this is against the background of dysbacteriosis too.

During life the human body loses silicon because of parasitic infestations, poor ecology (poisoning by aluminum, lead, cadmium and other metals), oxidation processes, leading to the formation of free radicals, poor nutrition, stress, etc. In 1978, the Nobel committee in Stockholm recognized silicon as an element of life.

Silicon, as a piezoelectric element, transforms one form of energy into another: mechanical one to electrical one, light one to heat one.

It is silicon which is the basis of energy-information exchange in space and on the Earth, for a man – a product of terrestrial and space-based elements – is unique. With lack of silicon in the human body the balance of energy is disturbed and metabolism too, as more than 70 chemical elements simply do not assimilate. The composition of liquid media is changed,

their properties electrolytes do not meet requirements of normal existence of the biosystem "man", the diseases begin. According to spectral analysis, in daily products of the healthy human there are 4.7% silicon. According to scientists, in the body of a man the silicon is octuple involved in the processes of life support ($4.7 \times 8 = 37.6$), i.e. about 38% of our health is provided by silicon.

If the silicon content in the body is not made up, the life dies.

In such organism the silicon deficiency diseases are developed – atherosclerosis, stroke, heart attack, cardiosclerosis, arrhythmia, metabolic diseases, mental disorders, Alzheimer's disease, hypertension, atherosclerosis, osteoporosis, etc. Silicon is an element of life for any living organism and it manifests itself as a serious biotic (vital) factor in the livelihood.

It was also found out that silicon stimulates the biosynthesis of DNA too.

Silicon, due to its chemical properties, creates an electrically charged system.

They have the ability to "stick" to themselves a virus, pathogenic microorganisms non-symbasis with the human body, not peculiar to man. The selective "agglutinant" ability of colloidal systems of silicon is unique.

The viruses of influenza, hepatitis, arthritis, rheumatism, dysbacteriosis, candida, conidia, yeast and other microorganisms that cause pathological situations in the body, are sucked into colloidal silicon formations by force of electrostatic attraction both in the blood and in the bowels [9].

Silicon forms long, complex molecules and plays an important role in the construction of connective tissues of the

body, bones, cartilages and blood vessels. Silicon is necessary for the formation of collagen, required for bone and connective tissues to maintain the health of nails, skin and hair, for absorption of calcium in the early stages of bone formation. Silicon is extremely important for biosynthesis of keratin, connective tissues and cartilage. It is also necessary to maintain the elasticity of arteries and plays a major role in the prevention of cardiovascular diseases. Silicon prevents the harmful effects of aluminum on the body and is of importance in the prevention of Alzheimer's disease and osteoporosis.

When machining the zeolite and silicon oxide SiO_2 (silica, quartz) there are various structural defects such as steps, ledges and corners, practically absent in single crystals. The number of structural defects can be very large in the polycrystalline powder. These centers increase the reactivity of the surface of quartz, zeolite because of high coordination unsaturation of ions. So, on the surface of quartz it is connected with strong deformation of covalent bonds. Thermal and mechanical treatment brings to appearing on the surface of crystals the reactive hydroxylated amorphous layer. Difference in geometry and chemical status of surface OH groups, forming on the surface of quartz in mechanical destruction of the surface can be one of main factors determining their high biological activity [10]. Silica with hydroxylated surface specifically adsorbs various molecules [11].

Calcium (Ca) is the antagonist of silicon. With a lack of silicon Ca^{2+} replaces it, the walls of blood vessels become fragile, and between the surface roughnesses the parasites-trichomonads are placed. During migration the bloodstream becomes hydrotransport on relocation of seedlings the parasites

throughout the body. The larvae of parasites do not tolerate sharp condiments (horseradish, mustard and garlic), aromatic substances, valerian. When one takes it, the larvae migrate trying to penetrate the walls of blood vessels. As a result, there are holes that bleed; there can be a stroke, heart attack and lumbago.

The above-mentioned properties of zeolites were a prerequisite for their use in various fields of medicine. On the basis of natural zeolite clinoptilolite in various European countries-Germany, Austria, Britain, Switzerland, Italy, the USA there were made BAS-s (Panaceo, Meganutrin, Seolife, Nanoproim, Nanosilisio, Formula 3, etc.). Litovit with various herbal additives is very popular in Russia [12]. Thus, Russia's BAS "Litovit" is marked with the highest award of the Second International Exhibition "Ecologically safe products" (certificate № 17, 7 June 1999 Moscow), and production association "Nov", producing such products was included into the Register of manufacturers of natural and safe products (with the number 55, dated 7 June 1999, Moscow). Supplements to the food of "Litovit" series in 1997, is the only Russian dietary supplement, in which trademark is allowed to use the logo of Russian Red Cross. In the product of "Litovit" series there are minerals and herbal supplements to correct health in various states. A drug “Seosorb” based on zeolites of Siberian fields, developed in Scientific Research Institute of Biochemistry SB RAMS, and can be used as radioprotector, immunostimulants, means for removal of radionuclides from the organism, and treatment of allergic diseases, reduction of toxicity in the body in renal and hepatic failure [4].

There were carried out pre-clinical trials and was received the permission of Farmcommittee of RF to carry out the clinical trials.

It should be noted that the effect of "dietary supplement" to the food, including those based on natural clinoptilolite is aimed at restoring the "health capital", which makes it possible to pay for overcoming the ailments.

"Megamin" was made in Slovakia. It is consisted of tribomechanically treated natural clinoptilolite and dolomite. First researches on the project "TMAZ" were held in 1997 in Zagreb. First scientific conclusions were made on basis of a clinical study of more than 200 cases of unusual effect of TMAZ in cancer patients [13, 14]. Below are mentioned the medical reports and results of physical-chemical studies of "Megamin".

Results of some studies can be sorted into the following groups.

1. Research of toxicity of TMAZ. The received results allowed to recommend TMAZ for use in medicine.

2. Influence of TMAZ on microbiological activity (ongoing in several countries of Europe and the CIS). Was also determined a stabilization of the autochthonous intestinal bacteria in the presence of TMAZ and inhibition of development of pathogenic and parasitic bacteria. Was also determined TMAZ antiviral effect on human adenovirus 5, herpes simplex virus of type 1 (HSV_1), human enteroviruses (Coxsackie virus B_5 and ehovirus$_7$). The authors suppose that the antiviral effects of TMAZ occur, obviously, non-specifically and more likely, are based on the adsorption of viruses on the

external surface and pores of the zeolite, than the ion-exchange properties [15].

3. Investigation of physical-chemical properties of TMAZ (investigations have been completed).

Physical-chemical researches were carried out at faculty of the Department of Biochemistry and Pharmacology of the University of Zagreb and was found, that TMAZ

– adsorbs different proteins;

– prevents the growth of cancer cells in vitro in vivo.

– interferes with DNA synthesis in fibrosarcoma cells;

– induces apoptosis (programmed cell death) of all tumor cells;

– adsorbs cations of carbon in arid environments. This blockade enhances the resistance of tumors in the body;

– interferes with the absorption of free radicals, as they react to the microparticles of TMAZ significantly faster than the other receptors;

– improves the transport of bioactive molecules (such as silybin, ascorbate).

Unusual effect of TMAZ and first scientific conclusions were made on basis of clinical study of more than 200 cases of cancer patients on the project of TMAZ back in 1997 in Zagreb.

In the recently published material [16] are shown the results on use of zeolites in treatment of cancer patients in the last 4^{th} stage in the biochemical laboratory in Ohio. 78% of 68 patients were completely recovered. Although the authors do not make overarching conclusions, nevertheless the results are impressionable. Anti-cancer effect, as the authors suppose, is probably connected with the ability of zeolite to enhance the

gene p21, which does not only stop the growth of cancerous cells, but in fact destroys the tumor.

It should be noted that the impact of natural aluminosilicates (clay, zeolite, silica) on oncological diseases have been observed repeatedly at different time. So during researching of adsorption of cells of ovarian tumors on amino-organo-montmorillonite, it was established that amino-organo-montmorillonite adsorbs a significant number of cells (1.3389991. 10^{10}) (17). The number of adsorbed cells was determined by derived-graphical analysis.

The specific activity of Transcarpathian clinoptilolite has been investigated in the study of anti-ulcer activity. Researches were carried out on white rats weighing 180-200 g. During 12 hours the animals were kept without food with free access to water. Canker of the stomach caused a one-time intragastric administration of prednisolone 20 mg/kg, pre-dissolved in ethyl alcohol 80%, the rate of 0.8 ml per 100 g of weight. As a comparison drug there was used a high-performance ulcer medicine "Cimetidine". Zeolite with the dosage of 200 and 500 mg/kg and the comparison drug were injected 1 hour before simulation of ulcerative lesions of the stomach. 24 hours later all animals were pickled and was calculated the area of ulcers in points (S_u) the percentage of animals with ulcers (A_u) and ulcerative index (UI).

Table 3.

Conditions of the experiment	**Dosage mg/kg**	**Condition**		
		S_u ,$S_x \pm S_u$	**A_u**	**UI**
Control	–	32.33 ± 2.03	100	32.33
Zeolite	200	11.57 ± 4.11	50	6.92
Zeolite	500	13.83 ± 8.59	71	8.26
"Cimetidine"	200	13.70 ± 5.10	78	10.6

As it seen on the table, under the influence of zeolite, the ulcer index values are decreasing in 4-4,5 times compared with the control, and zeolite in 1,5 times exceeds the antiulcer activity of "Cimetidine" [18].

In the work [19] was studied the mechanism of development of experimental gastric ulcers of test rabbits, as well as therapeutic efficiency and zeolite-containing tripoli (rock) on models of acute and chronic ulcers. It is supposed that the zeolite, causing enterosorption of toxicants and detoxicating the organism has anti-ulcerogenic action.

For prophylaxis and therapy of psoriasis and neurodermatitis in the work [20] was suggested a means containing natural zeolites clinoptilolite and natrolite with the size of particles of less than 5 microns, as well as calcium salt and / or magnesium (dolomite, sulphates, and / or chlorides).

Anti-mycotic property of zeolite was used in the antifungal means for legs [21]. In the proposed invention and as zeolite is used sivirtuine, composed of clinoptilolite, montmorillonite with minor amounts of quartz, feldspar, biotite, and clay materials. Anti-mycotic activity of clinoptilolite, confirmed by

many studies, is increased by adding to it various active additives as antifungal agent.

Biostimulating composite, containing zeolite and the biologically active material – wheat bran – normalizes the level of minerals in the body, has a high therapeutic effect in purification of the gastric tract, arteriosclerosis, urological diseases and has immuno-mobilizing property. The composite in the form of tablets has montmorillonite 0,5, Japanese kelp 0-4 and water 0,05.

The intake of 2.3 tablets per day for 45 days reduces the cholesterol level for 9-13%, the total weight for 10-15%, constipation for 84% and fatigue for 92% [20].

For rapid removal of toxic substances and for preventing the lesions of mucous membrane of stomach and intestines, there are suggested preparations that contain in its structure as active ingredients the calculated numbers of synthetic and natural zeolite or siliceous clay, crushed on sieve 500-1000 sacks. After taking 5 g of the drug the effect will come 15-20 min later [22].

In the complex of antiparasitic drugs, along with fenbendazol there are used sulfadimine, sublimed sulfur and zeolite. The preparation provides 100% therapeutic efficacy in mixed invasions [23].

Analysis of the used materials indicates the necessity of substantiated addition of methods for correction of mineral homeostasis, as the leading etiopathogenetic factor in the modern structure of health disorders by natural minerals, along with organic compounds (amino acids, vitamins, polyunsaturated fatty acids, etc.) as non-pharmacological methods of prevention and rehabilitation of health.

In Azerbaijan, on the basis of natural clinoptilolite of Aydag field with German scientists (Germany) was performed the mineral complex "AZEOMED" which includes zeolite-containing (clinoptilolite-containing) activated rocks and additionally purified dolomite [24].

Pre-activation of the rock is carried out with triple decanting and drying for 2 hours at 200° C. Our challenge is to understand the basic mechanisms of action and to find ways of their correct and effective use. Medical and biological properties of native mineral complex "AZEOMED" were studied and are being studied in scientific laboratories and patient care institutions of Azerbaijan. Antitoxic, immunomodulatory, radioprotective properties of zeolites has led many researchers, as it is shown in [12, 14, 25, 26] to study its potential in anti-cancer therapy, observed in naturally occurring antioxidants. The matter is that a part of the deaths in cancer patients is not caused by the fact that the tumor disturbs functioning of some organ, but by poisoning the body by decay products of the tumor after radiation or chemotherapy, when the liver and kidneys are unable to cope with their work. Taking into account the above-mentioned, to study experimentally the mechanism of cleansing the body from decay products in the neoplastic transformation of tissues was of interest [27]. From a scientific point of view it was of interest to examine the influence of nature of exchange cations of the zeolite on the adsorption of malignant cells. For this purpose, were explored the capabilities of both tablets "Azeomed" and natural clinoptilolite, modified with various cations.

There were prepared the samples, modified by cations of silver, zinc, copper, ammonium, which have, as it is known, the

bactericidal and physiologically active properties, as well as samples treated with Naphtalan oil, in which were found the physiologically active micro-elements (copper, molybdenum, zinc, manganese, lithium, rubidium, cobalt, boron, iodine), and with thiourea. Method of sample preparation is described in [28].

It is noted that zeolites also show anti-mycotic activity, due to binding of fungal filaments with alumino-silicate framework. Zeolites promote the treatment of dysbacteriosis better than other means (Laktabakterin, Bifidumbacterin). There was revealed the local effect of zeolites, which have a local anti-toxic, anti-inflammatory, sorbing, regenerative effects, manifested in dermatitis, furunculosis, lichen of various kinds, burns, frostbite, sores, long time non-healing wounds, ulcers, wounds, acnes, erysipelas, eczemas, herpes infection, phlegmons [29].

Such activity of zeolites as described above is explained by both the effect of cations with complexing properties, and the influence of silicon. Due to its chemical properties, silicon creates the electrically charged system, which can "stick" on itself the viruses, pathogen microorganisms which are not symbiotic with the human body. [30]

Thus, the main factors, due to which the zeolites can be added to natural minerals with curative properties, are:

1. Ion-exchange properties of zeolites, promoting the normalization of salt metabolism and the content of cations in the human body.

2. Presence of ions of transition elements with redox properties and which are able to form complexes, where the

toxins extracted by various bacteria and microorganisms can be as ligands.

3. The presence of silicon, which, as it was mentioned above, not only provides the body with this element, but is involved in the metabolism of about 70 elements, the assimilation of which is impossible without the silicon and promotes the leakage of the majority of biochemical reactions.

4. Creation of a weakly alkaline medium-destructive for many bacteria and pathogen microorganisms.

REFERENCES

1. Cronsted A. Akad. Handl.Stockholm, 18.120 (1756); Mineral. Stockholm, 102 (1758).
2. Mayanskaya N.N., Novoselov Y.B. Possibilities of correction microelementhoses, SNO GOU NGMU of Russia Ministry of Health, section Healthy Eating. System microelementosis. Sibcentre of health food.
3. Grandma's recipes, № 17, (113) 04.2004, p. 5
4. Bgatov V.I. Approaches to ekogeology, Novosibirsk, NSU, 1993).
5. D. Breck Zeolite molecular sieves. Publishing House MIR, Moscow. 1976.
6. Zholnin. Chemistry of nutrients. Chelyabinsk, 2001
7. Bgatova N.P. The use of biologically active food additives based on natural minerals for detoxification. Novosibirsk. 2000.
8. Krivenko V.V. et al. Lithotherapy. Publishing House Pedagogika-Press., 1994.
9. Semenova A.N. Clear yourself from parasites and live without parasites.

10. Pauling L. The nature of the chemical bond and the structure of molecules and crystals L 1960, P 85.
11. Kiselev A.V., Lygin V.I. Infrared spectra of surface compounds. Publishing House "Science", Moscow 1972, p. 440.
12. Veretenina O.A., Kostina N.V, Novoselova T.I., et al, Litovit. Novosibirsk. 2006
13. Poljak-Blazi, Rftic M., Kral V., Zarkovich N., Marotti T. and es In vitro in vivo efekti prirodnogo klinoptilolita in maligne tumore. 13-th Internationl Zeolite Conference, Mohtpellier, France, 8-13 July, 2001, Vol. 135, p. 374, 2001.
14. Pavelic K, Subotic B. Colic M. Natural zeolite: new adjuvant in anticancer therapy, J. Mol. Med v. 78, № 12, 708-720, 2001.
15. Circe M., Pavelec K, Antiviral properties of clinoptilolite. Microporous and mezoporous materials. Vol. 79, Issues 1-3, April 2005, p. 165-169.
16. Mike Adams / Natural cellular Defense Zeolite (NCD) / News Target.com/2005.
17. Uspenskaya I.G., Ivasivka S.V., Yankevich L.G. Academician of AS USSR Ovcharenko F.D. DAN SSSR, t.270, № 2, 480-482, 1983.
18. Krutskikh T.V., Zulanets I.A, Chueshov V.I., Rybachuk D.I. Identification of specific activity of Transcarpathian natural zeolite. Ukr. farmaceutical academical campus "Provisor", 1999, № 7.
19. Kolotilova M.L., Poryadin G.V., Ivanov L.N. Chuvashia Ministry of Health № 1 with .27-2007.
20. Klinomed Ins. Fur angewangte Nanotechnologie und Nanomedizin GmbH. Mittel zur therapie und Prophylaxe von Hauterkrankkungen Application of Germany number 102005020467 and 61 K 33/12, 2006.
21. Podchaynov S.F., Sukolin G.I. Antifungal remedy. Patent RU № 2083224, A61K 47/48, 1997.
22. Application of Japan № 62-145 1987 022 RP A61K 33/00, 33/22.

23. Petrukhin M.A., Shtennikova G.B. Complex antiparasitic remedy, Patent of Russia and 61 to 31/3517. 2006.
24. Khalilov E.N., Guvalov A.A. Patent AR № I 20050011.
25. Malenkov A.G., Dvuhsherstnov S.D., Shepelenko A.M. The method of treatment of malignant neoplasms. Application of Russia № 93043795/14, 61K 31/00 1996.
26. Pavelic K., Katic C. and other / Immunostimulatory effect of natural clinoptilolite as a possible mechanism of its antimetastatic ability. J. Cancer Res.Clin. Oncology. v. 128, № 1, 37-44, 2002.
27. Sadikhova F.A., Kahramanova K.T., Khalilov E.N. To adsorption of the malignant cell population on the modified zeolites. Azerb.journal Oncology and Hematology № 2, 2005. 93-95.
28. Abbasov V.M., Musayev A.V., Isayeva G.A. Naftalan oil and naphthenic hydrocarbons. Baku, Elm. 1998, p. 119.
29. Beloborodov V.B. Russian Medical Academy of Postgraduate Study "Current views on the application of methods of extracorporeal detoxification in patients with bacterial infections" Subject: Serious infections. Clinical Antimicrobial Chemotherapy, Volume № 2, № 1, 2000.
30. Antitumoral effect of bleomicin + dolomite combination treatment in mice bearing Ehrlich carcinoma / Naturforsch [C] 1993, Sep-Oct / 48 (9-10) 818-20.

CHAPTER II

SCIENTIFIC MEDICAL AND BIOLOGICAL RESEARCHES OF NATURAL ZEOLITES

§ 1. «AZEOMED» IS A ZEOLITE SORBENT OF VIRAL AND BACTERIAL FLORA

[1]E.N. Khalilov, [2]F.E. Sadikhova, [3]K.T. Kahramanova
[1]International Scientific-Technical Complex «INTERGEO-TETHYS»,
[2] Az.SIDI named after A.Aliyev,
Department of Epidemiology and Microbiology,
[3] Scientific-production company OOO «YENI TEX»

The known polyresistance of many bacteria to antibiotics, increasing the frequency of adverse events connected with their use put forward the principle of strengthening the pathogenetic therapy and even possible rejection of the prescribing of antibacterial drugs, particularly during acute intestinal infections, to the minimum adverse impact on the patient's body.

With respect to viral infectious diseases, it is known that more than 80% of all infectious diseases caused by viruses. But successes in chemotherapy of virus infections for more than modest in relation to specific reproduction of virus population. Viruses, as intracellular parasites at the genetic level, cause difficulties in identifying and detecting selective antiviral substances, i.e. specifically blocking the viral infection, but not damaging the cells of the organism of the host.

From this perspective, it seems appropriate to search products – sorbents, which combine the properties of detoxifi-

cation and correction of homeostasis during an infectious process, as well as the sorption of bacterial and viral flora.

Application of enterosorbents with infectious diseases may be the etiologic and pathogenetic therapies, as sorbents, because of their structure and nature of the surface properties, are capable of selectively absorbed from multicomponent solutions of endo- and exotoxin, a substance with the macro- and mesopores, in addition, may record on their surface pathogens of bacterial and viral nature, turning them off, thus, of the pathological process.

It was established that the use of zeolites as a possible therapeutic and prophylactic supplementation provides a number of positive clinical effects. From this point of view the researches on the application of a new drug – enterosorbent filtruma (1) are of interest.

There were obtained the statistically reliable data on the shortening of the length of the main clinical symptoms in patients with acute dysentery, gastrointestinal form of salmonellosis and food poisoning in a group where, along with basic therapy was used enterosorbent lignin compared with the control, where was used only a basic therapy.

The studies of St. Petersburg State Technical University, for "application of zeolites as therapeutic and preventive additives" are interesting (2).

It is attracted the attention to the recommendations of the authors on the use of zeolites in infectious diseases: rheumatoid polyarthritis, eczema (both internally and externally), urticaria, psoriasis, asthma to prevent exacerbations in remission, neurodermatitis, glomerulonephritis.

It is noted that the zeolites have often also antifungal activity due to binding of fungal filaments with silica skeleton.

There was revealed the local effect of zeolites, which have a local antitoxic, anti-inflammatory, absorption, regenerator effects, manifested in dermatitis, furunculosis, deprived of various kinds, burns, frostbite, bedsores, long nonhealing wounds, ulcers, acne, erysipelas, eczema, herpes infection, phlegmon.

Investigations of L.E. Panin described the drug – "Tseosorb", made on the basis of zeolites of Siberian deposits. The author suggests the use of the drug as radioprotector immunostimulation, means for removing radionuclides from the organism, treatment of allergic diseases, reducing toxicity in the body in renal and hepatic failure (3).

The preparation "Megamin", made in Slovakia on the project TMAZ is of interest. It is a tribomechanical processed natural clinoptilolite and dolomite.

There was established a stabilization of the intestinal bacteria in the presence of TMAZ and inhibition of their development of pathogenic and parasitic bacteria.

There was established an antiviral effect of TMAZ on human adenovirus, herpes simplex virus type 1 (HSV1), human enteroviruses – Coxackie B5 and ECHO7.

It is assumed that the antiviral effects of TMAZ are probably manifested nonspecifically and, more likely, based on the adsorption of viruses on the external surface and the pores of the zeolite than the ion-exchange properties (4).

In decompensated cirrhosis 7 days after the course with Megamin there was marked the improvement of general condition and reduction of ascites. It is assumed that the effect of

TMAZ, apparently is stipulated with the immunomodulatory action (interferon-like effect), activation of hepatic enzyme with complex sorption and enzymatic-mimetic properties.

In connection with the above-mentioned the purpose of our researches was to study the sorption capacity of the mineral complex (MC) «AZEOMED» on bacterial and viral flora. Mineral complex «AZEOMED» is derived from natural clinoptilolite Aydag field. The structure of «AZEOMED» is the activated zeolite species and additionally purified dolomite.

In the experience have been taken:

– bacterial culture; E. coli; St.aureus, Candida albicans, Ps.aeruginosa;

– viral cultures;

– polio virus 1, 3 types (vaccine strains)

– Culture of transplantable cell lines L-20B (mouse embryo fibroblasts, derived from transgenic mice);

There were studied the sorption properties of zeolites:

1. MC «AZEOMED»

2. Natural zeolites, modified with cations:

Ag – clinoptilolite

Cu – clinoptilolite

Zn – clinoptilolite

NH_4 – clinoptilolite

In the experiment were used a conventional methods in bacteriology (6, 7, 8) and virology (9, 10, 11, 12).

In the experience of zeolites were taken in the amount of 500 mg on basis of the revealed non-toxic dose (zeolite) on tissue culture L-20B in the amount of 0.0005 mg/ml (5^{th} non-toxic dose).

Experience in the identification of the sorption properties of zeolites on the above-mentioned bacteria was in layers of a certain dose (10-7) of the bacterial flora in the amount of 1 ml per zeolite with aging in 2 hours, then followed the seeding of the culture supernatant for elective medium and comparing the number of colonies after adsorption the control plating (bacterial turbidity standard on 2 billion in 1 ml of broth).

The calculation of results of the experience was carried out 24 hours after incubation at 37° C with the method of "counting of the colonies".

Results of the experiment revealed the following:

1. MC «AZEOMED» adsorbed St.aureus – 90%, Candida albicans – 80%, Pseudomonas aeruginosa – 90%, E. Coli – 70%

2. NH_4 – clinoptilolite – E. Coli – 50%, St.aureus – 90%, Candida albicans – 50%, Pseudomonas aeruginosa – 50%

Zn – clinoptilolite – E. Coli – 50%, St.aureus – 90%, Candida albicans – 80%, Pseudomonas aeruginosa – 50%

Ag – clinoptilolite – E. Coli – 70%, St.aureus – 90%, Candida albicans – 80%, Pseudomonas aeruginosa – 90%

Cu – clinoptilolite – E. Coli – 60%, St.aureus – 90%, Candida albicans – 80%, Pseudomonas aeruginosa – 90%

The relatively low adsorption capacity of the zeolites studied on E. Coli confirms existing research, indicating a weak adhesive properties of these bacteria.

Identification of the sorption properties of natural zeolites, modified with cations and MC «AZEOMED» on viral flora consisted of layers of 1 ml liquid in 100 virus-comprising TTSD50 (the dose of virus was determined by titration of mod-

el of poliomyelitis virus (vaccine strain) in tissue culture L-20B) on the zeolite in 500 mg.

After the exposure in 2 hours they infected the culture tissue with the supernatant fluid in the amount of 0,2 ml per bottle, incubated at 37^{o} C and considered during several days the results of cytopathogenic action (CPA) of the virus, possible remained after the "exhaustion" by the studied zeolites.

The results of the CPA were taken into account on the 4 + system with a view taken controls in the experience: the model viruses in 100 TTSD50 (10-3) and tissue culture L-20B (mouse fibroblasts – the method of genetic engineering, created lines of mouse cells that have receptors for poliovirus).

Analysis of the results of the study revealed the high sorption properties of all investigated zeolites on polio virus 1, 3 types (figure 1). This is due, apparently, the well-known fact that the most active is the adsorption of low molecular weight compounds. The molecular mass of the virion – 8 × 106 – 9 × 106, sedimentation coefficient – 140-165 S.

Experience of desorbed virus revealed a complete absence of desorption from MC «AZEOMED», with NH_4 – clinoptilolite, with Ag – clinoptilolite, which indicates the possibility of their use for the aggregation of viral flora and their removal from the body.

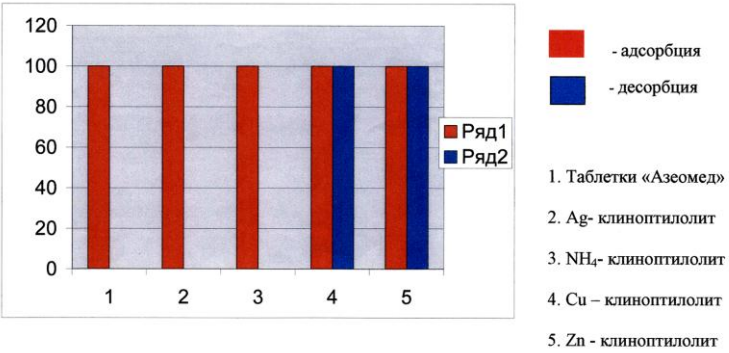
There was determined the fact of desorption (100%) of viruses with Cu, Zn – zeolites, which can be used for display of enteroviruses from different waters, including waste water used in epidemiological research (13).

Summimg up the received data, it is possible the application of combinations of zeolites with the revealed adsorption properties concerning bacterial and viral flora.

The revealed sorption of viral-bacterial flora may be one of the ways irradiation agent and detoxification of the body when it is infected.

Figure 1.

Adsorption and desorption of poliomyelitis virus 1, 3 types (vaccine strain) on the modified by the cations clinoptilolite and tablets «AZEOMED»



REFERENCES

1. Luchshev V.I., Vatuzhina O.V., Shahmardanov M.Z. "Enterosorption in the treatment of acute intestinal infectious diseases" [UDC 61634 – 022 – 036 11 – 085.246.2] (Russian State Medical University, Moscow, 2002).
2. St. Petersburg State Technical University, ICF. Branch of "Engineering systems of buildings and structures PNILKU" Venture, "Application of zeolites as curative – preventive additives".
3. Panin L.E. "Enterosorbent of broad spectrum – SEOSORB. SRI SORAMN, Novosibirsk (Patent).

4. Circe M., Paveles K., Antiviral properties of clinoptilolite. Microporous and mezoporous materials. Vol.79, Issues 1-3, April 2005, p. 165-169.
5. Khalilov E.N., Guvalov A.A. Patent number AR 120050011
6. Mudretsova-Wyss K.A., Kolesnik S.A., Grinuk TI "Guide to laboratory work in microbiology, Publishing House "Ekonomika", M., 1975.
7. Lebedeva M.N. "A Guide to practical training in medical microbiology, Moscow," Medicine ", 1973.
8. Utevskiy N.L. "Elements of Medical Microbiology and microbiological techniques, Medgiz, 1952.
9. John Paul, book "Culture of cells and tissues, Gosmedizdat Medgiz, 1963.
10. Guidelines for virological investigations of polio "/Global Programme for Vaccines and Immunization. Expanded Programme on Immunization. / VOZ, Geneva, Moscow, 1998.
11. Bukrinskaya A.G. "Virology", Moscow, "Medicine", 1986.
12. Zhdanov V.M., Gaidamovich S.Y. "Virology", // "Medicine", Moscow, 1966.
13. Khalilov E.N., Sadikhova F.E., Kahramanova H.T. et al "Method of concentrating of viral flora of weakly-polluted waters", Patent AZ № 1 20060040 with 02 F1/28 2006.

§ 2. SELECTIVE ADSORPTION OF BACTERIAL FLORA ON «AZEOMED»

[1]E.N. Khalilov, [2]T.Sh. Khalilova [3]F.E. Sadikhova, [2]K.T. Kahramanova

[1]International Scientific-Technical Complex «INTERGEO-TETHYS», [2]Scientific- production company OOO «YENI TEX», [3]Az.SIID named after A. Aliyev, Department of Epidemiology and Microbiology

One of the urgent medical problems in the present is a violation of the normal flora of the intestine, which plays an important role in protecting the body against pathogenic microbes. Persistent violations of microbial coenoses are called dysbacteriosis (dysmicrobiocoenoses), among them, of course, the destruction of intestinal microflora predominate.

It should be noted quite a wide range of indications for bacteriological diagnosis of intestinal dysbiosis: protracted infection and disorders for which can not be distinguished the pathogenic enterobacteria; protracted period of convalescence recovering from intestinal infection, gastrointestinal dysfunction on the background or after antibiotic therapy or in individuals, constantly in contact with anti-microbial drugs (1).

Dysfunction of the gastrointestinal tract may also be in patients with diseases of malignant growth, suffering from dyspeptic disorders in patients being prepared for operations on the abdominal organs, as well as preterm birth or injured and in the presence of bacteremia and purulent processes are difficult to treat (ulcerative colitis and enterocolitis, pielity, cholecystitis, etc.).

Clinical studies show that the vast majority of patients with functional constipation marked imbalance of microflora of the colon, which is expressed mainly in reducing the number of bifidobacteria and lactobacilli and a higher than normal, content conditionally – pathogenic enterobacteria and streptococci (2).

There was established the presence of dysbiosis in patients with constipation, but etiological and pathogenic interactions of microbial imbalance and motility of the colon was not studied enough.

To correct dysbacterioses there are recommended eubiotics – Coli-, lacto-, bifido-bacterins and others. (3)

However, it should be noted the recent acquirement of special popularity of widespread use in various industries of the unique properties of zeolites. Involvement in the industrial production of new types of mineral raw materials is one of the most important economic tasks.

It largely applies to the problem of extending the spheres of natural sorbents application.

It should be noted that the need of different spheres of industry in zeolites increases continuously: high-silica natural zeolites are being increasingly used.

Among high-silica natural zeolites the clinoptilolite occupies a special place – the most widespread in the sedimentary rocks of the zeolite, resistant to high temperatures and aggressive environments.

The possibilities of practical use of clinoptilolite is determined by its most valuable qualities – a specific ion-exchange capacity and the molecular-sieve properties.

Have appeared the researches on the use of zeolites as natural sorbents in medicine. There is a positive influence of complex dietary fiber, enterosorbents and dairy products, normalizing microecology large intestine (4, 5). Analysis of the data of Blokhina L.V. and Kochetkov A.M. revealed that at the initial stages of colon dysbacteriosis in patients with the syndrome of functional constipation, the use of specialized dairy products (BIFIDOK), or dietary supplement "Litovit" to food, containing dietary fiber, enterosorbents or bacterial complexes, has a positive effect. It was observed the suppression of growth of conditionally pathogenic microflora, as well as stimulating influence on the growth of symbiotic microbes – bifidobacterium, lactobacillus and escherichia coli. In most patients it was marked the elimination of large intestinal stasis and restoration of microbiological balance of the organism (6).

Taking into account the given clinical observations on correcting disbacteriosis effect when using natural zeolite products, the confirmation of the received observations in the experiment, was of interest.

The purpose of this research was to study the adsorption capacity of the mineral complex «AZEOMED» on the bacterial flora in the model of pathogenic and nonpathogenic strains of colibacillus, E. Coli.

In the experiment were used the conventional bacteriological methods (7, 8). Experience in the identification of the sorption properties of zeolites on the above-mentioned bacteria was in layers of a certain dose (in 10-7 – from 100 to 1000 colonies) of bacterial flora (700-7000 IU) of pathogenic and nonpathogenic strains in the amounts of 1 ml per zeolite with exposure in two hours, followed by seeding of culture from

supernatants on elective medium and comparing the number of colonies after adsorption on the studied zeolite – «AZEO-MED» (1 tablet, 500 mg).

In bacteriology researches the degree of adsorption was determined by method of "counting the colonies" – comparing the number of colonies in control and the number of colonies after the adsorption of bacterial flora on zeolites.

It was determined a complete absence of colonies in Petri dishes with elective medium of bacteria E. Coli of pathogenic variant and conservation of sprout of colonies of nonpathogenic strains of E. Coli.

The received data were the confirmation of the received clinical observations a priori on the correction of dysbacteriosis in the application of natural adsorbents, in particular in the application as a sorbent of MC «AZEOMED».

REFERENCES

1. Granitov V.M., Khoroshilova I.A., Shabanova S.V. Violation of microbiocenosis of the bowel in patients with parenteral viral hepatitis / Altai State Medical University, Barnaul, "Epidemiology and Infectious Diseases» № 6, 2002, 30-32.
2. Shenderov B.A. Medical microbial ecology and functional food, M, 1998, V2, pp. 100-106.
3. "Medical Microbiology", edited by Acad. of RAMS Pokrovskiy V.I., Medicine, Moscow, 1999, 74-76.
4. Zaprudnov A.M., Mazankova L.I. Microbial flora of bowels and probiotics – M., 1999, pp. 24-35.

5. Krasnogolovets V.N. Dysbacteriosis of intestine – M., Medicine, 1989, 208.
6. Blokhina L.V., Kochetkov A.M. Functional constipation syndrome: experience in the use of specialized dairy products and dietary supplements in the complex treatment of patients. – "Voprosi pitaniya", 2001 № 1. pp. 29-32.

§ 3. TO ADSORPTION OF MALIGNANT CELLULAR POPULATIONS ON MODIFIED ZEOLITES

[1]F.E. Sadikhova, [2]K.T. Kahramanova, [3]E.N. Khalilov
[1]AzSIID named after A. Aliyev,
Dep. of Epidemiology and Microbiology,
[2]Scientific Production Company «YENI TEX» Ltd
[3]International Scientific-Technical Complex «INTERGEO-TETHYS»

Natural zeolite is a new kind of mineral. Unique adsorption and ion exchange properties, chemical and mechanical stability, high acidity, and radiation resistance of high-silicon zeolites causes their wide range of applications.

It was determined that the use of zeolites as therapeutic and preventive food additives gives a number of positive clinical effects. [1]

Model experiments and clinical trials have revealed a strong anti-toxic effect of zeolites, and the unique characteristics of adsorption, ion exchange properties allow withdrawing heavy metals, free radicals, decomposition products and toxins from the internal environment [2].

Antitoxic, immunomodulatory, radioprotection and eliminating the dysbacteriosis actions are an indication for the use of zeolites in the treatment of oncological diseases using radiotherapy, chemotherapy, antibiotic therapy, because they reduce the expression of negative side effects of these highly toxic therapies [3, 4]. Later in the work [5] was studied the adsorption of tumor cells in ovarian aminoorganomontmorillonite. The number of adsorbed cells was determined with derivatographic analysis. As it was determined the aminoorga-

nomontmorillonite adsorbs a significant number of cells (1.3389991 • 1010).

Taken into account the above-mentioned, it was interesting to study experimentally the mechanism of depuration of decay products in the neoplastic transformation of tissues.

With this purpose were studied the adsorption capability of natural zeolite – clinoptilolite, modified in various ways and tablets "AZEOMED" [6].

MATERIALS AND METHODS

To investigate this question, based on the natural zeolite clinoptilolite, which has the composition of Ca4, 5Al9Si24, were prepared the samples, modified by different ways.

Taking into account the above-mentioned, there was prepared the ammonium form of zeolite: clinoptilolite treatment of 0,1 N solution of salt NH_4Cl at 70-80° C for 5-6 hours. As there are well-known the bactericidal properties of Ag, Cu, Zn – zeolites, widely used in the manufacture of plastics for cookware, cosmetics, and in water disinfection, etc. have been used:

Ag-zeolite, obtained by processing of 50g of natural zeolite containing 65-70% of clinoptilolite 100ml of 0.1 M solution of silver nitrate for 3 hours at temperature 60-70° C; Cu-zeolite, obtained by processing of 50g of zeolite 200ml of 0.05 M of solution of $CuSO_4$ in one case and $SuCl_2$ – in the second case, at room temperature for 5 hours; Zn-zeolite, obtained by processing of 50g of zeolite 200ml 2M solution of $ZnCl_2$ at 60° C.

Subsequently, to study the effect of sulfur, the above-mentioned samples were treated with 0,1 N solution of thiourea (Ag-TM, Zn-TM, Cu-TM).

It is known that Naftalan oil consists primarily of naphthenic hydrocarbons (60-70%), as well as aromatic and resinous substances (25,4 and 14,1% respectively). In addition, in naphthalan oil was found physiologically active trace elements (copper, molybdenum, zinc, manganese, lithium, rubidium, cobalt, boron, iodine) and other trace elements [7]. From this perspective Naftalan treatment and its effect on malignant tumor cells had a certain interest.

The sample Z-Nf was received by processing of initial natural zeolite with solution of native naphthalan oil in heptane. It was kept in this solution for 2-3 hours and then was subjected to stripping steam from heptane.

The sample Ag-FZ was obtained by deposition of ferrocyanide on the surface of the zeolite in order to study the influence of cyano-groups on malignant tumor cells. Composition of tablets «AZEOMED» is close in composition to the well-publicized food supplements, which has a number of medical and anti-cancer properties, "Megamin" [8]. It is assumed that some part of small particles by the gastrointestinal enters the body and causes the following processes:

– improving and stabilizing the pH in the cell and around it, that can have the antitumor meaning;

– selective proliferation of amino acids, peptides, oligonucleids;

– interaction with cellular receptors;

– fixation of free radicals and some others;

There is no doubt that in the processes of proliferation, the fixing of free radicals will have a value of acid-base properties, cation composition of zeolite component.

In the experiment were used conventional virological methods: cultivation of cells, preparation of the culture suspension, the definition of non-toxic doses. [9]. On basis of preidentified non-toxic doses of preparartions (zeolites) in RD tissue culture in the experiment was used a dose of 500 mg of zeolite (0.0005 mg/ml – the fifth minimal non-toxic dose – MND). There was used the transplantable line of RD tissue culture (the line of cells derived from human rhabdosarcoma). Suspension of cell culture was obtained by trypsinization of RD monolayer tissue culture using 0,25% solution of trypsin. The received suspension was centrifuged at 2500 rpm for 30 minutes, and then supernatant trypsin was drawn off and decanted. The remaining cells in the sediment were diluted in culture medium with MEM needle with a double set of amino acids and vitamins. The cell count was performed in the chamber of Goryaev [10]. Counting the number of cells in the receivied suspension layered it in the quantity of 1 ml per test sample of zeolites. After the contact for 30 minutes there were counted the cells in the supernatant, i.e. there was revealed the adsorption capacity of each sample of zeolites. It was interesting the question about possible desorption of cells from the surface of the tested specimens of zeolites. With this purpose the supernatant was drawn off and dropped, and to the sediment was added the saline solution of 1 ml as a desorbent, and after 2 hours of contact there was counted the number of cells desorbed from the surface of the tested under zeolites under desorbent.

RESULTS AND DISCUSSION

The counting of cells in the initial suspension was 7,375,000 cells in 1 ml of original suspension. The number of adsorbed and desorbed cells in percentage are presented in Figure 1.

There were revealed the significant adsorptive capacity of the tested zeolites on the malignant cell population. On the tablet «AZEOMED» there was revealed 100% adsorption of malignant cells without desorption. On Ag, Cu ($CuSO_4$), Zn – zeolites there are adsorbed respectively 98.3, 96.6, 83.0% of cells. Desorption in Cu and Zn- zeolite is 3.5 and 7.4%. In the ammonium zeolite the adsorption is 91.5 and desorption is 7.5%, the source zeolite adsorbs 88.1 and desorbs 9.6% of cells. Thus the original zeolite and its cation-exchange forms on their activity to the adsorption of cells can be written as following:

«AZEOMED»> Ag> Cu ($CuS0_4$)> H_4> orig.> Zn > Cu ($CuCl_2$); for desorption – orig. >NH_4 > Cu, Zn.

The Ag-zeolite has completely absent desorption. The received results show that the nature of the cation of zeolite has a significant influence on the adsorption-desorption properties of zeolites relative to the malignant cells. There is occurring the changing in the adsorption-desorption properties of zeolites after treatment the NH_4, Ag, Zn, Cu with thiourea (samples 7, 4, 11, 12), causing the darkening of the samples, due, apparently, the formation of links of cations with sulfur.

In all cases, except Ag-zeolite, there is observed the decrease of desorption capacity for Cu 3,5-2.2; Zn – 7,4-2.1; NH_4 – 9.6-3.6), but the adsorption capacity is mainly decreased, the

possible reason may be a partial screening of the pores of the zeolite formed by the complex TM – zeolite.

Is interesting the fact of increasing of adsorption capacity of 88.1 at origin zeolite till 94.9 on zeolite coated with naftalan and decreasing the desorption properties from 9.6 to 3.5. In the work [11] the naphthalene is used together with zeolite in the heating application. The received result can be the confirmation of favorable effect of this application on pathological processes on the skin, not excluding, perhaps, the pathology of the carcinogenic nature.

Thus, the identified adsorption-desorption capacity of the above-mentioned samples showed that these properties can be changed by the modification of zeolites, and the possibilities of tablets «AZEOMED» relative to malignant cells are supposed the recommendation for their taking as a food additive to neutralize the decay products in the transformation of tissues in human body. The perspective one in the aforementioned plan is the Ag-zeolite, which has also a high rate of adsorption and desorption which is a positive moment in absolute detoxification of the body.

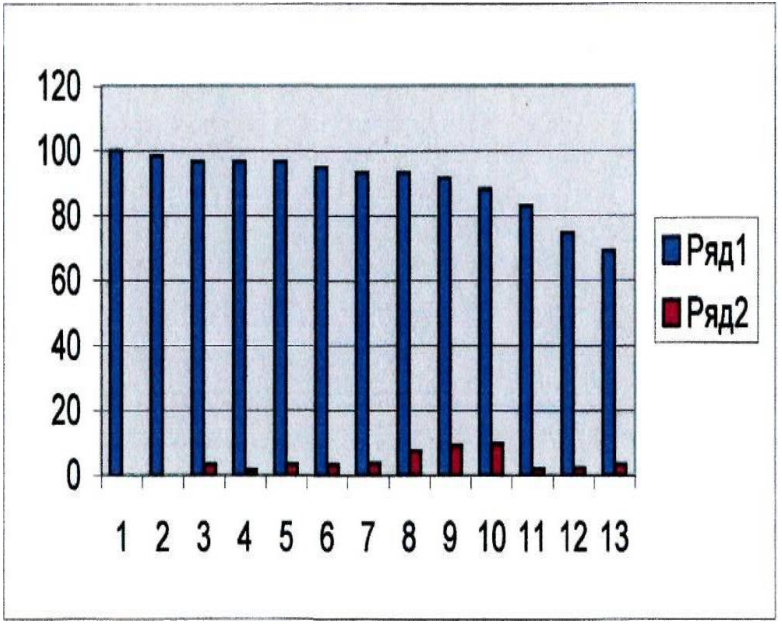
SUMMARY

There were studied the adsorption-desorption capacities of a number of modified zeolites, including tablets «AZEO-MED» relative to malignant cells on RD tissue culture models.

There were revealed the high adsorptive properties of the studied samples of zeolites, particularly the tablets «AZEO-MED» and Ag-zeolite with the absence of desorption, which gives the reason to think about the possibility of using them as sorbents of malignant cells during the collapse of the tumor and their removal from the organism.

To the adsorption of the malignant cell population on the zeolites, modified by various ways.

К адсорбции малигнизированной клеточной популяции на цеолитах, модифицированных различными способами



1. Азеомел	100
2. Ад – цеолит	98,3
3. Cu – цеолит	96,6
4. Ag + ТМ	96,6
5. Ag + FeЦ	96,6
6. Ц+нафталан	94,9
7. NHцеолит+ТМ	93,2
8. Zn-цеолит	93,2
9. NH- цеолит	91,5
10. Исх. еолит	88,1
11. Zn-ц.+ТМ	83
12. Cu-ц.+ ТМ	74,5
13. Исх.ц.+CuCl	69,2

REFERENCES

1. General information about zeolite. http://www/zeolite.ru/z/info.htm/
2. Khalilov E.N., Bagirov R.A. In the book “Natural zeolites, their properties, production and application ", Baku-Berlin, 2002, 157-169.
3. The use of zeolites as treatment and prevention of food additives. St. Petersburg State Technical University, ICF, Branch of "Engineering systems of buildings and structures" "Venture", 8-10.
4. Luchshev V.I., Vatutina O.V., Shahmardanov M.Z. "Enterosorption in thecomplex therapy of acute intestinal infectious diseases. Russian State Medical University, Moscow, 2002.
5. Uspenskaya I.G., Ivasivka S.V., Yankevich L.G., Academician AN USSR Ovcharenko F.D. DAN USSR, v.270, № 2, 480-482, 1983.
6. Khalilov E.N., Guvalov A. Pat. AR # 120050011.
7. Abbasov V.M., Musaev A.V., Isaeva G.A. "Naftalan oil and its naphthenic hydrocarbons”. Baku, "ELM", 1998.
8. Polyak-Blazi M., Katie M., Kralj M., Zarkovic N., Marotti T., Zverko V., Balog T., Pavelic K.. Izvor: 13-th International Zeolite Conference. Montpellier, France, 8-13 July, 2001, Vol 135, p. 374, 2001.
9. Zhdanov V.M., Gaidamovich S.Y. "Virology", "Medicine", Moscow, 1966.
10. John Paul. Culture of cells and tissues, Medgiz, 1963. 307-310.
11. Khalilov E.N., Musayev A.V., Kahramanov N.T., Kahramanova H.T., Akhmedov V.N. Application A20036120.

CONCLUSION

About sorption properties of the modified with cations zeolites relative to viral and bacterial flora

There were studied the sorption properties of NH_4, Cu, Zn, Ag – zeolites, and tablets «AZEOMED» on the model of poliomyelitis virus types 1,3 (vaccine variants) by means of generally accepted virological methods of researches on tissue culture, L-20B, and on the model of bacteria E.coli; Staph.aureus, Candida albicans, Ps.aeruginosa by means of conventional bacteriological methods of research on elective media.

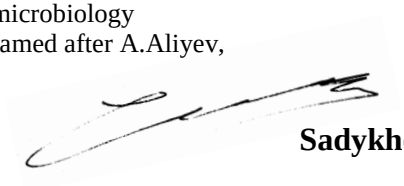
Analysis of the results of virological investigations revealed the high sorption properties of all investigated zeolites relative to poliomyelitis virus types 1.3 (the dose of virus taken TTSD50 100-1000).

The results of the study of sorption capacity relative to bacterial flora revealed greater activity with sorption 7000 IU of all taken in the experiment bacteria, i.e. there was established 100% adsorption on them, taken in the experiment the particularly resistant strains of bacteria.

Taken into consideration the revealed high degree of non-toxicity of the studied zeolites and high degree of their adsorption properties it is possible to use the combinations of the marked zeolites relative to the bacterial and viral flora in medical practice.

The revealed sorption of viral-bacterial flora may be one of the ways of iiradication of causative agent and method of detoxification of the organism when it is infected.

Head of the Department of microbiology
and epidemiology AzSIID named after A.Aliyev,
Doctor of medical science,
Professor



Sadykhova F.E.

§ 4. RESULTS OF RESEARCHES OF ADSORPTION PROPERTIES OF NATURAL ZEOLITE RELATIVE TO BACILLUS ANTHRACIS

[1] F.E.Sadykhova, [2]T.Sh.Khalilova,
[3] M.M. Jahanov, S.M.Ibrahimova
[1]Az.SIID named after A. Aliyev, Department of Microbiology and Epidemiology,
[2]Scientific-Production Company "YENI TEX" Ltd.
[3]The Republic Antiplague station named after S.Imamaliyev

Anthrax disease is a typical zoonosis caused by Bacillus anthracis, of Bacillacear family.

In natural conditions with anthrax are suffered primarily herbivores, mainly large and small cattle, horses, pigs, etc., in which the anthrax occurs, usually asymptomatic. But, it should be noted the well-known fact of human disease anthrax, i.e. the fact of overcoming the causative agent of species-specific barrier with the manifestation of rather complex clinic of the disease.

Despite the relatively small percentage of the sickness rate of anthrax of people this infection being rather complex in the pathogenesis respect, it is quite a serious pathologies for humans.

Anthrax shows itself in three main clinical forms: cutaneous, pulmonary and intestinal. As a complication of any clinical form, and in debilitated and malnourished people can be developed the anthrax septicemia.

The task of the research is to identify the possible adsorption of capacity of domestic zeolite – natural sorbent on Bacillus anthracis – its spore and vegetative forms.

The applied enterosorbent is the basis clinoptilolite containing additional dolomite in the following ratio of components of mass %: clinoptilolite – 70-80; dolomite – 20-25.

As an antigen there was used STI vaccine, derived from non-capsular anthrax bacillus, which is a suspension of avirulent living spores of vaccine strains. (Anthrax live vaccine, lyophilisate for the preparation of a suspension for subcutaneous introduction and scarification application").

FSI Manufacturing, Central Research Institute of Ministry of health of defence of Russian Federation, Russia, Kirov, FSI, 48 Central Research Institute of the Russian Defense Ministry. (Anthrax live vaccine, 10 cutaneous or subcutaneous doses of 100 – 1 ml.)

Bacteriological studies were conducted by means of standard methods of bacteriology (1). Taken in the experience of antigen was inoculated on Petri dishes with meat-peptone agar and in test tubes with meat-peptone broth.

In 1 ml of vaccine for cutaneous method there are 4 billion microbial cells, in the vaccine for subcutaneous use there are 100 million ones. The content of 1 ampule with 100 million microbial bodies was dissolved in 1 ml saline, inoculated in test tubes with meat-peptone broth. After 24 hours of incubation at 37^0 C from broth suspension the culture grown looped inoculated on Petri dishes with meat-peptone agar.

In the experience of adsorption of culture on the studied zeolite was taken the culture spore form of the antigen, i.e. from the ampule with the antigen, dissolved in 1 ml saline. In

the experience was taken the dose of antigen in a dilution of 1:200, i.e., in a dose of 0,5 million of microbial bodies, which gave 120 plaques on meat-peptone agar.

In the experience was taken a dose of zeolite in 400 mg. On the studied zeolite there was layered the bacteria-contatining fluid in the aforementioned doses; after 2 hours of adsorption the eluate was inoculated in Petri dishes with meat-peptone agar. At the same time the culture Bacillus anthracis was inoculated in the aforementioned doses as a control antigen.

As it was noted above, the selected doses of antigen gave 200 and 120 plaques on maet-peptone agar, respectively.

In the tested dishes with the inoculated eluate the antigenic culture, i.e., Bacillus anthracis did not grow, i.e., there was observed the absence of plaques.

The received results indicate the revealed adsorptive opportunity of the studied sorbent, which can be used in the intestinal form of anthrax, and possibly in septicemia.

REFERENCES

1. Pyatkin K.D., Krivoshein Y.S. Microbiology. Moscow, Medicine, 1981.

§ 5. TO THE PROBLEM OF ADSORPTION OF CELL POPULATION INFECTED WITH CYTO-MEGALOVIRUS ON NATURAL ZEOLITE

[1] F.E. Sadikhova, [2]T.Sh. Khalilova [1]Sh.T. Shikhaliyeva

[1]Az.SIID named after Aliyev, the Department of Epidemiology and Microbiology,

[2]Scientific – Production Company «YENI TEX» Ltd.

Human cytomegalovirus (Cytomegalovirus hominis) was first singled out in 1956 from children who died of generalized infection. The virus affects the infants who become infected during the intrauterine development. Presumably the cytomegalovirus may persist for a long time in various human organs, as in healthy children, these cells are found in tonsil tissue, urine, and in the salivary glands.

Most women of reproductive age are infected with cytomegalovirus. However, infection is generally latent.

Together with it cytomegalovirus (CMV) during pregnancy may be reactivated, such reactivated cytomegalovirus infection (CMVI) is usually asymptomatic, but in pregnant women it can lead to vertical transmission of the virus and consequently to miscarriages, premature births, anomalies of development and fetal death due to congenital malformations.

The above-mentioned deserves special attention and considers the necessity for examining the mentioned contingent of women on cytomegalic inclusion disease and at detection of active CMV infection they need treatment and preparation for the next pregnancy (1)

Is actual the task of reducing or even eliquidation the activity of CMV infection before planning pregnancy.

From this perspective, it was possible to study the natural adsorbents, in particular the natural zeolite – clinoptilolite as a sorbent of infected cells of the infected person. It is known that the virus causes a characteristic cytopathic effect, consisting in the appearance of giant cells due to an increase of cytoplasm and nucleus.

In the cells there are intranuclear inclusions consisting of viral particles and nuclear chromatin, surrounded by a bright rim («Owl` s eye »).

It should be noted that the virus persists in the body, particularly in the kidneys and is excreted with urine, saliva during many years.

MATERIALS AND METHODS

Natural zeolite is a new mineral.

It is established that the use of zeolites as treatment and prevention of food additives has a number of positive clinical effects.

The unique adsorption and ion exchange properties, chemical and mechanical resistance, high acidity and radiation resistance of high-silicon zeolites causes a wide range of their applications.

Model experiments and clinical trials have revealed a strong anti-toxic effect of zeolites, and the unique characteristics of adsorption, gene-changing properties can draw heavy metals, free radicals, decomposition products and toxins from the internal environment of an organism.

Taking into consideration the above-mentioned, it was interesting to study experimentally the possibility of release of the organism from desquamated virus-containing cell population, and possibly from circulating viruses of cytomegalic inclusion disease in the blood, lymph and detected in urine, saliva, in breast milk, etc.

For this purpose, were studied the adsorptive capability of natural zeolite – of silicon raw materials, including zeolite clinoptilolite with an additional introduction to the composition of dolomite in the following ratio of components, wt. %: Clinoptilolite -70-80; dolomite – 20-30, and enterosorbent was made in the form of tablet and for linking the honey is put into it in quantity no more than 10% of the total mass.

In our studies on the adsorption capacity of the noted above sorbent were used the conventional virological methods of reseraches with definition of non-toxic doses of drugs (2).

On basis of pre-revealed non-toxic dose of preparation (zeolite) on tissue culture RD (cell line, received from human rhabdosarcoma) in the experiment was used a dose of 500 mg of zeolite. (0,0005 mg/ml- 5^{th} non-toxic dose – MND).

In the experiment, were examined the pregnant women during preventive examination. Determination of infection of pregnant women was carried out by 2 methods:

1.by method of enzyme immunoassay (ELISA) using the test system:

«Cytomegalovirus JgG-Elisa» (3) (Enzyme immunoassay for the qualitative determination of JgG-class antibodies against the Cytomegalovirus (CMV) in human serum / Only for in vitro diagnostic use / Product Number: CMVGO115 (48 Determination);

2. by cytological method of revealing CMV in desquamated cells in urine sediment (test – owl's eye) (4).

The essence of the method: revealing of giant cells (due to an increase of cytoplasm and nucleus) in the urine sediment with intracellular inclusions consisting of viral particles and nuclear chromatin, surrounded by a light rim)

The essence of the experiment is as following:

The cell suspension from the urine sediment was centrifuged at 2500 rpm for 30 minutes, and then the supernatant fluid (urine) was settled and poured off. The remaining cells in the sediment were diluted in nutrient medium MEM needle with a double set of amino acids and vitamins. The cell count was made in the Goryaev chamber (5). Having counted the number of cells in the received suspension, they were layered in quantities of 1 ml for the tested sorbent.

After contact for 30 minutes there were counted the cells in the eluate, i.e., were revealed the adsorption capacity of test sample of zeolite.

At the same time the examined pregnant women were examined for the presence of CMV infection by enzyme immunoessay – by method of Elisa.

The data received during Elisa and in setting the test «owl's eye» with counting of infected cells before and after adsorption of urine on the tested zeolite were analyzed in a comparative aspect (table 1).

Table 1.

The result of adsorption of cell suspension from the sediment of urine of pregnant women, CMV-infected women on the natural zeolite in comparing aspect with the readings of Elisa test "owl's eye"

# of samples	Quantity of cells in 1 ml. of urine sediment			Indicators of Elisa and markers «owl's eye»		
	Before adsorption on zeolite	After adsorption in the eluate	Indicators of desorption	Diagnosis	Indicator of ELISA	Marker "Owl's eye"
1	7375000	30	2	CMV JgG	36,8	+
2	6250000	20	2	CMV JgG	40,0	+
3	5900302	20	3	CMV JgG	32,9	+
4	3500450	10	2	CMV JgG	15,5	+
5	3903330	10	1	CMV JgG	5,6	–

It is interesting the question about possible desorption of cells from the surface of the test sample of zeolite after adsorption.

With this purpose to the zeolite with the settled cells was added the desorbent – physiological solution of 1 ml. and two hours after the contact there was counted the number of cells in the eluate desorbed from the surface of the tested zeolite under the influence of desorbent.

As a result there were revealed the high adsorption capacity of sample of the tested sorbent, i.e., ~ 100% adsorption of cells, absence of the factor of desorption of cells from zeolite is a positive factor.

Comparison of results of diagnosis of CMV by ELISA and the phenomenon of adsorption of infected cells revealed a logical combination of the deposited amount of desquamated cells, indicators of ELISA and the test «owl's eye».

The revealed adsorption opportunity of the studied of zeolite are supposed their recommendation for taking them as a food additive for the removal of infected cells from the body.

The factor of desorption is a positive moment in absolute detoxification of the body.

REFERENCES

1. Cheshik S.P., Malyshev N.A., Stakhanova V.M., Khizhnyakov T.M. "Cytomegalovirus infection in women of reproductive age with a history of obstetric history, diagnosis and treatment." "BIO drugs", scientific and practical journal "Prevention – Diagnosis – Treatment». № 2 (6), June, 2002.
2. Luria S., Darnell J. "General Virology". Publishing House "Mir", Moscow, 1970.
3. «Cytomegalovirus JgG – Elisa» (Enzyme immunoassay for the qualitative determination of JgG – class antibodies against the cytomegalovirus (CMV) in human serum. Only for in vitro diagnostic use / Product Number: CMVGO 115/48 Determination.
4. Bukrinskaya A.G. "Virology", Moscow, "Medicine", 1986.
5. Yordan Todorov. "Clinical and biochemical laboratory tests in pediatrics" Bulgaria, Sofia, 1961.

§ 6. TO THE ADSORPTION OF Y. ENTEROCOLITICA ON NATURAL ZEOLITE

[1]F.E.Sadykhova, [2]T.Sh.Khalilova,
[3]R.A.Ahmedov, [3]M.A. Radjabov
[1]AzSIID named after A. Aliyev, Department of Epidemiology and Microbiology,
[2]Scientific and Production Company «YENI TEX» Ltd,
[3]Republican Antiplague Station named after S. Imamaliyev

Yersiniosis (syn.: intestinal yersiniosis) is a disease of the group of zoophilous sapronoses caused by Yersinia enterocolitica. It is characterized mainly by the fecal-oral mechanism of transmission of the causative agent, intoxication, exanthema, lesion of the gastrointestinal tract and joints, susceptibility to protracted and chronic course and the formation of immunopathologic syndromes.

The special actuality of Yersinia infection is explained by not only spreading and increasing of desease, but also the serious problems of diagnosis, treatment and rehabilitation of patients. The particular anxiety cause by the adverse consequences of the having had yersiniosis, in particular chronization and systemic autoimmune processes.

Currently, for the treatment of Yersinia infections are used the broad-spectrum antibiotics. However, as it is known, the long-term use of antibiotics leads to polyresistance of many bacteria, in particular Y. Enterocolitica. In this regard, is actual the task of searching the palliative means of treatment, to which may be referred the enterosorbents.

Sorbents are the preparations, effectively binding in the gastrointestinal tract of endogenous and exogenous compounds, supramolecular structures and cells with the purpose of treatment and/or prophylaxis of diseases.

The ideal enterosorbent must be non-toxic, non-traumatic for mucous membranes, with a good evacuation from the bowel, with a high sorption capacity in relation to the removed components of the chymus. As passing through the intestine the connected components should not be subjected to desorption, should not change the pH of the medium, to positively effect or not to influence on the processes of secretion and biocaenosis of intestinal microflora.

From this point of view it was desirable to obtain the enterosorbent with wide range of action, both on the metabolic activity, and the bacterial flora.

In this regard, in the experiment was taken the enterosorbent on basis of zeolite-clinoptilolite, including additionally the dolomite in the following ratio of components of masses %: clinoptilolite – 70-80, dolomite – 20-30, with enterosorbent made in the form of tablet and for linking there is introduced the honey no more than 10% of the total mass. Clinoptilolites are particularly valuable kind of zeolites. They are widely spread in nature. Zeolite is a porous natural mineral containing up to 70% clinoptilolite, and as impurities: montmorillonite, quartz, feldspart, opal, volcanic glass, etc.

Natural zeolite in the gastrointestinal tract is not absorbed, do not get into the blood itself as crystal, and is in transit, interacting only at the level of selective ion exchange and selective sorption in contact with blood and lymphatic ves-

sels of the intestinal wall, giving or taking the micro-, macroelements, catalysing the biochemical reactions.

Dolomite in the first content plays the role of the balancer between the gastric juice in the stomach of man and zeolite, which under the action of hydrochloric acid forms a soluble salt of calcium chloride and magnesium, thereby keeps the aluminosilicate sceleton of zeolite.

The essence of the solving task is in the spreading of assortment of enterosorbents relative to Y. Enterocolitica.

In the experience have been taken:

– Bacterial culture of Y. Enterocolitica (model: diagnostic erythrocyte enteric Yersinia antigen (09) for diagnostic purposes);

– Culture of transplantable cell lines L–20B (mouse embryo fibroblasts, derived from transgenic mice), used for identifying of non-toxic dose of the proposed enterosorbent based on zeolite-clinoptilolite and dolomite.

For the experiment was taken the enterosorbent of 500 mg on basis of the revealed non-toxic dose of preparation (zeolite + dolomite) on tissue culture L-20B in the amount of 0.0005 mg/ml (5^{th} non-toxic dose) (1).

For diagnosis of yersiniosis was applied macromethod setting of IHT (Indirect hemagglutination test) in polystyrene plates.

Before the formulation of the reaction the macromethod each lunula of the polystyrene plate is wiped with 70% ethanol, then is washed 5-6 times with the purified (distilled) water, then each lunula is wiped dry.

In formulating the contents the IHT the content of the ampoule with erythrocytic diagnostics is diluted in 10 ml of 0.9% sodium chloride solution to obtain 1% of suspension.

The content of the ampoule with serum coli-Yersinia 09 (1:5) is diluted in 5 ml of 0.9% of sodium chloride solution, is received the dilution 1:25.

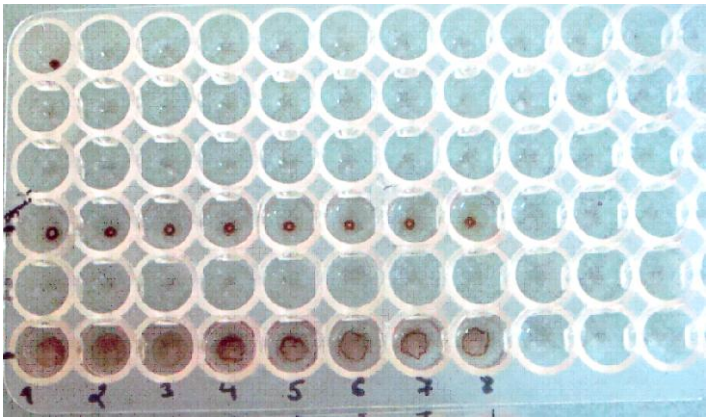
Preparation is diluted in accordance with the rules of asepsis.

In each of 10 lunules is brought in 0, 5 ml 0.9% sodium chloride solution. Then, in the first lunula is brought 0.5 ml of the studied serum, diluted 1:25 and is made a double dilution of 1:50 to 1:6400 by moving out from one lunula into the other at 0, 5 ml and mix their contents of at least 3-4 times.

After that, into each lunula is added 0.2 ml of 1% suspension of diagnosticum.

At the same time there are made the provided controls: serum diagnostic and antigen: (diagnosticum – in 0,5 ml of 0,9% of sodium chloride solution 0.2 ml of 1% suspension diagnosticum; 2 – the studied serum – 0.5 ml in a dilution of 1:50 and 0,2 ml of 1% suspension of the Control erythrocytes; and 3-control serum – 0.5 ml serum of enteric Yersinia 0.9 ml in a dilution from 1:50 to the titer shown on the ampoule and 0.2 ml of 1% suspension of diagnosticum.

Plates are lightly shaken, holding with both hands in a horizontal position, and is left it for 1,5-2 hours at a temperature of 37 ± 1^{o}C, then at temperature 20± 2^{o}C for 14-18 hours, after which the reaction is taken into account.



Accounting of the reaction is carried out according to the four-cross system:

4 + – all erythrocytes are agglutinated and evenly is covered the bottom of the lunula;

3 + – are agglutinated almost erythrocytes, in their background there is a little-noticed ring of settled nonagglutinated erythrocytes;

2 + – along with the even agglutination at the bottom of the lunula there is sediment from nonagglutinated erythrocytes in a small ring or "buttons";

1 + – the majority of erythrocytes are not agglutinated and settled as a small ring with irregular edges in the center of the bottom of lunula;

--- no signs of agglutination.

Diagnostic titer of antibodies of the tested serum is considered the last dilution, which gives a clear agglutination of erythrocytes and can be rated no less than 3 +.

The reaction of Indirect Hemagglutination Test with the tested serum is considered the positive if with the control serum in the dilution equal to the titer, listed on the ampoule, there is a positive reaction, and in the control lunula with the tested serum and non-sensitized erythrocytes the reaction was negative.

This method has been checked on the proposed enterosorbent.

On the surface of the tested enterosorbent (500 mg) was layered the dissolved in 10 ml 0 9% sodium chloride solution (1% suspension), erythrocyte diagnosticum.

15 minutes after the contact there was joined the dissolved antigen and the eluate after adsorption of the antigen with the titred control intestinal Yersinia serum 09 (1, 2 rows on the panel – Figure 1).

Thus was established the full adsorption of antigen on the proposed enterosorbent:

1 row – positive hemagglutination (4 +),

2 row – complete absence of erythrocyte diagnosticum

3 row – additional control of the absence of antigen (negative hemagglutination).

REFERENCES

1. John Paul. "Culture of cells and tissues. Gosmedizdat Medgiz. 1963.
2. Dyachenko S.S. Microbiological methods of diagnosis of infectious diseases. Gosmedizdat USSR, Kiev, 1962, s.205-212.

§ 7. EVALUATION OF ANTIVIRAL ACTIVITY OF «AZEOMED» PREPARATION

T.N. Ilyicheva, A.V. Zaikovskaya, A.M. Shestopalov

Department of zoonotic infections and flu FGUNGNTSVB "Vector" of Russian consumer inspectorate 20 November – 18 December 2008

In accordance with the Agreement between the Federal Service for Supervision of Consumer Rights Protection and Human Welfare (Russian Federation) and the Ministry of Health of the Republic of Azerbaijan about cooperation in the monitoring of bird influenza and preparing for an influenza pandemia on 13 February 2007 between the State Research Centre of Virology and Biotechnology "Vector", Russia and "Yeni Tex" Ltd of Azerbaijan Republic on 14 May 2008 was concluded the contract about joint activity".

In accordance with the contract in FGUNGNTSVB "Vector" in 2008-2009, studies were carried out researches of antiviral activity of experimental preparations on basis of the Azerbaijan natural zeolite of Aydag deposit.

Animals. As the animal model for testing of the antiviral activity of the preparation were used the mice BALB/c line, 8-week-old does, obtained from the vivarium FGUNGNTSVB "Vector" of Russian consumer inspectorate. Groups of animals were formed by 10 individuals in each. Before the experiment, the animals were quarantined for 5 days in the vivarium of the 5^{th} floor of 1^{st} building

Virus. In the work was used a strain of influenza virus A / chicken / Kurgan /05/2005 (H5N1), obtained from the department "Collection of Microorganisms" FGUNGNTSVB

"Vector". Testing of the virus was carried out at 10-day-old developing chick embryos (DCE).

Concentration of the virus in the virus-containing allantoic fluid (VCAF) was 8,85 lg EID 50/ml (50% embryonic infective doses in ml.), 50% lethal dose (LD50) of influenza virus for mice, evaluated on mice BALB/c (doe, weight 18-19g) and the expressed in lg EID 50 1,03 lg EID 50/mouse. To infect the mice was used 30 microliter of dilution of VCAF in Hanks solution (PH 7,2), containing 5 LD50.

Preparations:

1. AZEOMED
2. Ag – clinoptilolite
3. Cu – clinoptilolite
4. Zn – clinoptilolite
5. Cu – clinoptilolite + TM (thiourea)
6. Zn – clinoptilolite + TM

The scheme of the preparation.

The preparation was dissolved in water for injection to a final concentration of 6 mg / ml (1.2 mg / 200 microliter). The dosage of preparation: 200 microliter of solution / mouse or 60 mg / kg, per os (intragastrically with catheter).

The scheme of introduction 1 (preventive): in 5, 4, 3, 2, 1 day before infection with the virus, then an hour later, 1, 2, 3, 4, 5 days after infection (once daily)

The scheme of introduction 2 (medical): 1 hour later, 1, 2, 3, 4, 5 days after infection (once daily)

The scheme of introduction 3 (determining the drug toxicity): in 1,2,3,4,5,6,7,8,9 days of the experiment

The scheme of introduction 4 (controlling the virus): the introduction of 0,9% NaCl solution 1 hour later 1, 2, 3, 4, 5 days after infection.

The scheme of intorduction 5 (control): without virus, without drug.

Scheme of the experiment.

Into each control and experimental group of infected animals were included 10 individuals. Animals were injected with the drug and the virus according to the scheme (see above). Intranasal infection was carried out under light ether anesthesia. After infection the animals were observed for 14 days, there were estimated the percentage (%) of mortality, average lifetime (ALT) and the average value of change of surviving mice weight in groups of control and experimental animals.

The mass of the mice was measured on the seventh day – before the death in the control, and on the eleventh day – in the period of greatest loss, and on the 15th day – after observing the animals. As it is seen in the table, the mice in the "pure control" gained the weight 1,8g for two weeks of the experiment.

For all the infected mice there was observed the loss of weight by the 7-th day, and then the weight was approximately the same. An exception is the group of mice which took «AZEOMED»: it is the only group of infected mice, in which the body weight increased in comparison with the data to the beginning of the experiment.

6 experimental drugs were tested. Preparation «AZEOMED» at a dose of 60 mg / kg of oral introduction showed the antiviral activity: the effectiveness for the control was 53.9%, average lifetime of mice after infection is 13,3 days, the body

weight at the end of the experiment was 0.7 grams increased. When prophylactic use the antiviral activity of the drug «AZEOMED» did not differ significantly from the medical use, however, the average lifetime and body weight gain were a little higher in the prophylactic scheme: single introduction off the drug during five days before being infected and five days after being infected. Reliably comparable results when testing antiviral activity showed the drug Ag-clinoptilolite – the efficiency is 46.1%, yet the average lifetime of mice after being infected and the body weight by the end of the experiment were lower than for «AZEOMED». The rest drugs showed a weaker antiviral activity: Cu-clinoptilolite – the efficiency is 23,1%; drugs Zn-clinoptilolite, Cu-clinoptilolite + TM, Zn-clinoptilolite + TM showed the efficiency 38,3%, average lifetime ranged from 10.2 to 11.7 days, whereas in the control, the avarage lifetime was 9.7 days.

Results.

Table 1.

The death of animals

Preparation	**days after infection**														**died**	**survived**	**ALT**
	1	2	3	4	5	6	7	8	9	10	11	12	13	14			
«AZEOMED» Scheme of introduction 1 (preventive)														1	1	9	**13, 9**
«AZEOMED» Scheme of introduction 2 (medical)								1		**1**		1			3	7	12, 5

«AZEOMED» Scheme of introduction 3 (determining the toxicity of the preparation)														0	10	**14**
Controlling the virus							2		1	1		1		5	5	11, 5
Controlling (without virus, without drug)														0	10	**14**

Thus, studies of antiviral activity of experimental drugs on the basis of the Azerbaijan natural zeolite of Aydag deposits have shown that drugs «AZEOMED» and Ag-clinoptilolite show the antiviral activity against highly pathogenic virus of influenza A / chicken / Kurgan / 2005 / 2005 (H_5N_1).

Table 2.

Body weight of mice on 14th day after infection (gr)

«AZEOMED» Scheme of introduction 1 (preventive)	**«AZEOMED» Scheme of introduction 2 (medical)**	**«AZEOMED» Scheme of introduction 3 (determination of toxicity of the drug)**	**Controlling the virus L?**	**Controlling (without virus, without drug)**
26,74	25,46	25,60	24,20	27,35
26,65	30,50	25,32	24,30	30,74
24,18	27,57	27,45	21,00	27,94
24,84	24,79	27,32	24,25	31,45
30,64	23,86	24,70	23,54	31,25
26,11	22,69	25,29		26,92
32,12	26,83	29,55		28,73
28,50		27,34		32,64
26,90		28,23		27,25
		27,25		34,15

Conclusion. Preparation «AZEOMED» in a dose of 60 mg/kg at oral introduction showed the antiviral activity. It is more effective in prophylactic use.

§ 8. RESULTS OF PSYCHO-PHYSIOLOGICAL AND NEUROPHYSIOLOGICAL STUDIES OF THE EFFICIENCY OF MINERAL COMPOSITION "AZEOMED"

A.R.Allahverdiyev

Doctor of medical science, Professor,
Academician of International Academy of Science

To study the influence of mineral mineral complex "AZEOMED", which includes the natural zeolite and dolomite on the functional state of the brain and the characteristics of emotional-affective sphere and the state of higher mental functions, were carried out the physiological studies including a comprehensive analysis of electro-biological activity of brain, and a variety of psychological testing.

The study involved 34 volunteers, divided into 2 groups:

1. The group, taking the tablets.
2. The group is a control one, not taking the tablets.

To exclude the influence of sex factor, into the research was drawn an equal number of men and women. Those of group 1, taking the tablets, were, in turn, divided into 2 subgroups:

1. Subgroup took 1 tablet 2 times.
2. Subgroup – 2 tablets 2 times.

The examinations were conducted before taking, after 4 weeks of regularly taking the tablets and after 6 weeks of taking.

Psychological testing.

Almost in all tested people were identified high personal anxiety caused by genetic and social conditions of life and low

or moderate level of reactive anxiety, reflecting the anxiety at this time.

At the same time taking of "AZEOMED" changed the depressive background of a person.

In 3 persons with pronounced depressive background while taking the tablets the depression completely disappeared. In others on the scale of depression, the rates were reducing, reflecting the improvement in the background of depressive direction.

The positive effect did not depend on the number of tablets per day (1 tab 2 times, or 2 tabs 2 times), but depended on the duration of the intake (Table № 1, 2).

Polygraph registration of EEG and ECG.

Of the 45 examined people, EEG changes were noted in 40 ones. And, in most of them there were identified the various functional changes. In 7 examined people, there were slight organic disorders with local paroxysmal changes and elements of reducing the threshold of convulsive readiness of the brain. Intake of tablets in 35 examined people caused an improvement in the EEG pattern, evidenced by the leveling of the functional changes, in the normalization of functioning of different areas of the cerebral hemispheres and the improvement of the rostral – caudal index. At the same time it should be noted that the paroxysmal disorders, with the exception of one examined man, were removed, and the structure of the EEG throughout the organization was close to the healthy ones.

In one examined man while taking tablets was noted deterioration of the EEG pattern and the appearance of paroxysmal phenomena, probably connected with some negative endo- and extreme factors.

Improvement of the EEG pattern did not depend on the number of tablets a day, and depended on the duration of their intake.

In the control group (15 people) in all of them have been identified the functional disturbances in brain activity. Improving of the structure and the normalization of the EEG pattern were observed after 6 weeks only in one of them. For others these changes were quite persistent.

In the analysis of ECG other changes (tachycardia, bradycardia of different degrees, changes of amplitude and shapes of individual components of the wave, etc.) have been identified in almost all examined people. Against the background of taking tablets in 90% of cases and more was a noticeable improvement in pattern and normalization of ECG. Also the positive effect was correlated not with the dose of supplement, but the duration of intake (Table № 3, 4).

Conclusions:

1. Mineral complex "AZEOMED" has unique properties which positively effect on the activity of functional systems of the human body.

2. Intake of mineral complex "AZEOMED" improves the functional status of the cerebral cortex, normalizes the balance of activating and inhibitory mechanisms of nonspecific systems, restores an appropriate level of cortico-subcortical psycho – somatic relationships and improves the adaptive capacities of the organism.

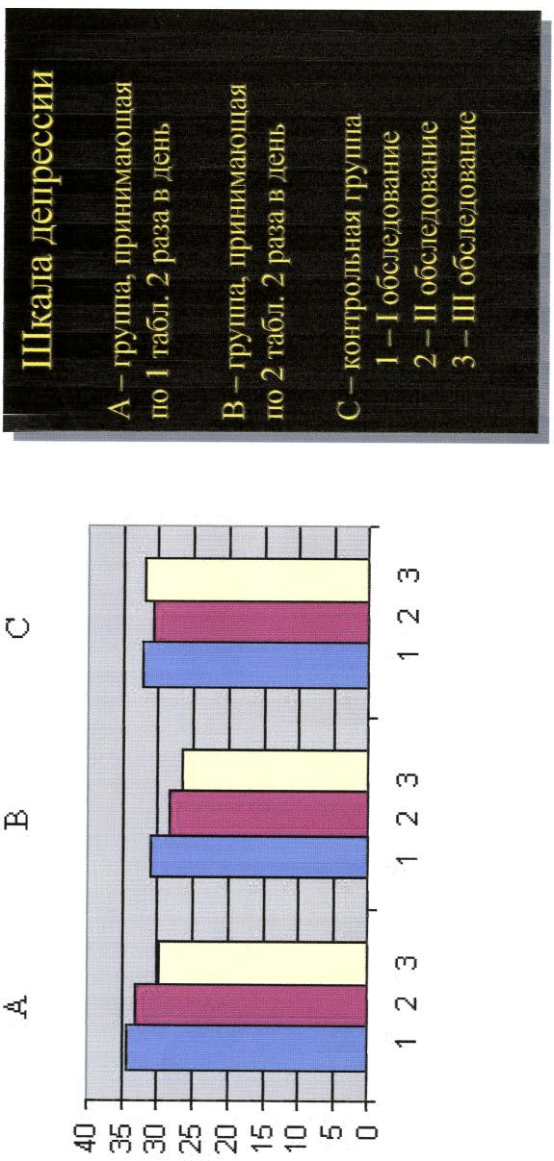
3. By means of tablets "AZEOMED" the depressive background is improved, and in the presence of depression its level is reduced.

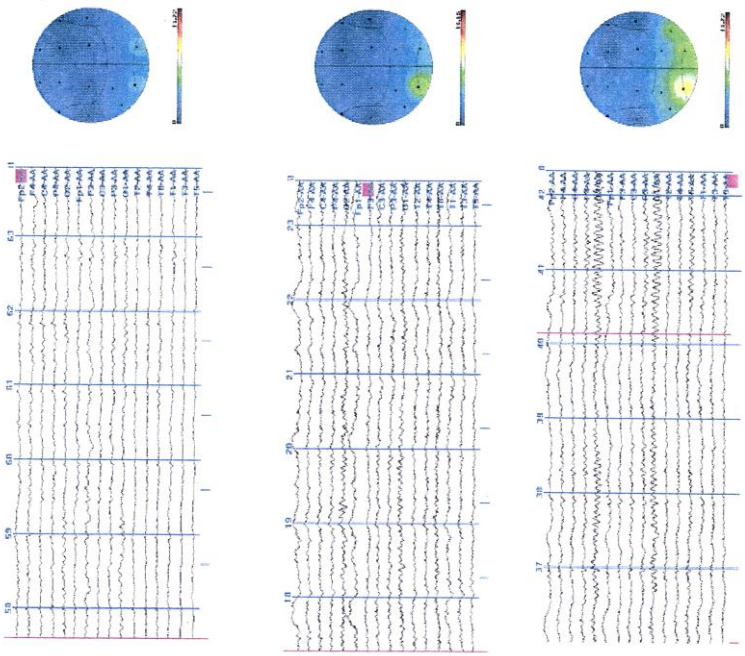
4. In the process of taking the tablets, the cardiac activity is improved, the rhythm is formalized, and performance of the heart is improved.

5. The positive effect does not so much depend on the daily dose of reception, as depends on the duration of intake. Recommended dosage: 1 tab 2 times a day no less than 4-6 weeks.

.

Реактивная (РТ)
и личностная
тревожность (ЛТ)
А – группа, принимающая
по 1 табл. 2 раза в день
В – группа, принимающая
по 2 табл. 2 раза в день
С – контрольная группа
1 – I обследование
2 – II обследование
3 – III обследование
РТ
А
В
С
1 2 3 1 2 3 1 2 3
35
30
25
20
15
10
5
0
ЛТ
А
В
С
1 2 3 1 2 3 1 2 3
60
50
40
30
20
10
0


Шкала депрессии
A – группа, принимающая по 1 табл. 2 раза в день
B – группа, принимающая по 2 табл. 2 раза в день
C – контрольная группа
1 – I обследование
2 – II обследование
3 – III обследование
A
B
C
1 2 3 1 2 3 1 2 3
40
35
30
25
20
15
10
5
0



ЭЭГ и суммарная частотная картограмма до приема таблеток

ЭЭГ и суммарная частотная картограмма после 4 недель приема таблеток

ЭЭГ и суммарная частотная картограмма после 6 недель приема таблеток

Доктор медицинских наук,
профессор, академик
Международной Академии Наук

А.Р. АЛАХВЕРДИЕВ

§ 9. STUDYING OF THE INFLUENCE OF MINERAL COMPLEX «AZEOMED» ON SOME PARAMETERS OF CELLULAR AND HUMORAL IMMUNITY AT LABORATORY ANIMALS

[1]P.M. Veliyev, [1]Z.M. Omarov [2]T.Sh. Khalilova

[1]Azerbaijan Medical University, Department of children diseases,

[2]Scientific Production Company «YENI TEX» Ltd

It is known that in medical practice, a number of drugs used to treat and prevent various diseases (allergies, diathesis, asthma status, etc.), in the pathogenesis of which plays an important role the functional level of the immune system.

In clinical lymphology the considerable place is given to the development of effective methods of immunotherapy for the treatment of autoimmune diseases (3).

In the literature there are reports on the methods of influence on the immune system to stimulate it in immunodeficiency. It is indicated the need to carry out a number of activities, including drug and endolymphatic saturation with immunostimulating agents (1).

The ways and methods of impact on the immune system have a special place in the practical lymphology. There was shown the necessity of stimulating the immune functions of the organism in patients suffering from serious diseases with external diverting of the lymph. The reducing of effectiveness of antibiotics, increasing of the rate and severity of postoperative suppuration, which is closely connected with the problem of immunity. It was determined that the most important part of the

function of lymphatic system, and in the first place, lymph nodes, is participation in immune reactions (2).

It is known that with the thoracic duct lymph into the blood every day is entered such number of lymphocytes, that 5-20 times higher than their content in the blood (1). The degree of depletion of lymphocyte reserve in the body and the ability to their reproducing, determining by the lymphocyte composition in the blood and lymph, is not correlated with the degree of suppression of autoimmune reactions. The latter are suppressed to a greater extent than is decreased the level of lymphocytes. In the lymph there are all typical for blood the lymphocyte subpopulations, T-subpopulation is 85% of lymphocytes of the thoracic duct lymph and 65% of lymphocytes of lymph nodes. When draining the thoracic duct with each liter of lymph from the organism is removed from

$1{,}27\times10^9$ to $2{,}8\times10^8$ lymphocytes. Daily lost of the lymph is 2,4 liters. It helps to remove about 3,0 × 10 lymphocytes (1, 3, 6). In the dynamics of long lymph-draining the quantity of lymphocytes, releasing from the thoracic duct, is reduced.

So, N.E Paulus et al. (1977) calculated that in the first week are released 10×10^{10} – 50×10^{10} lymphocytes, 3 weeks later the releasing of lymphocytes fell to 5×10^9, the content of lymphocytes in the blood was also decreased (5).

Level and functions of T-cell is suppressed to a greater extent than of other subpopulations. It is this effect is considered the basis of immunodepressive mechanism. Along with the suppression of T-lymphocytes, at removing the lymph is selectively decreased the level of immunoglobulins. The most pronounced is the loss of macroglobulins – up to 50% during first 4-5 days, with the following, after cessation of lymphatic

drainage, restoring 2 weeks later. The level of Ig M did not change (1, 3, 6).

The above-mentioned made us investigate the mineral complex «AZEOMED» on the condition of cellular and humoral immunity in intact animals.

"AZEOMED" is a mineral supplement with effective complex of minerals is produced in the Republic of Azerbaijan by «Yeni Tex» Company in tablets of 500 mg. «AZEOMED» tablets strengthen the immune system, prevent developing of infections, restrain and suspend the development of inflammatory processes, have antioxidant properties, linking the free radicals (4). The drug stimulates the mental and physical potential of efficiency, helps to overcome the stress condition (7).

The component composition of the mineral complex on the basis of natural zeolite is clinoptilolite and dolomite.

Its analogues are known as "Megamin" in Croatia, as "Litovit" and Tsamax" in Japan and Russia, "Nanosilisio" in Germany, etc. (4, 7, 8).

The studies were carried out in Azerbaijan Medical University in scientific-research laboratories of the departments of: pathological physiology, microbiology, pharmaceutical technology.

Material and methods of researches:

The material of research was: «AZEOMED» tablets in doses of 500 mg, pack of 60 and 120 pieces.

The objects of research were laboratory animals: Wistar rats weighing 120-190g, and chinchilla rabbits of either sex weighing of 2,0-2,5 kg.

Methods of research: laboratory-biochemical. Researches were carried out on the state of indicators of cellular and humoral immunity in intact animals.

Experimental comparative study of the influence of tablets «AZEOMED» on the immune system of animals was carried out in two aspects:

1) studying of the effect of «AZEOMED» and the formation of humoral immune response.

2) using of them in violation of the immune response.

In a study on the influence of the effect of complex «AZEOMED» on HIR, animals of control group were injected daily the boiled water at the rate of 0.5 ml per 100 g of body weight of animals on one introduction within 20 days. The experimental animals were Wistar rats. On the 15^{th} day the rats were immunized intraperitoneally with sheep erythrocytes (SE) at a dose of 2x10 cells per 100 g. the slaughter was done by opening the jugular vein under ether anesthesia on the fifth day after injection of antigen or, respectively, on the 20^{th} day after beginning the introduction of water. On a similar scheme the experimental rats were introducted a solution «AZEOMED» prepared according to GFH1 requirements. Preparation «AZEOMED» 0,05 per 100g of body weight of rats. Immunization with SE was done 2 hours after introduction of the final dose, and then the blood was taken for analysis. The cell suspension was incubated for 4 hours in sterile siliconized tubes in a medium № 199 (10 nucleated cells per 1 ml of medium), resuspending every 30 minutes. After incubation the cells were deposited by centrifuging for 15 minutes at 1000 rpm. Supernatant of spleen cells (SSC) were prepared by mixing the equal volumes of incubators of splenocytes of 5-6 rats. In SSC there was de-

termined the concentration of of of protein according to S. Shishkin (1982), then intact animals were injected once intraperitoneally in the volume, containing 0.5 mg of protein per 100 g. body weight, at the same time injecting the SE. The degree of development of GID was assessed by the number of cells in the spleen, which form antibodies (ASC) and SE (N. K. Jerne, A.A. Nordin, 1963) and rosette (ROC) with SE (J. Jondal et al., 1972). The results of determining the number of ASC and ROC were processed by methods of variation statistics, were calculated the arithmetic mean of the quantity and their confidence intervals with a probability of 95% (I.A. Oivin, 1960).

In the first series of experiments on studying the effect of «AZEOMED» on the immunological reactivity, it was found that the introduction of the above-mentioned preparation stimulates the formation of GIO, as evidenced by an increase in the number of ASC and ROC in the spleen of rats treated with drugs compared with control animals.

«AZEOMED» made the distinct immuno-supprressor effect, since the number of ASC and ROC in rats treated with this drug, was significantly greater than in animals of control group. Indicators of GMO in rats treated with «AZEOMED», differed from those in animals injected with boiled water. The results of the 1st series of experiments on studying the effect of drugs on GMO, are presented in Table 1.

Table 1.

Changes of the formation of humoral immune response in rats after introduction of drugs: (M-+ p)

The Group	Terms of experience	ASC, thousand per organ	ROC, million per organ
1	Introduction of boiled water	4,3 ± 0,2	118,5 +18,2
2	Introduction of «AZEOMED»	18,6+1,1	181,3+20,6

In the second series of experiments for comparative experimental studies was also used «AZEOMED».

Experimental studies were carried out on 8 intact rabbits: 4 of them were the main group and took «AZEOMED», and 4 of them served as control ones.

Animals of experimental group took 0.01 mg/kg of the drug (the drugs before injection was dissolved in 3 ml of water) for 10 days. Control group of animals took the corresponding amount of distilled water.

About pharmacological effectiveness of the used drugs used in the experiments were judged on the basis of changes of T-and B-lymphocytes in peripheral blood. The content of T-lymphocytes in the blood was determined in a reaction of direct rosetting (E-ROC), the B-lymphocytes – an indirect (immune) rosetting. To identify the subpopulation of T-lymphocytes (T-suppressors and T-helpers) was used the method based on unequal effect of theophylline on different sensitivity to theophylline, and subpopulations of T-lymphocytes, participating in the process of spontaneous rosetting with sheep erythrocytes (Jondal, 1972).

The received comparative experimental data about the influence of the studied complex «AZEOMED» on the indices of cellular and humoral immunity are presented in Table 2.

Table 2.

Comparative results of the influence of «AZEOMED» and some indicators of immune system

Indicators	Control Group (int. of dist. water)	Experimental animals
		Test group (int. of 0,01 mg / kg of «AZEOMED»)
T-lymphocytes	30, 8+0, 92	36, 4+0, 16
T-suppressors	12, 4+0, 12	10, 8+6, 4
T-helpers	18, 5+0, 17	26, 8+1, 38
B-lymphocytes	19, 2+0, 62	24, 4+1, 36

In all cases p <0, 05.

Analysis of immunological parameters shows a marked increase of parameters characterizing the cellar immunity, which creates prerequisites for the application of the above drugs to treat the diseases accompanied by decreasing the immune system function.

The carried out comparative experimental studies on influence of immunostimulatory activity of the complex «AZEOMED» allowed to conclude that they have a noticeable immunomodulating capacity and can be used to create the drugs of lymphotropic action.

The prospect of researches on studying the immunotropic properties of the complex «AZEOMED» which we carried out is obvious. The above-studied drug is available in sufficient quantities, for that there are raw stock of natural zeolite, dolomite in the country, the drug is harmless and does not have side

effects. The results obtained in comparative studies of pharmacological properties «AZEOMED» confirm their high anti-inflammatory ability of immunostimulatory activity.

Thus, the results of experiments on studying and developing the immunotropic drugs may be the basis for creating the new individual and combined immunostimulating drug of natural origin.

REFERENCES

1. Aliyev M.H. Mechanism of abnormality of coagulability of lymph and lymphatic drainage of tissues in the pathogenesis of postresuscitation encephalopathy, their correction. Abstract. diss ... Doctor of med. science, Baku, 2006, p.43.

2. Aliyev N.A., Veliyev P.M. Using of «AZEOMED» in sport as immunocorrector to increase the physical workability of sportsmen. "Zdorovye" scientific-practical journal, Baku, 2004, № 2.

3. Veliyev P.M. Effectiveness of taking the immunotropic drugs of licorice in the complex treatment of some diseases in children: Diss... Cand. of med. science, Moscow, 1997, p. 158

4. Karl Hecht. «AZEOMED» (Nanosiliseo): mineral food additive for improving the quality of life and for supporting applications in the treatment // Report at the session of the AS IAS.

5. Ibrahimli F.I. Some aspects of abnormality violation of lymphatic drainage of tissues and the possibility of its regulation in acute infarction of internal organs. Abstract. diss ... Doctor of med. science. Moscow, 1993, p. 25.

6. Khaitov P.M., Pinegin B.V. Modern immunomodulators, basic principles of their application / Immunology 2000, № 5, p. 5-8.

7. Khalilov E.N. et. al. The patent for the invention № 200300765/28.

8. Veliyeva M.N., Khalilov E.N. Veliyev P.M. Comparative studies of immunostimulate and anthypoxant properties of “Azeo-med” and “Glysiram”. SCIENCE WITHOUT BORDERS, Volume 2, 2005/2006, p. 116-126.

§ 10. DEVELOPMENT OF PREPARATIONS WHICH HAVE IMMUNOTROPIC AND ANTIHYPOXANT ACTIVITY OF NATURAL RAW MATERIAL FOR USING IN SPORT

[1]P.M. Veliyev, [2]T.Sh. Khalilova

[1]Azerbaijan Medical University, Department of children diseases,
[2]Scientific Production Company «YENI TEX» Ltd

Immunotropic preparations represent the class of synthetic, biotechnological and natural substances that can influence on the cells of different parts of the immune system and thereby change the force, the nature and direction of immune reactions (1, 2).

Therapeutic efficiency of immunotropic therapy is high enough, so it is widely used in practical work of clinicians: surgeons-oncologists, toxicologists, immunologists, dermatologists, infectiologist and others, etc. (5).

Despite the enough assortments of medical means with immunotrophic properties, however, in practice work of medics there is always felt the shortage of modern immunostimulatory means, without outside influence (3).

Therefore, all attempts for development and application the immunotropic preparations into medical practice are necessary and promising.

The aim of this work was to study and develop the immunotropic and antihypoxant active mineral complex «AZEOMED».

«AZEOMED» is a mineral additive with effective complex of minerals, is produced in the Republic of Azerbaijan by «Yeni Tex» Company in tablets of 500 mg. «AZEOMED» tablets strengthen the immune system, prevent the development of infections, restrain and inhibit the development of inflammatory processes, have antioxidant properties, linking, free radicals (1). The drug stimulates the mental and physical potential of workability, helps to overcome the stress condition (3).

Sportsmen who are in extreme situations caused by heavy physical activities, the complex natural, climatic and ecological conditions need the additional food, which are not stimulants (2).

Regular use of nutritional supplements with antihypoxant reduces the keenness of perception of stress situations, reduces the physical and emotional fatigability, increases the workability, improves the characteristics of the physiological state of the person and gives confidence in their own abilities (1).

The above-mentioned made us carry out the researches to identify the immunotropic and antihypoxant activity of the complex «AZEOMED» in practice.

We carried out the studies in the Central Sport Army Club of the Republic of Azerbaijan on healthy sportsmen volunteers.

In the first series of studies took part 20 healthy sportsmen volunteers at the age of 18-22. All volunteers were randomly divided into 2 groups of 10 persons each. 10 participants of the first group took «AZEOMED» with dose of 1.5 grams per day, and 10 people of the control group during the same period took placebo. The being tested people were asked to do the gradually increasing (at a speed of 33 W / min.) the veloer-

gometrical stress to the value at which the heart rate reached 170 bpm. When taking placebo, this indicator as expected, practically didn't change, whereas after the course of «AZEOMED» and the volume of work, which was done by volunteers, was significantly increasing (Table 3).

Table 3.

Influence of «AZEOMED» on physical workability

Indicator	Measurement Unit	Placebo	«AZEOMED»
Maximum power	W	18, 8±14, 0	19, 5+40, 1
The volume of the done work	KJ	65, 9+2, 2	70, 1+4, 2
Duration of load	sec.	68, 8±21, 0	60, 3+24, 0
PWC_{170}	W	202±5, 0	20, 1+13, 0

P <0, 05

Note. PWC 170 is the power load in which the heart rate reaches 170 bpm.

These results allow to conclude that the «AZEOMED» at the average 10% increased the ability to carry a load of high power and duration.

On the next stages of researchesthere was evaluated the influence of preparations on physical workability of professional sportsmen with high level of training. Into the first experiment were involved 15 masters of sport of bicycle racing, which were subjected to twice testing with a week interval on bicycle ergometer in the regime of gradually increasing load

(33 W/min.) till the pulse rate reaches 170 bpm. The test took place in the mode of double-blind method.

Table 4.

Indicator	**Meas-urement Unit**	**Placebo**	**«AZEOMED»**
Maximum power	W	20, 0±11	22, 0+6
The volume of the done work	kJ	87, 8±4, 1	11, 0+2, 0
Duration of load	Sec.	66, 2±24	62, 4+25
PWC_{170}	W	23, 1±13	25, 7+9, 0

Note: PWC170 is load power at which the heart rate reaches 170 bpm.

The received results generally confirmed the ability of «AZEOMED» to increase the physical workability (Table 4). The volume of the done work after taking of «AZEOMED» increased an average for 120% and the integral index of work-ability, calculated on the basis of the totality of data, increased at an average for 10% even during a single taking of the prepa-ration.

In the next experiment was evaluated the effectiveness of using of «AZEOMED» by sportsmen-long distance runners stayers who had a high level of training and the expressed mo-tivation for training. The test consisted of running at a distance of 6 km. In total, the experiment was attended by 16 sportsmen, 8 of which 1 hour before the testing took «AZEOMED», and

the other 8 people took placebo. Experimental and control groups were formed as equivalent to the results of the control run. Effectiveness of «AZEOMED» was determined by duration of running, heart rate, measured before the start, immediately and 5 min. after the finish, as well as the temperature measured in the axillary basin. Comparative analysis of the received results showed a slightly higher heart rate in runners who took placebo before the start, 5 min. after re-running, the degree of normalization of heart rate was higher in the experimental group, and the differences between the groups were reliable. Is particularly interesting the length of races of the sportsmen who took «AZEOMED» before the race, was an average 1 min. less. In today's sports 1 min. is not few.

Table 5.

Influence of «AZEOMED» on physical workability in a test run at 6 km (M ± t)

Indicator	Placebo	«AZEOMED»
Time of running (min.)	25, 2+0, 3	23, 4+0, 1
Heart rate at rest (bpm)	85+14	85+13
Heart rate after running (bpm)	174+23	160+15
HR on the 5th minute of re-running (bpm)	124+12	110+4
Body temperature (C)	36, 8+0, 4	30+0, 7

In the last series of experiments was evaluated the influence of «AZEOMED» and on workability of sportsmen-swimmers. The studies were carried out on a special stand gym

apparatus which allows to quantitatively evaluate the physical work of sportsmen athletes during training. It is important to note that the training of sportsmen was in hypobaric conditions at a height of 2230 m above sea level. In the experiments took part 8 men at an age of 16-22 having the sports qualification from master of sports to master of sports of international class.

During the preliminary training were determined the initial indices of physical workability of sprotsmen. Before the next training the sportsmen for 40-60 minutes before taking the drug load in an average dose of 30 mg /kg.

Under the influence of «AZEOMED» the volume of work done during the training on average increased for 30% (from 87,8 ± 4,1 kJ to 113,7 ± 4,2 kJ), and the maximum power of the developing load for 20% (from 231 ± 13 W to 275 ± 11W).

When carrying out the research during the training in hypobaric conditions was determined that on the 7^{th}-10^{th} day of staying in a moderate hypoxia the main results of sportsmen in the test swims (swin on the back and freestyle at the distance of 50 meters) deteriorated for 0, 23 ± 0,06 sec. relative to the results on the plain. Using of «AZEOMED» at a dose of 0.05 g three times daily with the rate of 7-10 days at a test swim reduces the time to 0,31 ± 0,04 sec., which provides not only the restoring to norms of the reduced results, but also the growth of sport workability. In addition to sprotsmen of athletic profile in the tests of hypoxia participated the bodybuilders, having the massive physical stress.

As a result of the two-month's oral taking of «AZEOMED» in combination with ribose and monohydrate of creatinine was observed 30% increase of time of being under load of

the muscles. During the experiment was marked an increase of muscle mass for 5-7 kg without increasing the fat component. These results allowed the author to formulate new approaches to the problem nutriceutical support of training regime in sportsmen – bodybuilders.

Thus, the carried out researches have convincingly shown that «AZEOMED» can reasonably be referred to the means of increasing the physical workability under heavy loads. The main effect in speeding up the recovery and reducing the "payment" of the organism for the work done. It is important to note that «AZEOMED», unlike anabolic drugs, doesn't have in its composition the substances of the group of doping. Since the experiments involved untrained persons, as well as professional sportsmen of various specialties, we can reasonably assert that «AZEOMED» is the effective means to increase the physical workability and can be used for improving the effectiveness of sports training.

It is important to note that «AZEOMED» considerably reduces the time of post-stress restoring of physical workability.

Influence of «AZEOMED» on functional condition and workability of the man in conditions of hypoxia.

The test results of «AZEOMED» presented in the previous section, were received on sportsmen working in normobaric conditions, and only in one case they were acting under conditions of moderate hypoxia. As it was shown, as a result of week-long stay at a height of 2230m above sea level the personal indices of sportsmen worsened, however as a result of taking the «AZEOMED» the indices were not only restored,

but even there was observed the increase of workability of healthy people under conditions of hypoxia.

These results were the basis for a broader study of the influence of «AZEOMED» and on functional condition and workability of healthy people under conditions of hypoxia.

Table 6.

Influence of «AZEOMED» on some physiological parameters of the body after 48-hour stay at a height of 3000 m above sea level

Indicator	Measurement Unit	Background normoxia	Hypoxia	
			Placebo	«AZEOMED»
Heart rate	bpm.	63±3	76±5	6011
Diastolic BP	mmHg	72±1	78±1	6702
Systolic BP	mm Hg	117±2	130±1	101+1
Oxygen consumption	ml	273±12	354±8	290+4
Coefficient of using the oxygen	% to the proper	83±4	71 ±4	60+3
Maximum oxygen consumption	ml/kg-min.	47,8±1, 0	37.6±0, 6	38+1, 2
PWC170	W	172±6	151±2	156+7

Note: PWC 170 – power loads at which the heart rate reaches 170 bpm.

In the first series of studies in 20 healthy sportsmen at the age of 24-29 during two days were in a pressure chamber in a dilution of the 3000m above sea level. All volunteers were divided into 2 groups of 10 persons each. In the first group the tested men took «AZEOMED» 1g before beginning the hypoxic influence and then every 8 hours during the entire time of staying in the pressure chamber. Volunteers of the control group took a placebo. Before the experiment and immediately after its completion was carried out the complex examining of volunteers. Remaining in hypoxic conditions was accompanied by regular changing of a number of physiological parameters (Table 6). In particular, the heart rate and systolic blood pressure increased.

Simultaneously, the oxygen consumption increased, and the rate of its using decreased. All these changes are generally in full compliance with the expected ones. These physiological changes reflect the increased activation of the sympathoadrenal system and the reduction of functional reserves of the organism.

Against the background of using «AZEOMED» the changes of physiological indicators either were absent or were statistically insignificant. In the second series in the tests were involved 27 healthy men at the age of 20-26 years. The terms of the experiment provided the two days' staying in the pressure chamber at the dilution of 4000m above sea level.

During staying in hypoxic conditions the testers were continuously (except the time for sleeping (6 hours per day) and meal) engaged in researches or carried out various tasks simulating the operator or physical activity.

The volunteers of the experimental group (9 persons) took «AZEOMED» at a dose of 1.5 g / day in 3 intake, the volunteers of the control group took placebo with a similar scheme.

Just as in the previous experiment, there were evaluated some physiological parameters of the organism. The results of these measurements showed the normal response in the body, observed during the ascent to the height of 4000 meters above sea level.

Was increased the heart rate relative to the one, observed at the height of 3000m above sea level, an average for 10%. At about the same range were increased the indicators of blood pressure and oxygen consumption (Table 7).

Table 7.

Influence of «AZEOMED» on some physiological parameters of the body after 48 hours of staying at the height of 4000 meters above sea level

Indicator	Measurement Unit	Background Normoxia	Hypoxia	
			Placebo	«AZEOMED»
Heart rate	bpm.	63±1	84±3	59+0, 5
Diastolic BP	mm Hg	73±1	84±1	69+0, 4
Systolic BP	mm Hg	122±2	142±3	110+1
The consumption 02	ml	275±14	372±23	350+0, 5
Maximum consumption 02	ml/kg-min.	42, 5±0, 6	37, 3±0, 3	44+0, 7

In the experimental group the hypoxic changes were statistically insignificant or were even absent. The received data

are evidence of the fact that «AZEOMED» compensates adverse influence of hypoxia on physiological condition of the organism during short-term ascent of man to the height of 4000 meters above sea level.

For evaluating the subjective perception of hypoxic influence the participants of experiment filled out a special "mountain form", providing the scoring assessment of altitude sickness (Table 8).

Table 8.

The results of filling in the form of symptoms of altitude sickness during two days of stay at the height of 4000 m.

Indicator	Placebo	«AZEOMED»
The total score on the mountain form:		
8 hours later	13,9	9,1
16 hours later	15,4	12,5
32 hours later	13,3	6,1
42 hours later	14,8	5,4
Total score for the entire period of the experiment	57,4	26,1
Number of cerebral complaints	25,0	27,0
Number of cardiorespiratory complaints	30,0	8,0
The number of digestive complaints	16,0	13,0
Average number of complaints per 1 person	6, 7	4, 7

As the results of fourfould questioning on the list of possible acute mountain sickness symptoms, «AZEOMED» substantially softened the severity of the condition and significant-

ly shortened the period of ill-feeling when you stay at altitude. The amount of balls, which characterizes not only the number of emerging symptoms and their severity, remained the same at all stages of the study, and during taking of «AZEOMED» these parameters progressively decreased on the second day of staying in the pressure chamber, indicating the acceleration of adaptation to hypoxia on the background of taking the preparations. The greatest effect of «AZEOMED» was manifested on complaints cardiorespiratory character (dyspnea, palpitations). The results of the questioning were confirmed at quantitative estimation of the oxygen balance, which showed that the «AZEOMED» promotes the normalization of oxygen consumption by the organism.

REFERENCES

1. Veliyev P.M. Effectiveness of application of immunotropic preparations of licorice in the complex treatment of some diseases in children: Diss. of Cand. of med. science, Moscow, 1997, p. 158.

2. Veliyeva M.N., Aliyev N.A., Veliyev P.M. About doping and problems of doping control in Azerbaijan. Qafqazin stomatoloji yeniliklari. Baku, 2002 (1) № 5, pp. 44-47.

3. Veliyeva M.N., Khalilov E.N., Veliyev P.M. Development and creation of immunotropic medicines from natural raw materials of Azerbaijan. Materials of absentee International Conference “Priorities of pharmaceutical science and practice", Moscow, 2006, p. 181-183.

4. Khalilov E.N., Bagirov R.A. Natural zeolites, their properties, production and application. Baku – Berlin, 2002, pp. 265-303.

5. Veliyeva M.N., Xalilov E.N., Veliyev P.M. Comparative studies of immunostimulate and anthypoxant properties of Azeomed and Glysiram. SCIENCE WITHOUT BORDERS, Volume 2, 2005/2006, p. 116-126.

§ 11. EXPERIMENTAL PHARMACOLOGICAL SUBSTANTIATION OF USING «AZEOMED» AS IMMUNOTROPIC MEANS

[1]P.M. Veliyev, [2]F.I. Ibrahimli, [3]T.Sh. Khalilova

[1]Azerbaijan Medical University, Department of children diseases, [2]Institute of Hematology of Azerbaijan 3Scientific-Production Company «YENI TEX» Ltd.

As it is well known for the implementation of protective functions of the organism, in particular, for the immune reactions is necessary the optimal hormonal regulation and adequate state of the lymphatic system. Ever since ancient times it is known that the lymphatic system is one of the important components of immunity. Lymph nodes are one of the places of lymphocyte formation, aggregation state of the lymph play an important role in providing the specific immune response of the organism. The gained experience of clinicians shows that lympho-circulatory system is a mechanism which allows to regulate the various disturbances of homeostasis. The researchers showed the necessity and disclosed the aspects of the therapeutic efficiency of of using the lympho-stimulating means in various pathological conditions [1, 8].

The using of immunotropic drugs in medicine influence on the cells of different parts of the immune system and as a consequence of it, the strength, character and direction of immune reactions is changed. Though a few years ago the arsenal of such drugs was very limited [2-4, 8], at present, despite the enough assortment of therapeutic means with immunotrophic

properties, in practice work of doctors is felt the shortage of modern immunostimulatory means, differring with enough therapeutic activity and safety [7]. Therefore, all attempts for developing and application into medical practice of natural immunotropic preparations with enough therapeutic safety are reasonable and promising.

"AZEOMED" is a mineral supplement with effective complex of minerals is produced in the Republic of Azerbaijan by «Yeni Tex» Company in tablets of 500 mg. «AZEOMED» tablets strengthen the immune system, prevent developing of infections, restrain and suspend the development of inflammatory processes, have antioxidant properties, linking the free radicals (4). The drug stimulates the mental and physical potential of efficiency, helps to overcome the stress condition (7).

The component composition of the mineral complex on the basis of natural zeolite is clinoptilolite and dolomite.

Its analogues are known as "Megamin" in Croatia, as "Litovit" and Tsamax" in Japan and Russia, "Nanosilisio" in Germany, etc.

The aim of this work was to explain the lymphotropic properties of the preparation of licorice from the flora of Azerbaijan – «AZEOMED» in the experiment to justify its pharmacodynamic effects in clinical practice.

Materials and methods of researches:

In order to identify lymphotropic properties of «AZEOMED» were carried out the experiments on 34 intact rabbits of chinchilla race, of both does weighing 2,5-3,0 kg. Were studied the indicators of coagulability of the lymph in comparison with hemocoagulation, as well as to assess the status of lymphatic drainage was registered the speed of lymphatic outflow (SLO)

from the drained outlet of thoracic duct. The lymph for research was received by catheterization of the outlet of the thoracic duct by the method of A.A. Korniyenko et al. (1977). Blood sampling was carried from the jugular vein. The functional status of lympho-hemocoagulation was assessed by determining the coalin time (CT), cephalin time (CfT), activated – partial thromboplastin time of recalcification (APTT), prothrombin time (PT), thrombin time (TT), the concentration of fibrinogen (CF), soluble fibrin-monomer complexes (SFMC), antithrombin-III (AT-III) and fibrinolytic activity (FA) using a set of reagents made by Scientific-Production Association of RENAMO (Moscow) according to the enclosed instructions. Definitions were carried out 0.5, 1, 3, 24 and 72 hours after introduction of «AZEOMED». In our studies «AZEOMED» was dissolved in physiological solution of sodium chloride and injected intravenously in a dose of 10 ml per 1 kg of body weight of the animal.

Table 1.

Changes of indicators of lymphocoagulation under the influence of "AZEOMED" in intact animals

Indicators	**Initial data (n = 7)**	**Time after influence (hours)**				
		0,5 (n=7)	**1 (n=7)**	**3 (n=7)**	**24 (n=5)**	**72 (n=5)**
CT (s)	70,1±2,2	73,1±2,4	82,1±2,7 **	85,3±3,3 **	75,2±2,3	64,0±2,9
CfT (s)	83,4±2,9	87,1±3,1	92,3±3,4 **	95,1±3,1 **	85,2±1,9	80,9±2,2
APTT (s)	48,3±1,8	53,4±2,1	69,1±2,3**	61,9±4,1 **	60,2±2,4 **	50,1±2,7
PT (s)	30,1±1,4	37,2±1,2 *	42,2±2,1*	45,2±3,3 **	36,1±2,2 *	28,7±2,1
TT (s)	23,2±1,2	27,0±0,9 *	32,2±1,3 **	30,5±0,8 **	22,9±2,1	25,3±1,9
CF (g /l)	1,5±0,3	1,6±0,4	1,3±0,3	1,2±0,1	1,8±0,4	1,7±0,6
SFMC (+/-)	-	-	-	-	-	-
AT-III (%)	104,4±4,2	107,6±6,4	115,4±7,4	112,5±5,9	96,4±5,2	103,7±8,5
FA (min)	14,2±1,1	16,1±0,9	20,3±0,4 **	16,3±0,2 *	17,3±0,3 *	14,7±1,2

SLO (ml min/kg)	0,15±0,02	0,18±0,01	0,2±0,03	0,27±0,02**	0,2±0,01 *	0,16±0,02

Note: The validity when compared with initial indicators * – p <0, 05 ** – p<0, 01

The received results and discussion

The results of studying the influence on lymphocoagulation and lymphatic drainage showed the following changes (Table 1). As it seen from the table the intravenous introduction of «AZEOMED» and in intact rabbits brings to significant changes of the traceable indicators of coagulability of the lymph. 30 minutes after the introduction there was some tendency to decreasing of coagulating properties of the lymph.

Significant changes of almost all indicators of coagulability of the lymph were observed mainly 1 hour after introduction. So in this period CT, CfT, APTT, PT, and AT-III lengthened correspondingly for 17%, 11%, 43%, 40% and 11% in comparison with initial data. CF was decreased for 13%. The prothrombin time and fibrinolytic activity of lymph did not undergo significant changes. Such tendency was continuing later too, but the maximum shifts were registered mainly 3 hours after application of the studied drug. So, CT, CfT, APTT, PT and AT-III within the specified time of studying were longer in comparison with the initial level correspondingly for 22%, 14%, 28%, 48% and 8%. Later the traceable indicators gradually decreasing reverted to the values registered in the intact condition. So, the values of thrombin time and AT-III varied withininitial values 24 hours later, and the normalization of

level of the rest of indicators was observed 72 hours later. It should be noted that during all traceable period of SFMC research in lymph were not determined.

Fig.1. Dynamics of changing the SLO under the influence of intravenous introduction of «AZEOMED» to intact animals.

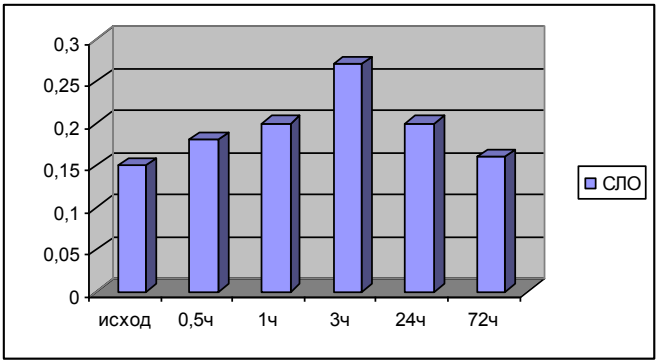


***Рис.1.** Динамика изменения СЛО под влиянием внутривенного введения «AZEOMED»а интактным животным.*

Intravenous introduction of "Azeomed" promoted and contributed the evident increasing of SLO from the drained thoracic duct (Fig. 1). 30 minutes after research it had a tendency to increase. During 3 hours the SLO from the drained thoracic duct was steadily rising, exceeding the initial level for %. In the future, the value of this indicator was decreasing, reaching the initial value by the end of the experiment.

The results of researches of blood coagulation in intact rabbits after intravenous injection of «AZEOMED» are presented in Table 2.

Table 2.

Changes of indicators of hemocoagulation under the influence of «AZEOMED» in intact animals

Indicators	Initial data (n = 5)	Time after influence (hours)				
		0,5 (n=5)	1 (n=5)	3 (n=4)	24 (n=4)	72 (n=4)
КВ (с)	51,3±2,1	65,7±2,8 **	74,4±3,1 **	78,1±3,0 **	62,7±2,7 *	65,1±2,5 *
КфВ (с)	64,2±1,8	77,1±3,2 *	80,4±2,9	81,9±3,1 **	66,7±2,8	69,1±3,1
АЧТВ (с)	38,4±1,7	42,7±1,7 *	55,4±3,4 **	57,9±2,8 **	41,7±1,9	43,1±2,4
ПВ (с)	18,2±0,8	21,3±1,1 *	27,3±2,2 **	25,1±0,9 **	16,7±0,9	19,1±0,8
ТВ (с)	15,2±0,3	20,2±0,7 **	21,1±1,2 **	20,2±0,8 *	17,1±0,6 *	14,7±0,9
КцФ (г/л)	2,9±0,2	2,7±0,1	2,5±0,3	2,8±0,4	2,7±0,2	2,5±0,1
РКМФ (+/-)	–	–	–	–	–	–
АТ-III (%)	83,7±3,2	88,7±3,1	90,2±2,7	106,2±3,2**	109,5±3,1**	93,4±2,7*
ФА (мин)	6,9±0,3	7,3±1,1	8,7±1,3 *	8,1±0,9*	7,3±1,1	6,1±1,2

Note: the validity when compared with initial indicators – p <0, 05 ** – p< 0, 01.*

As it is seen from this table, the intravenous injection of «AZEOMED» to intact animals promoted the evident changes of indicators of coagulation in the blood too. The dynamics and character of changes of indicators of coagulation were identical to those in lymph with some quantitative difference in changes of levels of separate indicators. So, the changes of indicators 30 minutes after introduction of «AZEOMED» in the blood were more evident, and 1 hour later, the CT, CfT, APTT, PT and AT-III were longer than in initial condition for 44%, 25%, 43%, 49% and 8% correspondingly. 3 hours later, as well as in

lymph, these indicators of coagulation activity reached the maximal changes, indicating the hypocoagulation action. So CT, CfT, APTT, PT and AT-III were longer to the values registered in initial state for 52%, 28%, 51%, 38% and 26% respectively. Further to the 72-hour period of studies was marked the normalization of levels PT, TT and FA. Values of the rest of indicators in this period has not yet reached the initial value, indicating a more evident hypocoagulation effect of «AZEOMED» on the blood compared with lymph. Detections of SFMC in blood after intravenous injection «AZEOMED» also were negative in all traced time of studying.

So, the analysis of the received data shows that intravenous introduction of «AZEOMED» brings to acceleration of the speed of lymph flow and decrease of coagulating properties of the lymph in the nearest period after the introduction. The identified hypocoagulating shifts are also observed in the blood link of humoral transport, more evident compared with the lymph. These data, indicating the lymphotropic properties of «AZEOMED» allow to assume that the improvement of the condition of lymphatic drainage of tissues makes its own contribution to the normalization of the disturbed homeostasis indicators of the organism which occur almost in all pathological conditions. It is obvious that one of the mechanisms of immunostimulating action of «AZEOMED» is a detoxification of the organism through the acceleration of lymphatic drainage. Accelerating of the removal of products of disturbed metabolism, occurring in various pathological processes, in turn possibly bringing to the normalization of homeostasis increases the protective adaptive immune reactions of the organism.

REFERENCES

1. Aliyev M.H. Mechanisms of abnormalities of coagulation of lymph and lymphatic drainage of tissues in the pathogenesis of postresuscitation encephalopathy, their correction. Abstract. Diss. Doctor of med. science, Baku, 2006, p.43.
2. Aliyev N.A., Veliyev P.M., Using of «AZEOMED» in sport as immunocorrector for improving the physical workability of sportsmen. "Zdorovye" scientific-practical journal, Baku, 2004, № 2, pp. 70-74.
3. Veliyev P.M. Effectiveness of using the immunotropic preparations of licorice in the complex treatment of some diseases of children: Diss ... candidate of med. science, Moscow, 1997, p.158.
4. Karl Hecht. «Azeomed» (Nanosiliseo): mineral food additive for improving the quality of life and for supporting using in therapy / / Report at the session of the AS IAS.
5. Ibrahimli F.I. Some aspects of the abnormality of lymphatic drainage of tissues and the possibility of its regulation in acute infarction of internal organs. Abstract. diss... Doctor of med. science. Moscow, 1993, p.25.
6. Khaitov R.M., Pinegin B.V. Modern immunomodulators, the basic principles of their application / Immunology 2000, № 5, pp. 5-8.
7. Khalilov E.N. et al. The patent for the invention № 200300765/28.
8. Veliyeva M.N., Xalilov E.N., Veliyev P.M. Comparative studies of immunostimulate and anthypoxant properties of Azeomed and Glysiram. SCIENCE WITHOUT BORDERS, Volume 2, 2005/2006, p. 116-126.

CHAPTER III

PRACTICAL APPLICATION OF ZEOLITES IN MEDICINE

§ 1. CLINICAL TRIALS OF «AZEOMED» MINERAL COMPOSITION

E.A. Hismatova (01/17/2007)
Scientific and Production Company «YENI TEX» Ltd

The aim of clinical trial of «AZEOMED», which includes natural silica and dolomite, was to study its influence on the condition of health of patients. To the investigation were involved 29 patients of different sex and age group. Before the experiment from all patients was collected the anamnesis, was carried out the survey of complaints, laboratory analysis of blood and urine, EEG, and computer diagnostics on the program "AMSAT". The repeated surveys were carried out 4 and 6 weeks later. Most patients took «AZEOMED» one tablet 2 times a day during one to three months. Daily dosage of taking of «AZEOMED» was determined by the condition of health and age of the patient.

All examined were divided into 3 groups:

– I group (11 people), taking one tablet 2 times a day before meals;

– II group (9 people) – 2 tablets 2 times a day;

– Control group (9 people).

The results of researches showed the positive dynamics in clinical symptomatology, functional diagnostics and in laboratory analysis of blood and urine of the examined people.

The positive dynamics in analysis of blood of experimental groups concerned mainly the hemoglobin, and other blood parameters, i.e. quantity of leukocytes and ESR during all period of examining were within normal limits. 4 weeks after taking the «AZEOMED» the hemoglobin of patients with low levels was rising to normal and of patients with normal hemoglobin – it was rising to the upper limit of the norm. And 6 weeks later it remained stable on the upper limits of the norm. The same positive dynamics was observed in analysis of urine too. In the analysis of urine of the half of the tested patients were found the leukocytes and erythrocytes in a large number. Epithelial cells and salt, i.e. elements of pyelocystitis and urine acid diathesis. 4 weeks after taking the «AZEOMED» there was noted the improvement of indicators of the urine of patients to an average level of norm, and 6 weeks later these indicators reached the upper limit of the norm.

Besides the patients undergoing the clinical trial, we had volunteers who wanted to participate in clinical experiment. As a result of the survey 54 of 62 patients noted the positive, and some of them – even the significant effect of taking the «AZEOMED» and 8 of them did not note any changes in feeling. The survey revealed the following:

1) almost all patients noted the improvement of general well-being and improving the functions of individual organs and systems;

2) was noted a significant decrease of incidence of general cold diseases;

3) In the rubbing of the drug in the gingiva or its chewing, the symptoms of periodontitis have passed;

4) And finally, the patients felt the tangible effect on the skin, hair and nails, videlicet the spots, papilloma was decreased and disappeared, and reduced the falling and fragility of the hair, layering of nails.

The percentage of positive dynamics of clinical symptoms of patients taking «AZEOMED»

Clinical symptoms before taking preparation	**Percentage (%) of positive dynamics of clinical symptoms**
1. Weakness, fatigue, the decreased workability	85,2 **%**
2**.** Sleep Disorders	40,7 **%**
3. The frequent incidence of ARVI	39 %
4. Headaches and vertigo	37 %
5. Lack of appetite	37 %
6. Violation of bowel function (constipation, diarrhea)	33,4 %
7. Dyspeptic symptoms in the stomach (bloating, belching, heartburn)	31,5 %
8. Pain in the joints	28 %
9. Fragility and layering of nails	28 %
10. The severity and pain in the heart	26 %
11. Fatigue, heaviness and cramps in the legs.	26 %
12. The anxious or depressed condition	24,1 %
13. Fragility and hair loss	24 %
14. Pain in the spine, back and waist	22,2 %
15. Low or high blood pressure	17 %
16. Pain in the stomach	13 %
17. Skin rash	13 %

18. Urinary system malfunction (pain, discharge, frequent urination or urine retention)	11,1 %
19. Violations of the liver, gallbladder and pancreas	9,3 %

1) Отмечалось значительное уменьшение заболеваемости простудными болезнями.
2) При втирании препарата в дёсны или его разжевывании проходили симптомы пародонтоза.
3) И наконец ощутимый эффект пациенты чувствовали на коже, волосах и ногтях, а именно уменьшались или исчезали пятна, папилломы, уменьшалось выпадение и ломкость волос, расслоение ногтей.

HB
2/1

The diag **and con-**
trol **ED»**

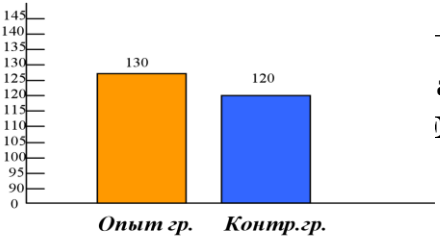
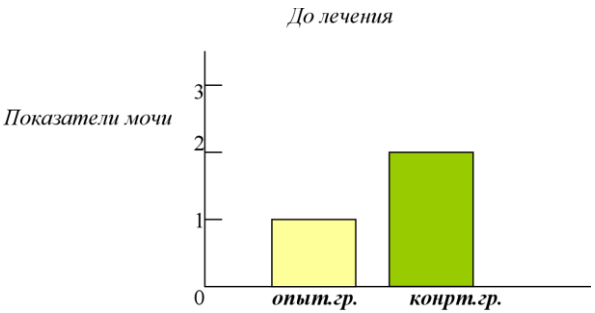
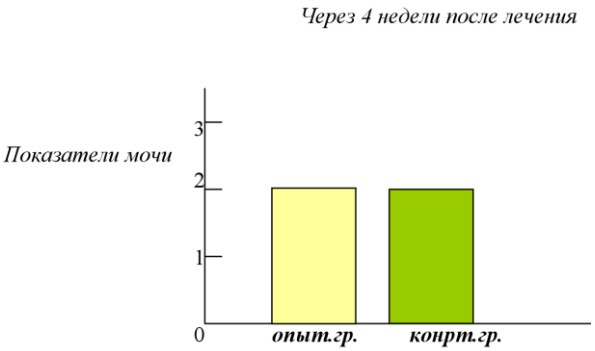
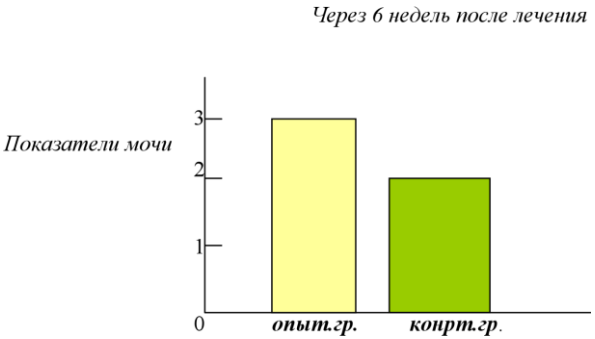


Diagram of laboratory indicators of urine of the studied patients under the influence of «AZEOMED»







Clinical trials of mineral composition «AZEOMED»

Conclusions:

The results of examining the patients and a questionnaire for clinical trial of mineral composition «AZEOMED» revealed the following:

1) Almost all patients noted the improvement of overall health, increasing of physical and mental capacity, a decrease of weakness, tiredness and fatigue.

2) Was significantly decreased the incidence of cold deseases.

3) Was noted the improvement of functions of the gastrointestinal tract, namely: increasing of appetite, weight gain in the body (in the case of taking the drug before meals), decreasing the dyspeptic actions – heartburn, belching, bloating, improving the bowel function, in particular, the normalization of stool.

4) Was improved the function of urinary system, evidence that the results of laboratory tests of urine from the subjects. In particular, by the end of the 4^{th} week of studies the urine indicators of patients were improving to an average level of norm, and by the end of the 6^{th} week – fully corresponded the norm.

5) There was a positive dynamics in the blood of patients with regard to hemoglobin, namely in patients with low hemoglobin level it rose to the norm, and in patients with normal hemoglobin, it rose to the upper limit of the norm.

6) The majority of patients had a positive dynamics in diseases of the musculoskeletal system: decreased the pain in

the spine and joints, numbness and a feeling of heaviness in the legs.

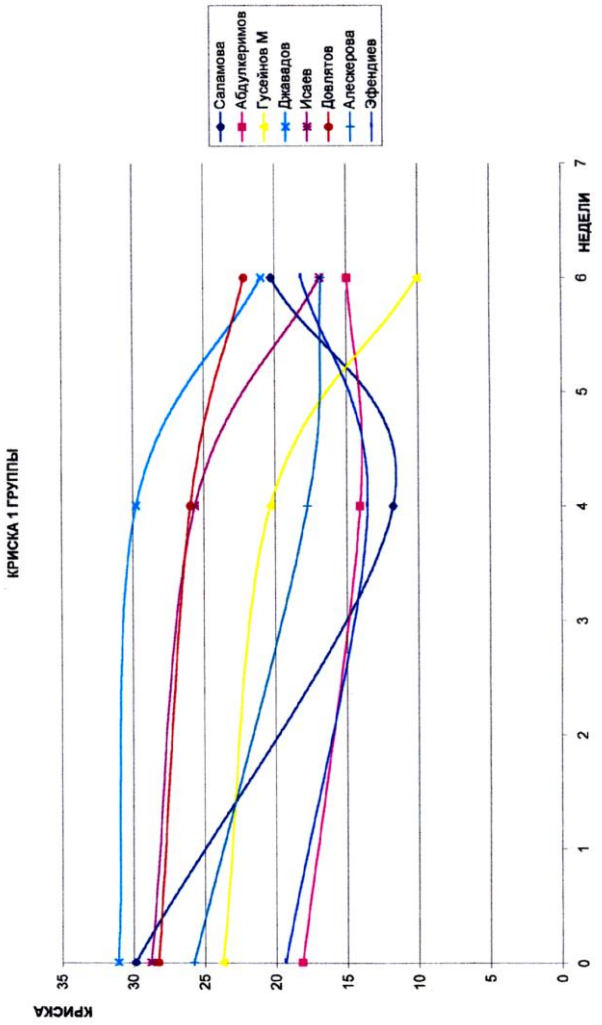
7) About the central nervous system the patients noted the reduction of depression, irritability, decreasing of headaches.

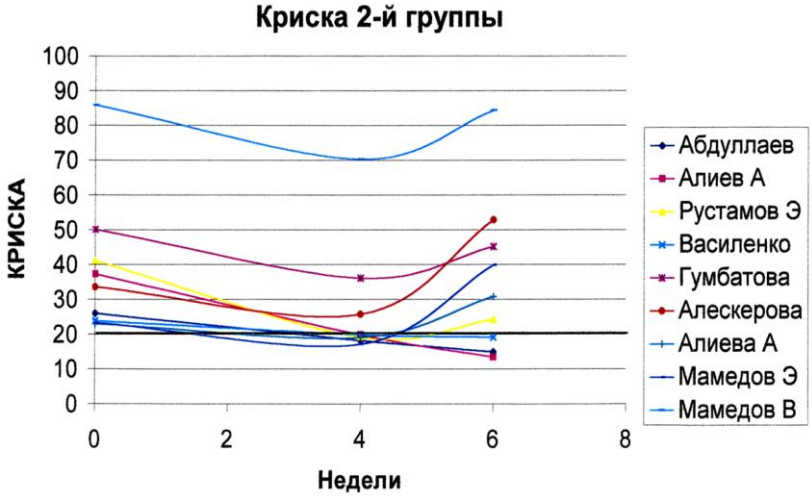
8) Improved the functions of the cardiovascular system: normalized the blood pressure, decreased the pain and heaviness in the heart.

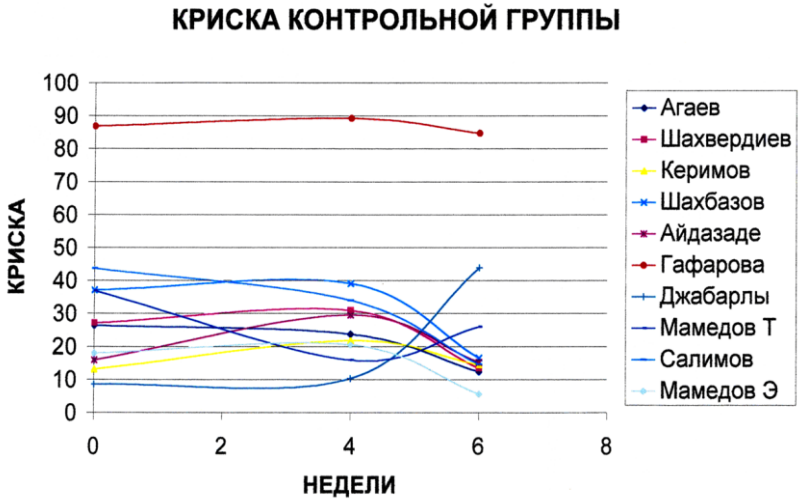
9) When rubbing the drug in the gingiva or its chewing, the symptoms of periodontitis have passed.

10) And finally, there was a decrease of skin rashes, papilloma, layering and brittleness of nails, and an increase of growth and strengthening of hair.

FUNCTIONAL ANALYSIS OF THERAPY OF MINERAL FOOD ADDITIVE «AZEOMED»




Криска 2-й группы
КРИСКА
100
90
80
70
60
50
40
30
20
10
0
0
2
4
6
8
Недели
Абдуллаев
Алиев А
Рустамов Э
Василенко
Гумбатова
Алескерова
Алиева А
Мамедов Э
Мамедов В


КРИСКА КОНТРОЛЬНОЙ ГРУППЫ
КРИСКА
100
90
80
70
60
50
40
30
20
10
0
0
2
4
6
8
НЕДЕЛИ
Агаев
Шахвердиев
Керимов
Шахбазов
Айдазаде
Гафарова
Джабарлы
Мамедов Т
Салимов
Мамедов Э

§ 2. PRACTICAL EXAMPLES OF EXAMINATION BY MEANS OF COMPUTER MEDICAL SYSTEM OF ANALYSIS OF THERAPY (AMSAT)

E.A. Hismatova *(01/17/2007)*
Scientific and Production Company «YENI TEX» Ltd

In 2006, *25 patients* were examined on a computer system "AMSAT" in order to study the effects of mineral preparation «AZEOMED» on the human body. *15* of them took «AZEOMED» no less than 30 days. *10 people* actively cooperated with us, they were control examined a month after beginning of taking «AZEOMED» tablets.

5 people were observed during the year, they were examined 4-6 times on the "AMSAT" system, and during all this time were carried out the additional researches: ultrasound of organs; clinical, biochemical and bacteriological parameters of blood, urine and stool.

After processing all the data was determined the following:

– as a result of taking the mineral complex «AZEOMED» is observed the positive dynamics of all organs and systems of the organism.

Especially clear it is seen in the area of:

1. Gastro-intestinal tract
2. Urogenital system;
3. Organs of broncho-pulmonary system,
4. Functional state of the spine and joints of limbs,
5. Endocrine system
6. Autonomous nervous system.

7. Is noted the subjective improvement of general condition – mood, workability, tolerance;

8. Improves the quality of sleep

Manuilova Alla, 62 years old

She applied 3 years ago in a state of moderate severity. Exacerbation of chronic bronchitis after influenza, complicated by systemic candidiasis after taking of antibiotics, and allergic rashes all over the body, especially in the arms, chest, abdomen with the strongest itch. The general condition was deteriorating, with an anamnesis of CHD, hypertension, diabetes of 2 type, osteochondrosis. She had complaints of dyspnea, severe weakness, heavy perspiration, exhausting cough, and headaches.

When diagnosing the evident hypofunctional violations of all organs and systems in the 5^{th} (max) degree of risk. Were increased the oxidative processes. Was disrupted regulation of ANS tone.

Lymphostasis in the zone of broncho-mediastinal and subclavian trunk. Diffuse osteochondrosis with FB in the thoracic.

She took «AZEOMED» 1tab a day for 2 months: February, March. She immediately felt the relief: the dyspnea, headaches, weakness have passed. 2 months later the allergy, itching have passed. Interval in taking was 3 months. Then since 1 July she has taken 1 tab. 2 times a day for 1 month. During this time, the indicators of blood on sugar, hemoglobin, coagulability, prothrombin index were improved.

In November of 2006, after the ARD was again the exacerbation of chronic bronchitis with easier clinical course than before.

2 weeks after taking of «AZEOMED» 1tab. 2 times a day were revealed the significant improvements of the functional state of all organs compared with the initial examination for an average of 40% (the data are enclosed).

Zones with maximum positive dynamics

[-43%] Thyroid body (C5-C7)
[-51%] Right lung (C5-C7, T-15)
[-51%] Trachea, larynx (C6-C8)
[-62%] Heart (Cl- C8, Thl-Th7)
[-58%] In the area of the phrenic nerve on the left
[-61%] In the area of the phrenic nerve on the right
[-63%] In the area of the neck on the right
[-64%] In the area of the right ear
[-68%] In the area of trachea
[-73%] In the area of the upper lobe of the left lung
[-80%] in the area of the upper lobe of the right lung

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент:	А Мануилова Алла
пол:	женский
дата рождения:	14.02.1944

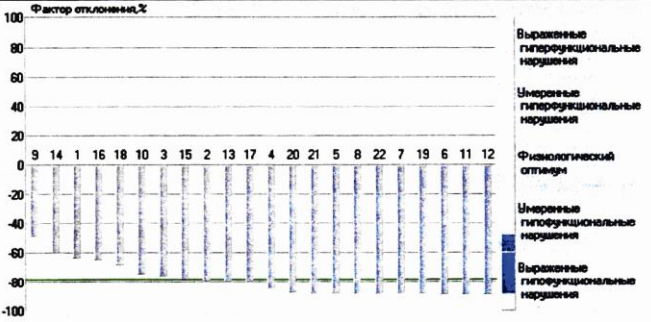
АНАМНЕЗ (заметки)

В анамнезе:
гипертоническая б-нь,ИБС,остеохондроз,
хронический бронхит, аллергии, дисбактериоз.
Жалобы на одышку,кашель,сильную потливость,
утомляемость,головные боли.
начало приёма Бад"Азеомед"02.02.03 по 1т в день,
апрель,май, июнь - перерыв в приёме
с 1-го июля по 1т х 2 раза в день

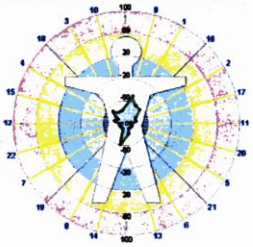
КАРТА ПОСЕЩЕНИЯ

посещение:	02.02.2003 17:45
тип измерений	адаптивный
рост:	164
вес:	86

ФАКТОР ОТКЛОНЕНИЯ (Базовый)

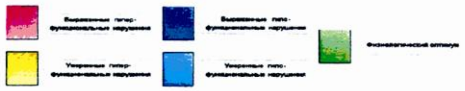


КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)

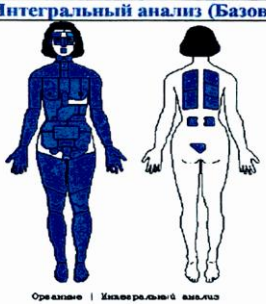


ПАЛИТРА

Описание цветовой шкалы:



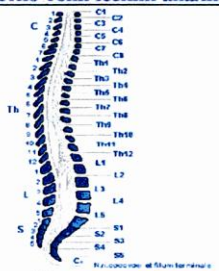
Интегральный анализ (Базовый)



ЗОНЫ МИШЕНИ

```
[ -90%] В области печени
[ -90%] В области поджелудочной железы
[ -90%] В области поперечно-ободочной кишки
[ -90%] В области восходящего отдела толстого кишечника
[ -90%] В области нисходящего отдела толстого кишечника
[ -91%] В области пищевода
[ -91%] В области средней доли правого легкого
```

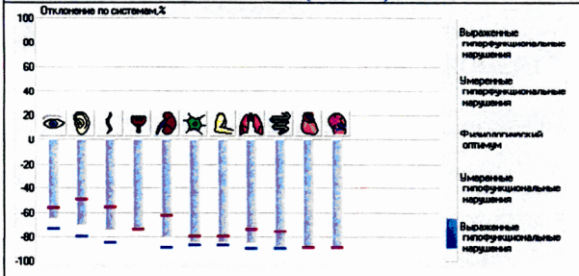
Скелетно-топический анализ (Базовый)



ЗОНЫ МИШЕНИ

```
[ -89%] Th9
[ -89%] Th5
[ -89%] Th11
[ -89%] Th12
[ -90%] Th6
[ -90%] Th7
[ -90%] Th8
```

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



ЗНАЧЕНИЯ СИСТЕМ (Базовый)

-65.7%	Органы зрения
-70.1%	ЛОР-органы
-74.3%	Позвоночник
-74.4%	Эндокринная
-81.5%	Моче-половая
-85.4%	Периферические нейро-сосудистые пучки
-85.4%	Крупные суставы конечностей
-85.8%	Бронхо-легочная / Молочные железы
-88.7%	Желудочно-кишечный тракт
-89.9%	Сердечно-сосудистая
-90.2%	Кроветворения

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Тип состояния организма

Выраженные гипофункциональные нарушения.

Вид функциональной асимметрии

Симметрично

Степень эмоционального напряжения:

Астеническая отрицательная эмоция 3 - степень напряжения.

Потребление кислорода тканями

Повышено.

Общее состояние вегетативной нервной системы

Дисрегуляция тонуса ВНС.

Потенциальные органы мишени

В области печени
В области поджелудочной железы
В области поперечно-ободочной кишки
В области восходящего отдела толстого кишечника
В области нисходящего отдела толстого кишечника
В области пищевода
В области средней доли правого легкого

Локальные изменения тонуса В.Н.С.

Повышенная активность в правой грудной части вагуса

Локальные нарушения лимфодинамики

Умеренные нарушения лимфодинамики в зоне бронхомедиастинального лимфатического ствола и подключичного лимфатического ствола

Функциональные блоки позвоночника

Зоны: Th9, Th5, Th11, Th12, Th6, Th7, Th8

Тип распределения электропроводимости

Неравномерный

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент: А Мануилова Алла
пол: женский
дата рождения: 14.02.1944

АНАМНЕЗ (заметки)

В анамнезе:
гипертоническая б-нь,ИБС,остеохондроз,
хронический бронхит, аллергии, дисбактериоз.
Жалобы на одышку,кашель,сильную потливость,
утомляемость,головные боли.
начало приёма Бад"Азеомед"02.02.03 по 1т в день,
апрель,май, июнь - перерыв в приёме
с 1-го июля по 1т х 2 раза в день

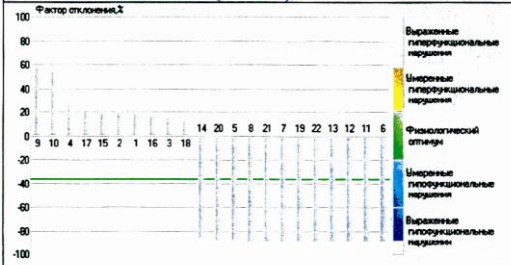
КАРТА ПОСЕЩЕНИЯ

посещение:	09.12.2006 13:09
тип измерений	адаптивный
рост:	164
вес:	87

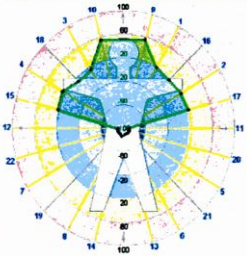
ЖАЛОБЫ (заметки)

принимает азеомед 2 недели(ОРЗ,обострение хр бронхита)
сразу стало легче
А\Д - 156\95 р-с 77 уд в мин

ФАКТОР ОТКЛОНЕНИЯ (Базовый)

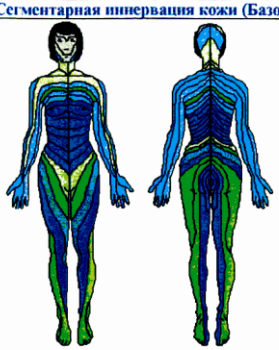


КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



[-89%] Th12
[-90%] Th6
[-90%] Th7
[-90%] Th8

Сегментарная иннервация кожи (Базовый)

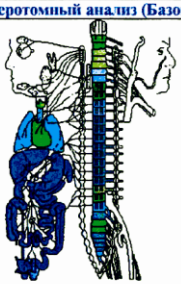


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-91%] Th11 зона справа
[-91%] Th6 зона справа
[-91%] Th7 зона справа
[-91%] Th8 зона справа
[-91%] Th6 зона слева
[-91%] Th7 зона слева
[-91%] Th8 зона слева

Висцеротомный анализ (Базовый)



Топические | Висцеротомный анализ

ЗОНЫ МИШЕНИ

[-91%] Печень (Th5-Th12)
[-91%] Поджелудочная железа (Th5-Th8,Th12)
[-91%] 12-ти перстная кишка (C3,C5,C7,Th2,Th4,Th7-Th9,Th11,L3,L5)
[-91%] Желчный пузырь (Th5-Th12)
[-91%] Нисходящий отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)
[-91%] Селезенка (Th2-Th12,L1,L2)
[-91%] Сигмовидный отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)

Muradova Ludmila, 60 years old.

She complained of palpitations, irritability, sweating, weakness, headaches, high blood pressure, edema of feet. She has been suffering from hypertension for 25 years.

Later the thyroid – hypothyroidism began to be bigger.

At the reception the B \ P was 160 \ 88mm Hg, pulse was 91 beats a min.

Osteochondrosis of the spine with the evident functional blocks in the thoracic, lumbosacral parts, as a result of it there was the deterioration of peripheral blood circulation and innervation of the lower extremities and pelvic organs, a decrease of function of organs of the whole gastrointestinal tract.

Violation of lymphodynamics in the area of celiac and iliac lymph trunk worsens the condition of these organs.

In the lumbar part was radicular radiculitis.

Instability of the cervical part, vertebrobasilar insufficiency – headaches, dizziness, the increased intracranial pressure, and changes in the structure and function of the thyroid gland.

She was recommended:

1. Massage in the spine and legs.

2. Therapeutic exercises.

3. Recovery of mineral metabolism: 1tab of «AZEO-MED» 2 times daily after meal – 30 days; next 2 months – 1tab. a day

4. Vitamin therapy.

5. Restoring of intestinal flora: Probiotics + «AZEO-MED» desirable.

6. Cleaning of the gallbladder and bile ducts of the liver: Olive oil 1 tbsp. Spoon + 1 drop of lemon oil – 1 month.

7. Cleaning of vessels (Chitosan and fish oil).

On the control examining 30 days after beginning of taking the «AZEOMED» the patient changed outwardly: she became animated, prettier, thinner, there was no edema of feet. She noted the reduced pain in the spine, head and legs.

Normalized: B \ P = 136 \ 82 mm Hg, and heart rate = 81 bpm a min. (Less for 10 beats). Also improved the functional state of all organs and systems in an average for 10% according to AMSAT.

20.01.08

Hismatova E.A.

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.

КАРТА ПАЦИЕНТА

пациент:	Мурадова Людмила
пол:	женский
дата рождения:	16.04.1946

АНАМНЕЗ (заметки)

Гипертоническая б-нь в течение 25 лет
Принимала каптоприл ежедневно,
последнее время - адельфан через 2 дня
Гипотиреоз,зоб.
- эутирокс,синт.гормон щит. ж-зы(Т4);
для нервной системы - вагостабил
принимает Азеомед с 1ноября

КАРТА ПОСЕЩЕНИЯ

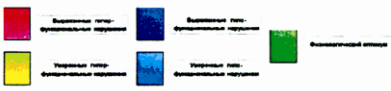
посещение:	11.10.2006 15:30
рост:	157
вес:	80

ЖАЛОБЫ (заметки)

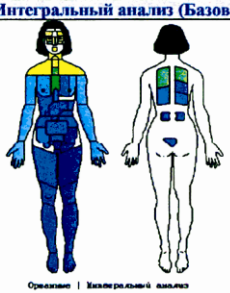
Отекают ноги.Сердцебиение Потливость, слабость.
А\Д 160\88 пульс 91 удар в мин ритм

ПАЛИТРА

Описание цветовой шкалы:



Интегральный анализ (Базовый)

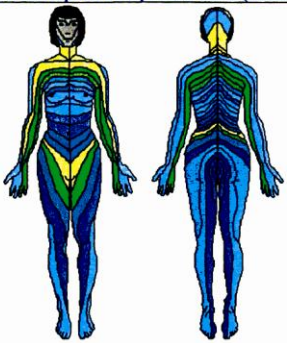


Органные | Квалигральный анализ

ЗОНЫ МИШЕНИ

[-80%] В области нисходящего отдела толстого кишечника
V [-81%] В области сигмовидной кишки
[-81%] Нейро-сосудистый аппарат ступни слева
[-81%] В области колена слева (сосуды нижних конечностей)
[-81%] Нейро-сосудистый аппарат голени слева
V [-82%] Нейро-сосудистый аппарат бедра слева
[-87%] В области придатков слева

Сегментарная иннервация кожи (Базовый)

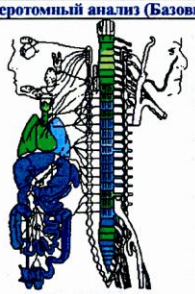


Тонические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-77%] S3 зона слева
[-77%] S4 зона слева
[-77%] S5 зона слева
[-90%] L4 зона справа
[-90%] S2 зона справа
[-90%] L4 зона слева
[-90%] S2 зона слева

Висцеротомный анализ (Базовый)

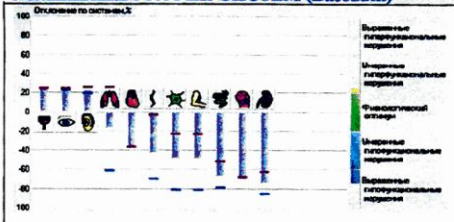


Тонические | Висцеротомный анализ

ЗОНЫ МИШЕНИ

[-75%] Мочеточники (Th1-Th12,L1-L5,S1-S5)
[-75%] Мочевой пузырь (Th1-Th12,L1-L5,S1-S5)
[-76%] Матка (Th10-Th12,L1-L5,S1-S5)
[-76%] Яичники (Th3-Th12,L1-L5,S1)
[-77%] Горизонтальный отдел толстой кишки (Th2-Th4,L1-L5,S1-S5)
[-81%] Сигмовидный отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)
[-83%] Нисходящий отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



ЗНАЧЕНИЯ СИСТЕМ (Базовый)

24.2%	Эндокринная
23.0%	Органы зрения
22.3%	ЛОР-органы
-17.0%	Бронхо-легочная / Молочные железы
-37.2%	Сердечно-сосудистая
-43.3%	Позвоночник
-48.4%	Периферические нейро-сосудистые пучки
-48.4%	Крупные суставы конечностей
-67.8%	Желудочно-кишечный тракт
-70.0%	Кроветворения
-74.9%	Моче-половая

ЗАКЛЮЧЕНИЕ ВРАЧА

Остеохондроз позвоночника с выраженными функциональными блок
ами
в грудном,поясничном,крестцовом, копчиковом отделе,
вследствие этого ухудшение периферического кровообращения и
иннервации
нижних конкчностей и органов малого таза, брюшной полости,
приводящее к понижению функции органов всего желудочно-кишеч
ного тракта,
поджелудочной железы,печени,желчного пузыря,селезенки.
Нарушение лимфодинамики в зоне чревного и подвздошного лимфа
тического ствола
ухудшает состояние этих органов.
В поясничном отделе провления корешкового радикулита,
может вызывать боли в пояснично-крестцовой области.
Нестабильность шейного отдела с вертебро-базилярной недостат
очностью,
вызывающая головные боли,головокружения,повышение внутричере
пного давления,
а также изменение в структуре и функции щитовидной железы.
Рекомендовано:
1.Массаж обл. позвоночника и ног.
2.Лечебная гимнастика.
3.Востановление минерального обмена:
"Азеомед" 1таблетке 2 раза в день после еды - 30 дней;
следующие 2 месяца:по 1т в день;
далее: по 1т через день или через 2 дня(по состоянию)
4.Витаминотерапия.
5.Восстановление флоры кишечника: пробиотики + "Азеомед"
Желательно:
6.Чистка желчного пузыря и желчных протоков печени:
оливковое масло 1ст.ложка+1капля масла лимона утром и вечеро
м натощак 1 месяц
7.Чистка сосудов(хитозан и рыбий жир)

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС

КАРТА ПАЦИЕНТА

пациент: Мурадова Людмила
пол: женский
дата рождения: 16.04.1946

АНАМНЕЗ (заметки)

Гипертоническая б-нь в течение 25 лет
Принимала каптоприл ежедневно,
последнее время - адельфан через 2 дня
Гипотиреоз,зоб.
- эутирокс,синт.гормон щит. ж-зы(Т4);
для нервной системы - вагостабил
принимает Азеомед с 1ноября

КАРТА ПОСЕЩЕНИЯ

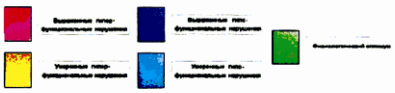
посещение: 14.12.2006 13:36
тип измерений адаптивный
рост: 157
вес: 80
температура в зоне измерения:неизвестна

ЖАЛОБЫ (заметки)

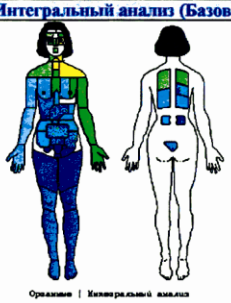
Улучшение самочувствия.Похудела(в объёмах)
А\Д136\82 пульс-81 уд в мин

ПАЛИТРА

Описание цветовой шкалы:



Интегральный анализ (Базовый)

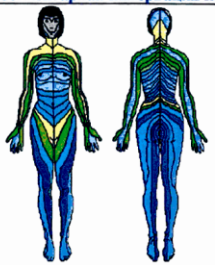


ЗОНЫ МИШЕНИ

[-69%] В области сигмовидной кишки
[-69%] Нейро-сосудистый аппарат ступни слева
[-69%] В области колена слева (сосуды нижних конечностей)
[-72%] В области матки
[-72%] Нейро-сосудистый аппарат бедра слева

[-80%] В области наружных половых органов
[-86%] В области придатков слева

Сегментарная иннервация кожи (Базовый)

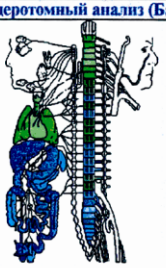


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-68%] S3 зона справа
[-68%] S4 зона справа
[-68%] S5 зона справа
[-91%] L4 зона справа
[-91%] S2 зона справа
[-91%] L4 зона слева
[-91%] S2 зона слева

Висцеротомный анализ (Базовый)

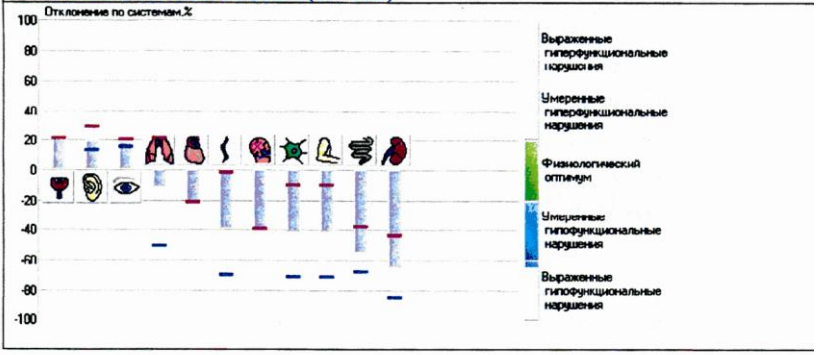


Топические | Висцеротомный анализ

ЗОНЫ МИШЕНИ

[-67%] Горизонтальный отдел толстой кишки (Th2-Th4,L1-L5,S1-S5)
[-67%] Печень (Th5-Th12)
[-67%] Мочевой пузырь (Th1-Th12,L1-L5,S1-S5)
[-69%] Желчный пузырь (Th5-Th12)
[-69%] Сигмовидный отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)
[-72%] Матка (Th10-Th12,L1-L5,S1-S5)
[-72%] Яичники (Th3-Th12,L1-L5,S1)

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



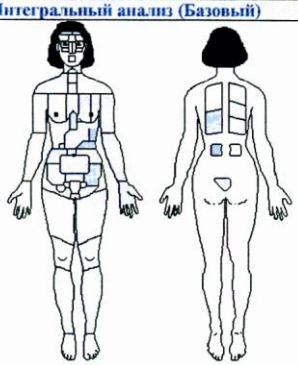
ЗНАЧЕНИЯ СИСТЕМ (Базовый)

21.2%	Эндокринная
19.7%	ЛОР-органы
18.0%	Органы зрения
-11.1%	Бронхо-легочная / Молочные железы
-21.5%	Сердечно-сосудистая
-39.7%	Позвоночник
-40.4%	Кроветворения
-41.5%	Периферические нейро-сосудистые пучки
-41.5%	Крупные суставы конечностей
-55.2%	Желудочно-кишечный тракт
-65.5%	Моче-половая

ЗАКЛЮЧЕНИЕ ВРАЧА

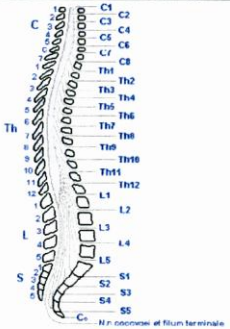
Принимает Азеомед с 1 ноября по 1 декабря 1т 2 раза в день
с 1 декабря по 1т в день (на 2 месяца)
Отмечает улучшение самочувствия, меньше болят ноги, голова и
позвоночник
Объективно:похорошела, похудела в объемах,оживилась,
отёков на ногах нет.
Пульс реже:от 91 уд до 81уд в мин; А\Д 136\82

Интегральный анализ (Базовый)



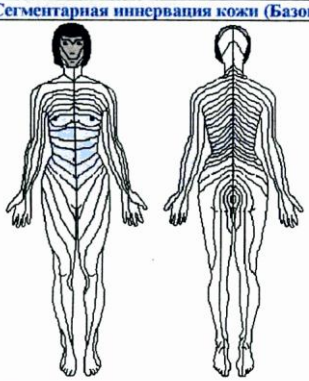
Органные | Интегральный анализ

Скелетно-топический анализ (Базовый)



Топические | Скелетно-топический анализ

Сегментарная иннервация кожи (Базовый)



Топические | Сегментарная иннервация кожи

Imanguliyeva Ulkar, 19 years old.

She came on November 28, 2006 with severe cramp-like pain in the navel and below. She complained of headaches and long-term constipation. The examination revealed the inflammation of the cecum and appendix and increase of functional activity of the liver and kidneys, which happens during intoxication. Neurosis, the 4^{th} degree of emotional stress.

The pronounced parasympathotoniya.

The increased activity in the head of the vagus as a result of reaction of the organism to pain. The girl could hardly stand on her feet. She refused to go to hospital, but asked to "do anything" to help her. I recommended «AZEOMED» 2 tablets every 4 hours during the day.

The next day she came smiling. The pain in the abdominal area did not disturb her. There was stool; she noted only minor "heaviness" in her head. Examination confirmed the improvement of her state.

She was recommended:

To continue taking «AZEOMED» 1tab. 2 times a day during 1 month

06.02.07 – re-examination 2 months later. No complaints. She felt fine. It is confirmed by the data of computer survey.

16.01.2007

Hismatova E.A.

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент:	Имангулиева Улькяр
пол:	женский
дата рождения:	30.09.1987

АНАМНЕЗ (заметки)

студентка Иняза.

КАРТА ПОСЕЩЕНИЯ

посещение:	28.11.2006 15:23
рост:	178
вес:	57

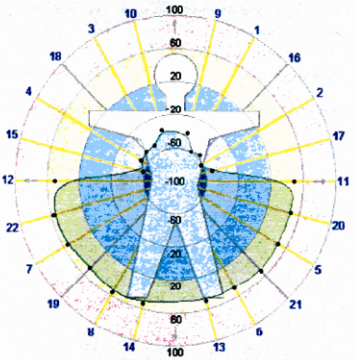
ЖАЛОБЫ (заметки)

боли в обл пупка и ниже, схваткообразные
менс регулярные с 15-16 лет

ТИП СОСТОЯНИЯ ОРГАНИЗМА

Смешанный тип.

КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ



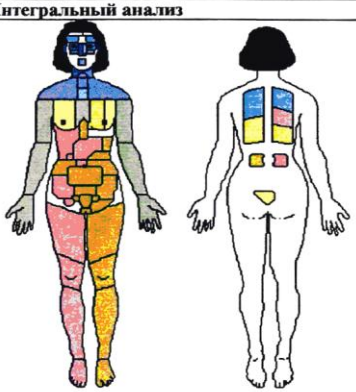
ТИП БИОСИММЕТРИИ

Выраженная каудальная

ПАЛИТРА

Описание цветовой шкалы:

Интегральный анализ

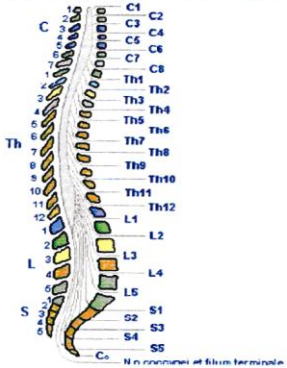


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

```
[  63%] В области печени
[  63%] В области желчного пузыря
[  63%] В области почки правой и мочеточника
[ -63%] В области гайморовой пазухи левой
[ -66%] В области диафрагмального нерва слева
[ -68%] В области уха левого
[ -69%] В области шеи слева
```

Скелетно-топический анализ (Базовый коллоидный сдвиг)

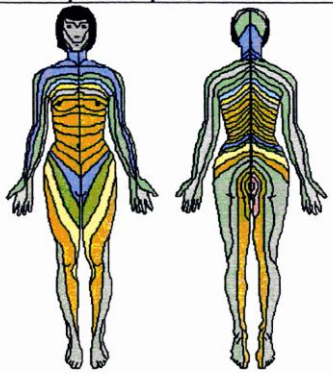


Топические | Скелетно-топический анализ

ЗОНЫ МИШЕНИ

```
[  59%] S3
[  59%] S4
[  59%] S5
[ -61%] L1
[ -61%] C3
[ -61%] C4
[ -61%] C5
```

Сегментарная иннервация кожи

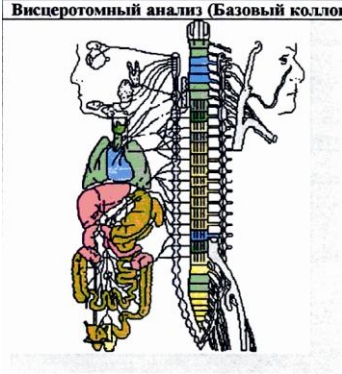


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-62%] C4 зона справа
[-62%] C5 зона справа
[-62%] C3 зона справа
[-63%] C3 зона слева
[-63%] C4 зона слева
[-63%] C5 зона слева
[-63%] L1 зона слева

Висцеротомный анализ (Базовый коллоидный сдвиг)

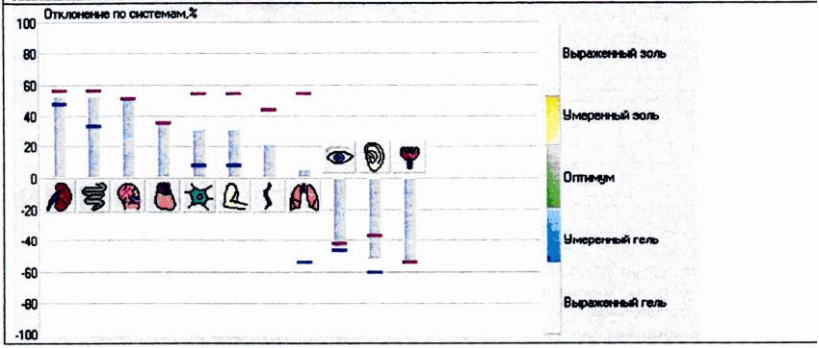


Топические | Висцеротомный анализ

ЗОНЫ МИШЕНИ

[63%] Почки (Th12,L1,L2)
[63%] Желчный пузырь (Th5-Th12)
[63%] Печень (Th5-Th12)
[61%] 12-ти перстная кишка (C3,C5,C7,Th2,Th4,Th7-Th9,Th11,L3,L5)
[60%] Горизонтальный отдел толстой кишки (Th2-Th4,L1-L5,S1-S5)
[60%] Желудок (C4-C8,Th6-Th12,L1,L2,L4)
[60%] Тонкий кишечник (C3-C8,Th7,Th8,Th12,L1)

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ



ЗНАЧЕНИЯ СИСТЕМ

52.3% Моче-половая
52.2% Желудочно-кишечный тракт
50.9% Кроветворения
35.1% Сердечно-сосудистая
31.2% Периферические нейро-сосудистые пучки
31.2% Крупные суставы конечностей
21.3% Позвоночник
5.2% Бронхо-легочная / Молочные железы
-45.2% Органы зрения
-51.8% ЛОР-органы
-55.2% Эндокринная

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Степень эмоционального напряжения:
Стеническая положительная эмоция 2 - степень напряжения.

Потребление кислорода тканями
Снижено.

Общее состояние вегетативной нервной системы
Умеренная парасимпатикотония.

Потенциальные органы мишени
Правая почка и мочеточник
Желчный пузырь
Печень
12-ти перстная кишка
Горизонтальный отдел толстой кишки
Желудок
Тонкий кишечник

Локальные изменения тонуса В.Н.С.
Повышенная активность в левой шейной части вагуса

Локальные нарушения лимфодинамики
Умеренные нарушения лимфодинамики в зоне бронхо-пульмонального лимфатического ствола

Вероятность развития остеохондроза
Зоны: L2, C1-C7, Th2, C3, C4, C5, L1

Тип распределения электропроводимости
Неравномерный

КАРТА ПАЦИЕНТА

пациент:	Имангулиева Улькяр
пол:	женский
дата рождения:	30.09.1987

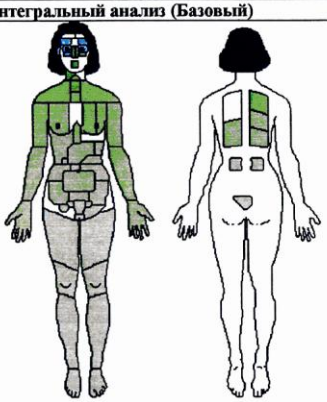
КАРТА ПОСЕЩЕНИЯ

посещение:	29.11.2006 15:26
рост:	178
вес:	57

ЖАЛОБЫ (заметки)

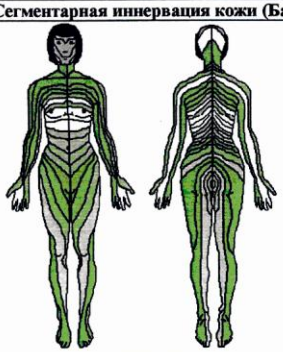
Накануне было состояние "острого живота",
задержка стула - 2 дня;тошнота,головная боль;
В течение суток принимала только "Азеомед"
по 2 таблетки 6 раз, через каждые 4 часа.
Самочувствие улучшилось,был стул,
боли в области живота прошли, отмечает только
незначительную головную боль.

Интегральный анализ (Базовый)



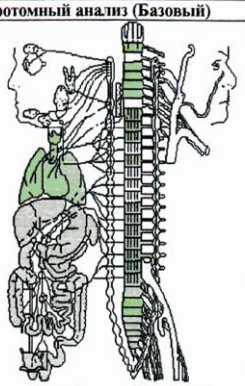
Органные | Интегральный анализ

Сегментарная иннервация кожи (Базовый)



Топические | Сегментарная иннервация кожи

Висцеротомный анализ (Базовый)



Топические | Висцеровомный анализ

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ
Тип состояния организма
Смешанный тип.
Вид функциональной асимметрии
Умеренная каудальная
Степень эмоционального напряжения:
Стеническая положительная эмоция 2 - степень напряжения.
Потребление кислорода тканями
Снижено.
Общее состояние вегетативной нервной системы
Эутония тонуса ВНС.
Потенциальные органы мишени
Список пуст
Локальные изменения тонуса В.Н.С.
Умеренная активность в головной части вагуса
Локальные нарушения лимфодинамики
Умеренные нарушения лимфодинамики в зоне поясничных лимфатических стволов, пахового и подвздошного сплетения
Вероятность развития остеохондроза
Список пуст
Тип распределения электропроводимости
Неравномерный

КАРТА ПАЦИЕНТА

пациент: Имангулиева Улькяр
дата рождения: 30.09.1987

КАРТА ПОСЕЩЕНИЯ

посещение: 06.02.2007 15:22
рост: 178
вес: 57

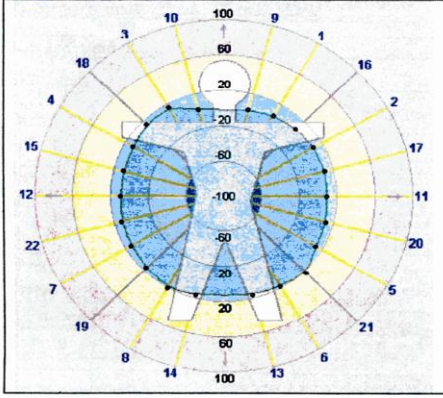
ЖАЛОБЫ (заметки)

Через 1 месяц после окончания приема «Азеомеда»
Самочувствие хорошее

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)

Физиологический оптимум.

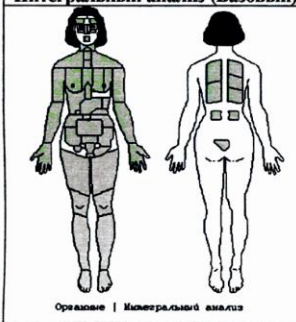
КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



ТИП БИОСИММЕТРИИ (Базовый)

Симметрично

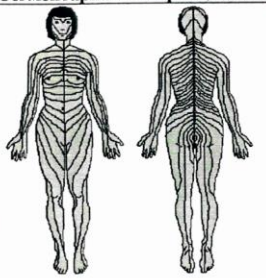
Интегральный анализ (Базовый)



ЗОНЫ МИШЕНИ

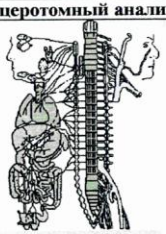
Список пуст

Сегментарная иннервация кожи (Базовый)



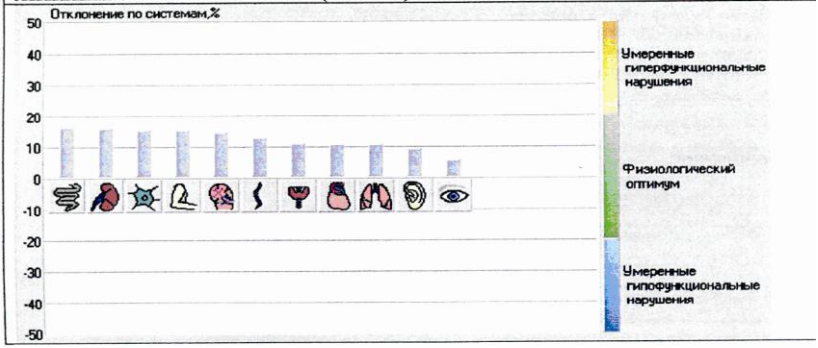
Тонические | Сегментарная иннервация кожи

Висцеротомный анализ (Базовый)



Тонические | Висцеротомный анализ

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)




```
16.1%  Желудочно-кишечный тракт
16.0%  Моче-половая
15.0%  Периферические нейро-сосудистые пучки
15.0%  Крупные суставы конечностей
14.6%  Кроветворения
12.7%  Позвоночник
10.8%  Эндокринная
10.6%  Сердечно-сосудистая
10.5%  Бронхо-легочная / Молочные железы
9.3%  ЛОР-органы
5.8%  Органы зрения
```

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Тип состояния организма
Физиологический оптимум.

Вид функциональной асимметрии
Симметрично

Степень эмоционального напряжения:
Внимание, мобилизация, активность 1 - степень напряжения.

Потребление кислорода тканями Снижено.

Общее состояние вегетативной нервной системы Эутония тонуса ВНС.

Потенциальные органы мишени Список пуст

Локальные изменения тонуса В.Н.С.
Умеренная активность в правой брюшной части симпатикуса

Локальные нарушения лимфодинамики
Умеренные нарушения лимфодинамики в зоне поясничных лимфатических стволов, пахового и подвздошного сплетения

Вероятность развития остеохондроза Зоны: Список пуст

ИНФОРМАЦИЯ ДЛЯ ПАЦИЕНТА

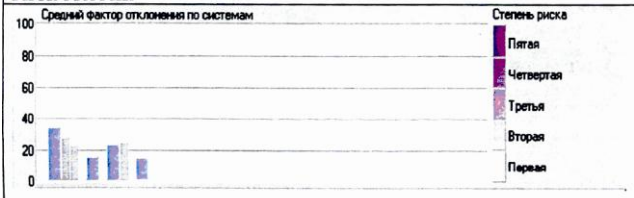
Результаты компьютерного обследования позволили оценить состояние Вашего организма в целом, а также получить представление о функциональном состоянии отдельных органов и систем. В зависимости от вида изменений функционального состояния и степени их проявления выделяются пять степеней риска, каждая из которых характеризуется коэффициентом риска (Криска), определенными критериями и соответствующей медицинской тактикой. **Первая степень риска (Криска = 14.3).**

Медицинская характеристика: В момент обследования все органы и системы находятся в пределах физиологического оптимума.

ЗАКЛЮЧЕНИЕ ВРАЧА

Прошло более 2х месяцев после начала приема "Азеомеда".
Принимала 1 месяц по 1т 2 раза в день во время еды,
за исключением 1го дня,
когда в течение суток было принято 12 таблеток.
После окончания приема"Азеомеда" прошло более месяца.
Состояние девушки остается стабильным,
все системы организма оцениваются в 1ой степени риска(норма)
Самочувствие хорошее.

РИСК-ГРАФИК



ЗНАЧЕНИЯ РИСКА

28.11.2006	15:23	33.7%
28.11.2006	15:33	27.6%
28.11.2006	15:36	22.3%
29.11.2006	15:26	15.6%
01.12.2006	15:39	23.1%
01.12.2006	15:43	24.4%
06.02.2007	15:22	14.3%

In 2007 120 patients were examined on the computer system AMSAT to study the effect of mineral complex «AZEOMED» on the human organism.

100 of them took «AZEOMED» no less than 30 days. 60 people actively cooperated with us, we carried out the control examinations a month from the beginning of taking «AZEOMED».

10 people were observed during a year, were examined 4-6 times on a system of AMSAT, and during that time were carried out additional researches: ultrasound of organs, clinical, biochemical and bacteriological parameters of blood, urine and stool. After processing all data it was determined: as a result of taking the mineral complex «AZEOMED» in prophylactic dose of 1 tablet 2 times a day there is observed the positive dynamics of all organs and systems of organism for 94% of all tested people.

Typical indicators:

– Improving of blood circulation of the head;

– Normalization of intracranial and intraocular pressure;

– Positive dynamics of the broncho-pulmonary system;

– Positive dynamics of the cardiovascular system;

– Positive dynamics of the gastrointestinal tract;

– Positive dynamics of the urogenital tract;

– Those who took «AZEOMED» had improvement of functional condition of the spine and the extremities;

– Was refreshed muscular tone;

– Were obtained good results in endocrine system, especially can be noted the normalization of thyroid function (data of AMSAT and laboratory – hormones);

– Improvement of the well-being noted 98% of the 100 people of all the interviewed who took «AZEOMED».

20.01.08
Hismatova E.A.

CLINICAL OBSERVATIONS

The boy, 19 years old. Acne. He used the powder every day. 2 months later the skin became completely clear.

Allergic dermatitis, 43 years old.

After taking of 2 tabs the itching, edema and redness of the skin have passed.

The girl, 9 years old. Diagnosis: allergic dermatitis. «AZEOMED» was used as monotherapy.

On the 2nd day the allergy manifestations began to subside. On the 6 th day the rash completely have passed.

Lamiya, 38 years old. Diagnosis: Enterocolitis. Diarrhea.

Traditional therapy did not give effect. After taking the tablets «AZEOMED» diarrhea passed on the 4th day.

Leyla, 46 years old. Diagnosis: Status after mastoectomy. After the operation the patient had the radiation therapy, she significantly weakened, could not walk without someone's help. 20 days after the application of the complex «AZEOMED» the general condition improved considerably.

Ira, 46 years old. Diagnosis: Osteoarthritis of the knee joint.

She was tortured by acute pain in her right knee, which was cut off by injection of diclofenac. After taking of «AZEOMED» she began to notice that the joint pain began to subside, and after 15 days of taking it they completely passed. At the present time she continues taking the preparation with short intervals.

The patient (woman), 71 years old. Diagnosis: Diabetes mellitus of 2 type. During the course of diabeton she took

«AZEOMED». She notes a significant improvement of general condition.

Woman, 28 years old. Diagnosis: the state of post-partum rupture sphincter, sphincter insufficiency of 2-3 degrees.

On the 3rd day after operation the patient had diarrhea, which was a threat for operation. The patient was prescribed the appropriate treatment, but failed to normalize the stool. On the 4th day she began to take «AZEOMED» 1 tablet 3 times a day. After 2 days on the background of the therapy the stool was normalized.

Was done the analysis of treatment of 2 patients with the diagnosis: ulcerative colitis.

1st patient, 41 years old, had traditional medication. His recovery was on 28th days.

2nd patient, 48 years old, along with traditional therapy had «AZEOMED» 1 tablet 3 times a day. On the 17th day was a full recovery. Ulcers were healed. (Rectomanoscopy).

Marina, 37 years old. Diarrhea during 7 days. Taking of 6 tablets of «AZEOMED» during the day and the next morning the stool was normalized.

Elena, was born in 1929. The left breast tumor. Complaints of weakness, pain, burning in the chest area. After 2 months of monotherapy with tablets of «AZEOMED» 1 tablet 2 times a day the tumor 2 times; blood parameters was improved, feeling was good, there was not weakness. She continues to take «AZEOMED».

The patient, 82 years old, with dyspnea and shortness of breath; he has been smoking since 7 years old. Diagnosis: fibrosis and emphysema of lungs. Against the background of

general treatment he took «AZEOMED» 2tabs 2 times a day for 1 week, then 1tab 1 time a day up to 2 months. He feels good.

Nariman, 65 years old. Diagnosis: Chronic pneumonia. Pneumosclerosis. Emphysema of lungs. Systemic candidiasis.

He had been treated for many years, but the condition deteriorated.

He was prescribed «AZEOMED» without antibiotics 2tabs 2 times a day during 10 days, then 1tab 2 times a day.

A week later he began to walk, rose to the fourth floor.

The dyspnea decreased significantly.

Azer, 36 years old. Diagnosis: generalized candidiasis. Immunodeficiency. Dysbacteriosis. Long unsuccessfully treated. Within a month he is taking «AZEOMED» 2 tablets 2 times a day. Condition has been improved.

The woman, 48 years old, with arthritis of finger joints. She took 2 tablets 2 times a day during 5 days, then 1 tablet 2 times a day. A week later, the edema of joints and the pain passed.

The patient, 70 years old. The diagnosis: Athrosis. Bruis of the pelvis.

She took 2 tablets 2 times a day – 20 days, then 1 tablet 2 times a day – 20 days. Condition stabilized. No complaints.

The young man, 19 years old. Poisoning. In the evening he ate mushrooms. In the morning there began the pain in the stomach, cold sweat, shiver.

After taking 3 tablets of «AZEOMED» the state was cut off.

The child, 8 years old. Diagnosis: Ascariasis. The teeth were crumbled. She took 0.25 tablets 2 times a day during 2

months. The quality of the teeth was improved, stool was normalized.

I used the powder «AZEOMED» in 4 patients with youthful acne. As a result, on the 5th day the skin rashes of 3 patients had dried. And of the 4th patient -on the 7th day. The powder was used in the form of dry and wet masks.

Alla, 62 years old. Diagnosis: Diabetes mellitus of 2 type. She has been taking «AZEOMED» for 3 years with intervals. She notes a significant improvement in well-being, increase of workability, decrease of amount of sugar in the blood.

Azad, 11 years old. Diagnosis: Encephalopathy. Increase of intracranial pressure. She has been taking «AZEOMED» in prophylactic dose for 3 years with intervals. Excellent health. She is not afraid of cold, is doing well at school, and successfully learns English and German.

The girl, 27 years old. Diagnosis: Extensive herpetic rash on the face, which is not amenable to treatment within a year. After 1 month of taking the «AZEOMED» and the zeolite powder, the rash disappeared without a trace, for a whole year there isn't relapse.

The girl, 3 years and the boy, 6 years old with a diagnosis: hypoplasia of the right hip joint. Shortening of the right leg for 1 cm.

They could not walk, stumbled and fell.

After taking the preparation «AZEOMED» during the year with intervals and massage the feet were improved.

Kamala, 28 years old. The first pregnancy, 24 weeks. Polyhydramnios, a large stomach, pain in the lumbosacral part of spine.

She took «AZEOMED» in prophylactic dose for 1 month with an interval of 2 weeks before childbirth.

Births were good. The child is healthy. The mother is feeling good.

Now she takes «AZEOMED» 1 tablet a day.

Alla, 59 years old. Diagnosis: CHD, chronic bronchitis, allergies, Dysbacteriosis. Complaints of dyspnea, cough, headache, weakness, excessive sweating.

She takes «AZEOMED» in prophylactic dose of 1 tablet a day for 2 months with intervals of 1 month for 7 months.

Positive dynamics: she feels fine.

Condition bronchopulmonary system improved from the 4^{th} risk group to the 2^{nd} one.

Yegana, 29 years old. Diagnosis: tumor in the left breast.

About 3 years of breastfeeding. Oncologist recommended the urgent surgery. She took «AZEOMED» 1tab. 3 times a day. After 1.5 months the tumor was found on the ultrasound. The patient is feeling good.

01.10.2007

Hismatova E.A.

Zeynalova Tamila, 35 years old

She complained of chronic maxillary sinusitis, frequent colds, depression, she has been ill for 2 months, in her left shoulder there is pain, radiating to the left arm and chest, painful nodular lymph nodes in the left armpit, there has been temor in the left breast for 2 years, and a large painful lymph node near this temor has appeared lately.

The examination revealed a neurosis – the 4th degree of emotional stress. Vegeto-vascular dystonia on the type of evident parasympathotonia (prostration). The increased activity in the head part of the vagus (is responsible for the depressed mood).

Development of osteochondrosis in the cervical, upper-thoracic and lumbosacral part of spine is the cause of the deterioration of blood supply and innervation of the organs of the head, shoulder girdle, chest and pelvic organs. Condition is aggravated by lymphostasis in the zone of bronchopulmonary lymph trunk. In addition, the patient was sent for ultrasound of mammary glands, blood tes with leukogram. Ultrasound data do not contradict her complaints; in the analysis of blood there was low the total number of leukocytes with low per cent of increase of the number of lymphocytes; ESR and other blood parameters were normal. She was recommended to take «AZEOMED» according to the scheme for 3 months: beginning with 2tabs a day, adding 1 to 10 tablets daily, and back to 3 tablets a day.

At the control examination after 3 months and she feelst good, she is in good mood, emotional stress is estimated with the 1st degree. The tone of the autonomic nervous system is normal. No lymphostasis in the zone of bronchopulmonary

trunk. Was restored the functional state of the spine and the blood supply and innervation of the whole organism.

On examination there is no "fresh" node near the tumor and axillary lymph nodes decreased.

In the blood there is improvement of indicators of the "white" blood.

20.01.08

Hismatova E.A.

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент: Зейналова Тамила 1 гр крови
пол: женский
дата рождения: 18.06.1972

АНАМНЕЗ (заметки)

хр гайморит,
новообразование левой грудной железы;
увеличены лимфоузлы, окружающие его, особенно наверху слева,
в подмышечной впадине болезненные бугристые спаянные друг с другом 2 узла

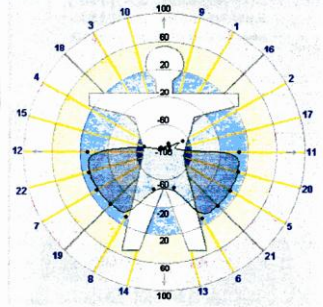
КАРТА ПОСЕЩЕНИЯ

посещение:	04.10.2007 17:07
тип измерений	адаптивный
рост:	156
вес:	59

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)

Смешанный тип с преобладанием гипофункциональных нарушений.

КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



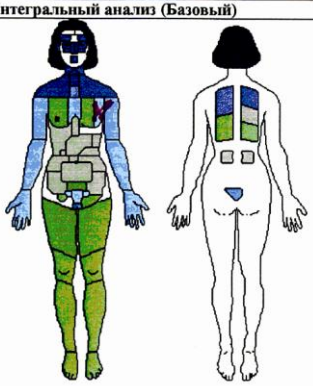
ТИП БИОСИММЕТРИИ (Базовый)

Выраженная каудальная

ПАЛИТРА

Описание цветовой шкалы:

Интегральный анализ (Базовый)

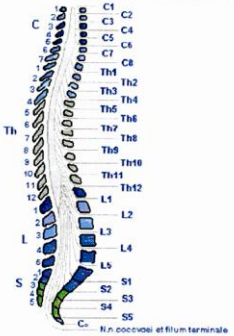


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

[-94%] В области гайморовой пазухи правой
[-94%] В области глаза левого и слезной железы
[-94%] В области уха правого
[-94%] В области шеи справа
[-94%] В области глаза правого и слезной железы
[-94%] В области лобной пазухи левой
[-94%] В области лобной пазухи правой

Скелетно-топический анализ (Базовый)

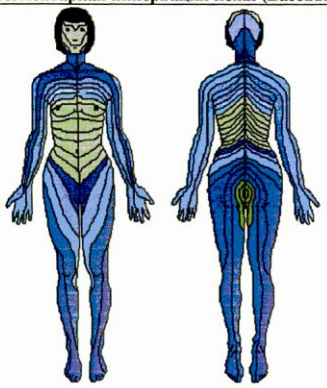


Топические | Скелетно-топический анализ

ЗОНЫ МИШЕНИ

[-74%] C1-C7
[-88%] L5
[-88%] S1
[-94%] C3
[-94%] C4
[-94%] C5
[-94%] L1

Сегментарная иннервация кожи (Базовый)

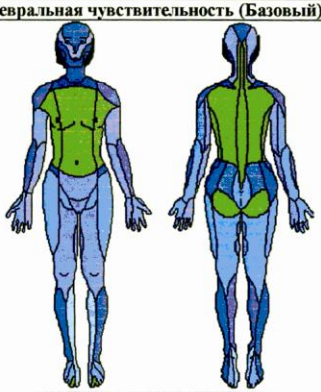


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-94%] C3 зона слева
[-94%] C4 зона слева
[-94%] C5 зона слева
[-94%] C3 зона справа
[-94%] C4 зона справа
[-94%] C5 зона справа
[-94%] L1 зона справа

Невральная чувствительность (Базовый)

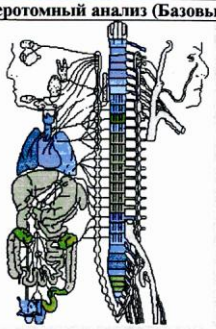


Топические | Невральная чувствительность

ЗОНЫ МИШЕНИ

[-79%] Верхний боковой кожный нерв плеча
[-86%] Боковая кожная ветвь подвздошно-подчревного нерва
[-86%] Боковая ветвь подвздошно-подчревнрго нерва
[-94%] Нижнечелюстной нерв
[-94%] Большой ушной нерв
[-94%] Поперечный нерв шеи
[-94%] Надключичные нервы

Висцеротомный анализ (Базовый)

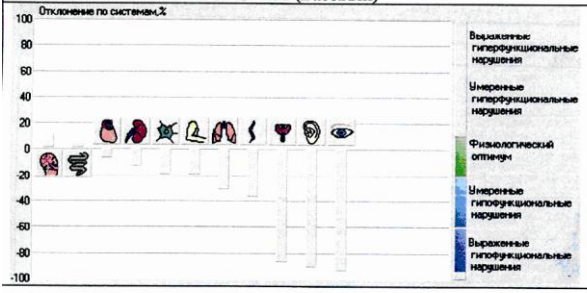


Топические | Висцеровский анализ

ЗОНЫ МИШЕНИ

[-54%] L4
[-54%] Правое легкое (C5-C7,Th1-Th5)
[-62%] Сердце (C1-C8,Th1-Th7)
[-65%] C3
[-65%] C4
[-65%] C5
[-65%] Th12

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



9.6% Кроветворения
3.2% Желудочно-кишечный тракт
-7.1% Сердечно-сосудистая
-13.2% Моче-половая
-19.6% Периферические нейро-сосудистые пучки
-19.6% Крупные суставы конечностей
-32.0% Бронхо-легочная / Молочные железы
-37.3% Позвоночник
-87.9% Эндокринная
-91.5% ЛОР-органы
-94.4% Органы зрения

НАПРАВЛЕНИЕ К СПЕЦИАЛИСТАМ

Диагностическое обследование

Офтальмолог
Отоларинголог
Эндокринолог

Профилактический осмотр

Невролог

Пульмонолог, Маммолог (хирург, онколог)

Степень эмоционального напряжения:

Невроз 4 - степень напряжения.

Потребление кислорода тканями

Снижено.

Общее состояние вегетативной нервной системы

Выраженная парасимпатикотония.

Потенциальные органы мишени

В области гайморовой пазухи правой
В области глаза левого и слезной железы
В области уха правого
В области шеи справа
В области глаза правого и слезной железы
В области лобной пазухи левой
В области лобной пазухи правой

Локальные изменения тонуса В.Н.С.

Повышенная активность в головной части вагуса

Локальные нарушения лимфодинамики

Умеренные нарушения лимфодинамики в зоне бронхо-пульмонального лимфатического ствола

Вероятность развития остеохондроза

Зоны: C1-C7, L5, S1, C3, C4, C5, L1

Тип распределения электропроводимости

Неравномерный

ЗАКЛЮЧЕНИЕ ВРАЧА

Гипоф-я щит ж-зы.

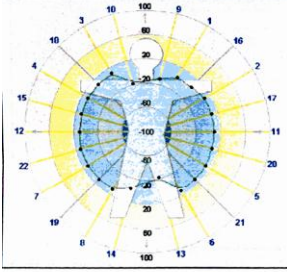
КАРТА ПОСЕЩЕНИЯ

посещение:	24.01.2008 15:55
тип измерений	адаптивный
рост:	156
вес:	59

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)

Смешанный тип.

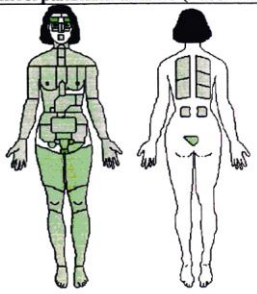
КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



ТИП БИОСИММЕТРИИ (Базовый)

Симметрично

Интегральный анализ (Базовый)

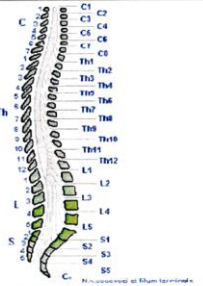


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

Список пуст

Скелетно-топический анализ (Базовый)

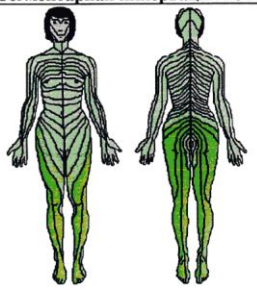


Топические | Скелетно-топический анализ

ЗОНЫ МИШЕНИ

Список пуст

Сегментарная иннервация кожи (Базовый)

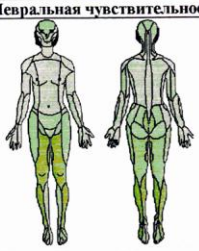


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

Список пуст

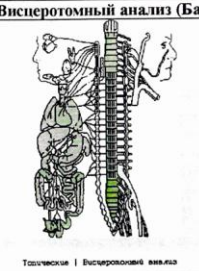
Невральная чувствительность (Базовый)



ЗОНЫ МИШЕНИ

Список пуст

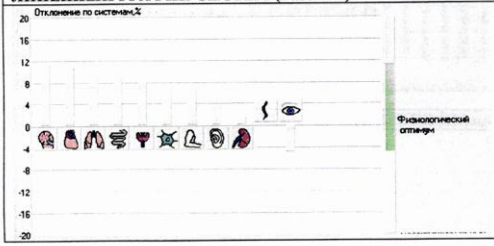
Висцеротомный анализ (Базовый)



ЗОНЫ МИШЕНИ

Список пуст

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)




```
11.3%  Кроветворения
10.6%  Сердечно-сосудистая
10.3%  Бронхо-легочная / Молочные железы
9.0%  Желудочно-кишечный тракт
8.2%  Эндокринная
6.5%  Периферические нейро-сосудистые пучки
6.5%  Крупные суставы конечностей
3.6%  ЛОР-органы
1.3%  Моче-половая
-0.2%  Позвоночник
-4.9%  Органы зрения
```

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Степень эмоционального напряжения:
Внимание, мобилизация, активность 1 - степень напряжения.

Потребление кислорода тканями
Снижено.

Общее состояние вегетативной нервной системы
Эутония тонуса ВНС.

Потенциальные органы мишени
Список пуст

Локальные изменения тонуса В.Н.С.
Умеренная активность в тазовой части вагуса

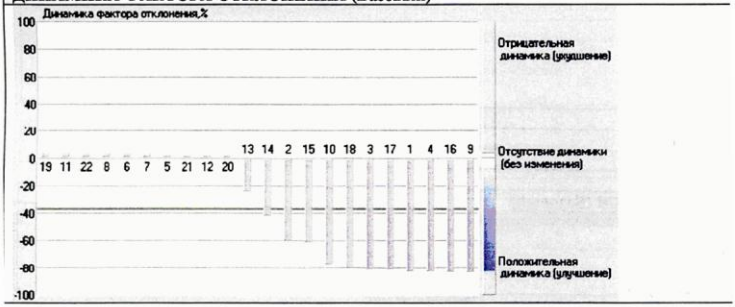
Локальные нарушения лимфодинамики - после анестезии
Умеренные нарушения лимфодинамики в зоне левой части яремного лимфатического ствола и ретротонзиллярного пространства

Вероятность развития остеохондроза
Зоны: Список пуст

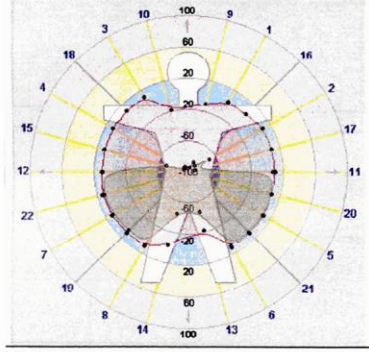
КАРТА ПОСЕЩЕНИЯ

посещение:	04.10.2007 17:07
посещение:	24.01.2008 15:55

ДИНАМИКА ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



ДИНАМИКА КРУГОВОГО ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



ПАЛИТРА

Описание цветовой шкалы:

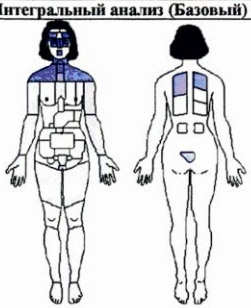
(динамика)

Отрицательная динамика (ухудшение)

Отсутствие динамики (без изменения)

Положительная динамика (улучшение)

Интегральный анализ (Базовый)

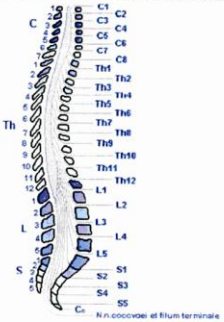


Органные | Комплексный анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-84%] В области шеи справа
[-84%] В области основной пазухи и носа слева
[-85%] В области уха левого
[-85%] В области гайморовой пазухи левой
[-85%] В области лобной пазухи левой
[-89%] В области глаза левого и слезной железы
[-90%] В области глаза правого и слезной железы

Скелетно-топический анализ (Базовый)

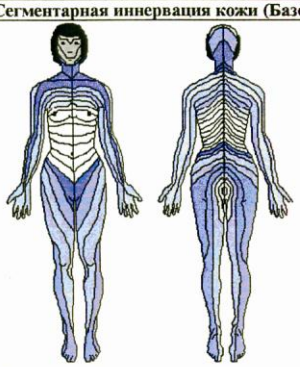


Топические | Скелетно-топический анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-54%] L1-L5
[-57%] S1
[-77%] C3- C5
[-77%] L1

Сегментарная иннервация кожи (Базовый)

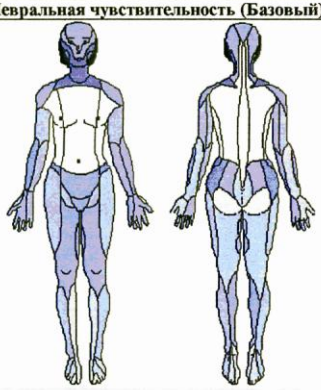


Топические | Сегментарная иннервация кожи

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-78%] C4 зона справа
[-78%] C5 зона справа
[-78%] C3 зона слева
[-78%] C4 зона слева
[-78%] C5 зона слева
[-78%] C3 зона справа
[-80%] L1 зона справа

Невральная чувствительность (Базовый)



Топические | Невральная чувствительность

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-53%] Верхний боковой кожный нерв плеча
[-62%] Боковая кожная ветвь подвздошно-подчревного нерва
[-62%] Боковая ветвь подвздошно-подчревнрго нерва
[-78%] Нижнечелюстной нерв
[-78%] Большой ушной нерв
[-78%] Поперечный нерв шеи
[-78%] Надключичные нервы

Jafarova Gulnara, 38 years old

She came on 7 March 2007 with complaints about absense of olfaction during 2 years, continuous stuffiness in nose, frequent suppurative angina; she had complications after right otitis in the childhood: hearing injury, neuralgia of facial and auricular nerve, continuous headaches, tiredness; chronic colitis since childhood as a result of artificial feeding. Constipations. Sickness in the mornings. Weakness and pains in the back and lumbar spine. During walking up the stairsthe legs weaken.

She took "AZEOMED" regularly during half of the year. Now she also takes it, but not daily. For 9 months she lost 7 kg of weight, in spite of the fact that she didn't worry about her excess weight. Now her weight is 69kg at the height of 161cm. In the first month she took 1tab 2 times a day after a meal – she lost 2kg of her weight. Beginning from the second month she took "AZEOMED" once a day. 2 months after intake the olfaction and gustatory sensation were restored.

Stool was normalized. Hemorrhoids didn't disturb her. 6 months later the hemorrhoidal bolus disappeared. Nasal breathing was improved. There isn't dyspnea during workload. The weight was reduced for 3 more kg. The memory was improved.

Headaches, the heaviness in head, aches in pancreas were stopped. There wasn't angina.

Function of kidneys was normalized. The sphincter of urinary bladder. The spinal column and legs didn't disturb. There isn't chronic lassitude. The allergy to dust, citrus plants and Vitamin C passed (before she had appearance of skin and hands red rash).

During 2007 she had diagnostic study on AMSAT in order to control the dynamics of the organism condition at the intake of "AZEOMED" 4 times.

The dynamics is positive, the mean value of improving the general well-being is 20%, the maximal is 50%.

The data of computer study are given further on 10 pages.

15.01.08.

Hismatova E.A.

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент:	Джафарова Гюльнара
пол:	женский
дата рождения:	27.04.1969

АНАМНЕЗ (заметки)

Нет обоняния больше 2х лет;
с её слов-лобные пазухи недоразвиты.
Заложенность носа,но воздух проходит.
в детстве правосторонний отит
Хрон колит с детства
в результате искуственного вскармливания.

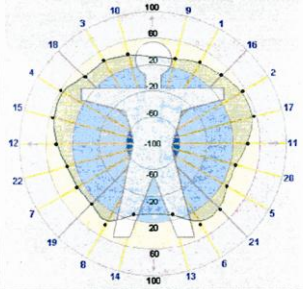
КАРТА ПОСЕЩЕНИЯ

посещение:	07.03.2007 16:03
тип измерений	адаптивный
рост:	161
вес:	66

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)

Умеренные гиперфункциональные нарушения.

КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



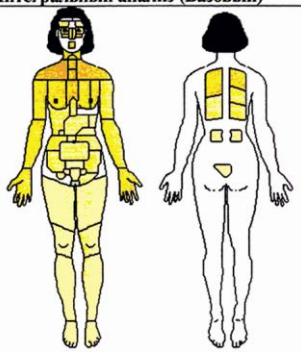
ТИП БИОСИММЕТРИИ (Базовый)

Симметрично

ПАЛИТРА

Описание цветовой шкалы:

Интегральный анализ (Базовый)

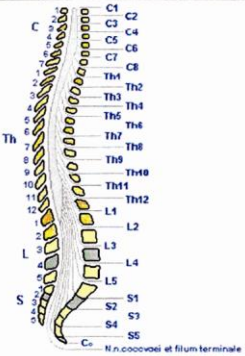


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

```
[  56%] В области диафрагмального нерва справа
[  54%] В области диафрагмального нерва слева
[  53%] В области трахеи
[  52%] В области верхней доли правого легкого
[  52%] В области гортани
[  51%] В области шеи справа
[  51%] В области верхней доли левого легкого
```

Скелетно-топический анализ (Базовый)

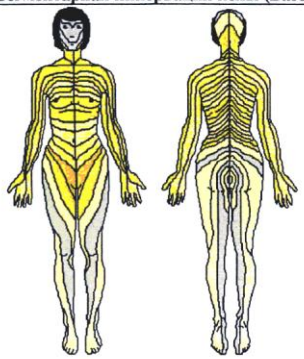


Топические | Скелетно-топический анализ

ЗОНЫ МИШЕНИ

```
[  51%] L1
[  50%] C3
[  50%] C4
[  50%] C5
[  49%] Th2
[  44%] Th6
[  44%] Th7
```

Сегментарная иннервация кожи (Базовый)

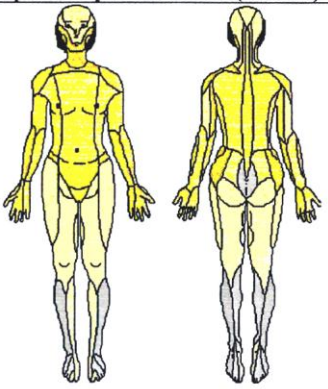


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[52%] L1 зона справа
[52%] L1 зона слева
[51%] C4 зона справа
[51%] C5 зона справа
[51%] C3 зона справа
[51%] C3 зона слева
[51%] C4 зона слева

Невральная чувствительность (Базовый)

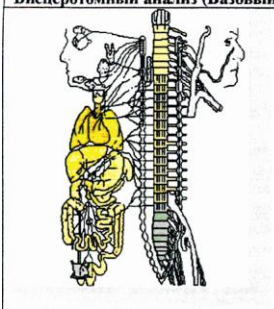


Топические | Невральная чувствительность

ЗОНЫ МИШЕНИ

[51%] Нижнечелюстной нерв
[51%] Большой ушной нерв
[51%] Поперечный нерв шеи
[51%] Надключичные нервы
[48%] Верхний боковой кожный нерв плеча
[48%] Латеральный кожный нерв предплечья
[48%] Боковая кожная ветвь подвздошно-подчревного нерва

Висцеротомный анализ (Базовый)

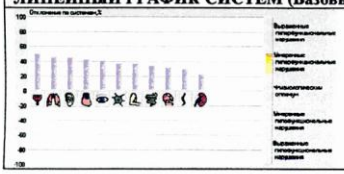


Тазические | Висцеровисцеральный анализ

ЗОНЫ МИШЕНИ

[51%] Трахея, гортань (C6-C8)
[48%] Сердце (C1-C8,Th1-Th7)
[46%] Правое легкое (C5-C7,Th1-Th5)
[42%] Левое легкое (C5-C7,Th1-Th9)

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



49.9% Эндокринная
45.8% Бронхо-легочная / Молочные железы
45.1% ЛОР-органы
42.0% Сердечно-сосудистая
41.0% Органы зрения
36.6% Периферические нейро-сосудистые пучки
36.6% Крупные суставы конечностей
33.8% Желудочно-кишечный тракт
31.8% Кроветворения
29.3% Позвоночник
23.5% Моче-половая

НАПРАВЛЕНИЕ К СПЕЦИАЛИСТАМ

Профилактический осмотр

Эндокринолог
Пульмонолог, Маммолог (хирург, онколог)
Отоларинголог
Кардиолог
Офтальмолог
Сосудистый хирург, невролог
Артролог (ревматолог)
Гастроэнтеролог, Гепатолог
Гематолог

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Степень эмоционального напряжения:

Стеническая положительная эмоция 2 - степень напряжения.

Потребление кислорода тканями - Снижено.

Общее состояние вегетативной нервной системы
Умеренная симпатикотония.

Потенциальные органы мишени
В области диафрагмального нерва справа
В области диафрагмального нерва слева
В области трахеи
В области верхней доли правого легкого
В области гортани
В области шеи справа
В области верхней доли левого легкого

Локальные изменения тонуса В.Н.С.
Повышенная активность в правой шейной части симпатикуса

Локальные нарушения лимфодинамики
Выраженные нарушения лимфодинамики в зоне бронхомедиастинального лимфатического ствола и подключичного лимфатического ствола

Вероятность развития остеохондроза
Зоны: L1, C3, C4, C5, Th2, Th6, Th7

ЗАКЛЮЧЕНИЕ ВРАЧА

Вертебробазилярный синдром шейного отдела позвоночника:
C2;C3;C4;C5
Грудной радикулит слева - Th2;Пояснично-крестцовый радикулит,
сдавление корешков в зоне L1 - слева; L4; S2;
Наличие зоны патологической активности в правой половине головы.
Воспаление правой гайморовой пазухи, правой пазухи носа,
правого ушного и лицевого нерва.
Воспалительные проявления в области глотки, гортани, трахеи, бронхов,
правого легкого(?)
Гиперфункциональные изменения в области печени, желчного пузыря,
поджелудочной железы, а также всех органов ЖКТ(прямой кишки!).
Левосторонний пиелонефрит.
На "дрожании" патологическая активность в области гениталий.
Рекомендовано:
1. Рентгенография легких.
2."Азеомед" по 1т 2 раза в день после еды - 30 дней
3. Полимитамины с цинком.
4. Контроль через месяц.

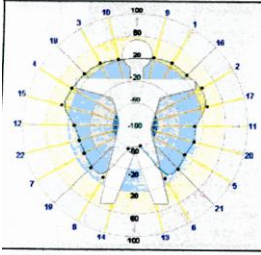
Диагностика через 6 месяцев, 10 дней

КАРТА ПОСЕЩЕНИЯ 17.09.2007 17:11

ЖАЛОБЫ (заметки)
Отмечает улучшение общего состояния. Похудела на 3 кг. Жалоб нет

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)
Смешанный тип с преобладанием гиперфункциональных нарушений.

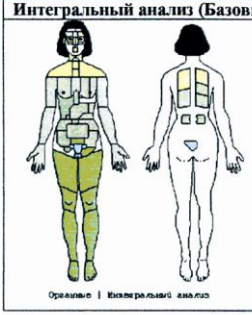
КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



ТИП БИОСИММЕТРИИ (Базовый)

Умеренная краниальная

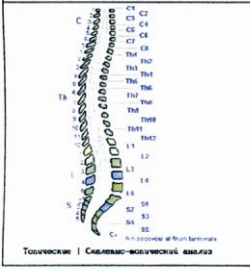
Интегральный анализ (Базовый)



ЗОНЫ МИШЕНИ

[-46%] В области наружных половых органов

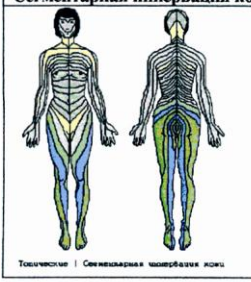
Скелетно-топический анализ (Базовый)



ЗОНЫ МИШЕНИ

[-41%] Co
[-51%] L4
[-51%] S2

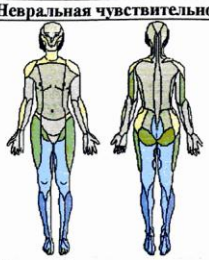
Сегментарная иннервация кожи (Базовый)



ЗОНЫ МИШЕНИ

[-52%] L4 зона справа
[-52%] S2 зона справа

Невральная чувствительность (Базовый)

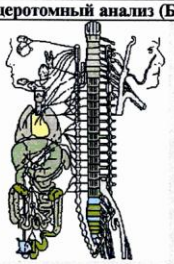


Топические | Невральная чувствительность

ЗОНЫ МИШЕНИ

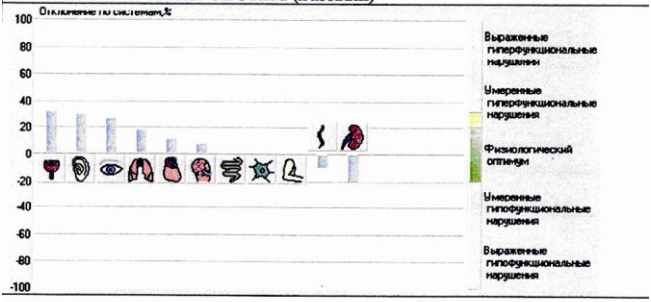
[-52%] Латеральный кожный нерв икры

Висцеротомный анализ (Базовый)



Топические | Висцеротомный анализ

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



31.7% Эндокринная
29.3% ЛОР-органы
27.0% Органы зрения
18.1% Бронхо-легочная / Молочные железы
11.2% Сердечно-сосудистая
7.5% Кроветворения
1.0% Желудочно-кишечный тракт
0.4% Периферические нейро-сосудистые пучки
0.4% Крупные суставы конечностей
-9.6% Позвоночник
-20.3% Моче-половая

НАПРАВЛЕНИЕ К СПЕЦИАЛИСТАМ

Профилактический осмотр

Эндокринолог

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Степень эмоционального напряжения:

Стеническая положительная эмоция 2 - степень напряжения.

Потребление кислорода тканями

Снижено.

Общее состояние вегетативной нервной системы

Умеренная симпатикотония.

Потенциальные органы мишени

В области наружных половых органов

Локальные изменения тонуса В.Н.С.

Повышенная активность в тазовой части вагуса

Локальные нарушения лимфодинамики

Умеренные нарушения лимфодинамики в зоне бронхо-пульмонального лимфатического ствола

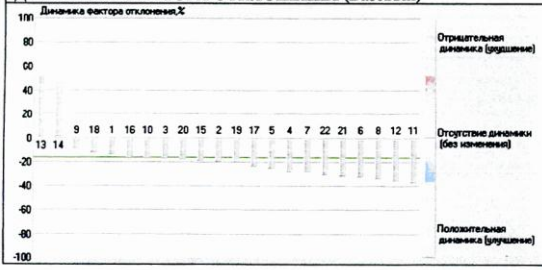
Вероятность развития остеохондроза

Зоны: Co, L4, S2

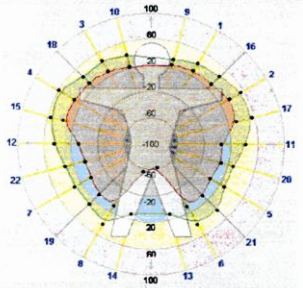
КАРТА ПОСЕЩЕНИЯ

посещение:	07.03.2007	16:03	17.09.2007	17:11
вес:	66		61	

ДИНАМИКА ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



ДИНАМИКА КРУГОВОГО ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



ПАЛИТРА

Описание цветовой шкалы:

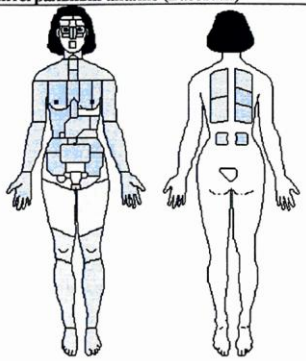
(динамика)

Отрицательная динамика (ухудшение)

Отсутствие динамики (без изменения)

Положительная динамика (улучшение)

Интегральный анализ (Базовый)

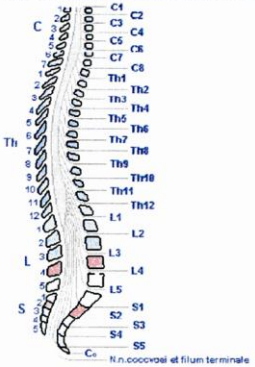


Органные | Интегральный анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[44%] В области наружных половых органов

Скелетно-топический анализ (Базовый)



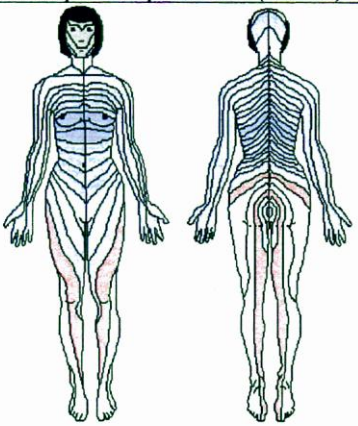
Топические | Скелетно-топический анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[49%] L4

[49%] S2

Сегментарная иннервация кожи (Базовый)

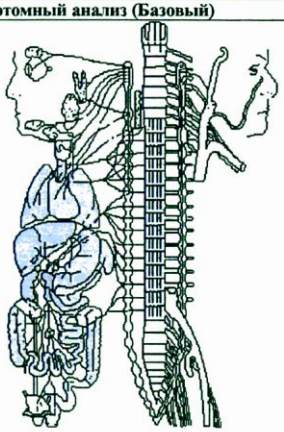


Топические | Сегментарная иннервация кожи

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[50%] L4 зона справа
[50%] S2 зона справа
[50%] L4 зона слева
[50%] S2 зона слева

Висцеротомный анализ (Базовый)



Топические | Висцеротомный анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

Список пуст

Abdullayeva Zahra, 48 years old.

She came with complaints about weakening of muscular tonus in perineum. She was operated on about it 2 times. She has 2 children. Menstruation stopped a year ago. She mentions the rapid fatigability, irritability, hyperhidrosis, headache, constipation, hemorrhoids.

She took "AZEOMED" during forty days 1tab 2 times a day after a meal and came to the control examination.

During that time she lost 3 kg of her weight, the feeling and mood was good, the stool was normalized. The workability was increased, she became quieter, and she became calmer. And the main thing is that the muscles of pelvic floor and the hemorrhoids didn't distrub.

20.01.08

Hismatova E.A.

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

КАРТА ПАЦИЕНТА

пациент:	Абдуллаева Захра
пол:	женский
дата рождения:	27.07.1958

АНАМНЕЗ (заметки)

опущение матки, оперирована 2 раза
2 детей, менс нет 1 год

КАРТА ПОСЕЩЕНИЯ

посещение:	13.02.2007 11:26
тип измерений	адаптивный
рост:	160
вес:	64
профессия:	м\с

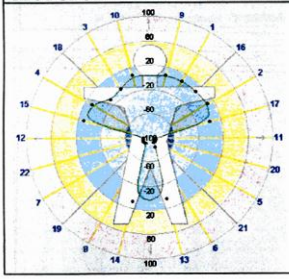
ЖАЛОБЫ (заметки)

Слабость, раздражительность, головная боль
А\Д 108\69 п-с 78

ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)

Смешанный тип с преобладанием гипофункциональных нарушений.

КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)

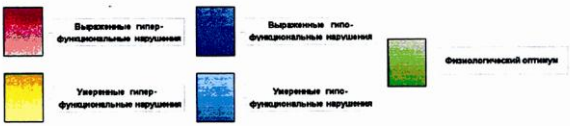


ТИП БИОСИММЕТРИИ (Базовый)

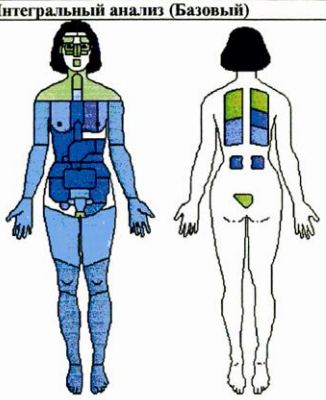
Умеренная краниальная

ПАЛИТРА

Описание цветовой шкалы:



Интегральный анализ (Базовый)

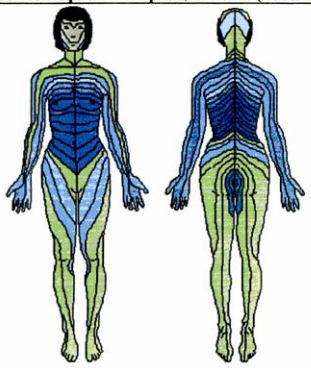


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

[-91%] В области тонкого кишечника
[-91%] В области печени
[-91%] В области желудка
[-91%] В области почки левой и мочеточника
[-91%] В области желчного пузыря
[-91%] В области пищевода
[-92%] В области средней доли правого легкого

Сегментарная иннервация кожи (Базовый)

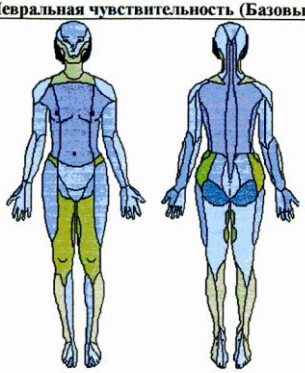


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

[-91%] Th11 зона слева
[-91%] Th6 зона справа
[-91%] Th7 зона справа
[-91%] Th8 зона справа
[-91%] Th6 зона слева
[-91%] Th7 зона слева
[-91%] Th8 зона слева

Невральная чувствительность (Базовый)

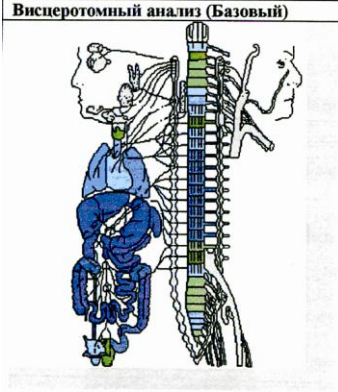


Топические | Невральная чувствительность

ЗОНЫ МИШЕНИ

[-55%] Лучевой нерв
[-58%] Нижние нервы ягодиц
[-58%] Глубокий малоберцовый нерв
[-69%] Медиальные кожные ветви спинномозговых нервов
[-69%] Боковые кожные ветви спинных нервов
[-72%] Передние медиальные кожные ветви грудных нервов
[-72%] Боковые кожные ветви грудных нервов

Висцеротомный анализ (Базовый)

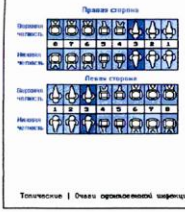


Топические | Висцеротомный анализ

ЗОНЫ МИШЕНИ

[-90%] Нисходящий отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)
[-91%] Восходящий отдел толстой кишки (Th2,Th3,Th9,Th10)
[-91%] Желудок (C4-C8,Th6-Th12,L1,L2,L4)
[-91%] Тонкий кишечник (C3-C8,Th7,Th8,Th12,L1)
[-91%] Печень (Th5-Th12)
[-91%] Почки (Th12,L1,L2)
[-91%] Желчный пузырь (Th5-Th12)

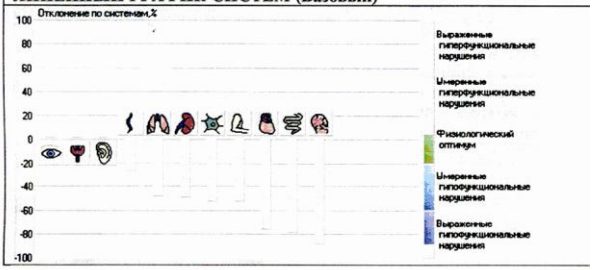
Очаги одонтогенной инфекции (Базовый)



ЗОНЫ МИШЕНИ

```
[ -47%] 8-й (C7,Th1-Th3)
[ -53%] 8-й (C7,Th1,Th5,Th6,S1,S2)
[ -53%] 8-й (C7,Th1,Th5,Th6,S1,S2)
[ -91%] 3-й (Th9,Th10)
[ -91%] 3-й (Th9,Th10)
[ -91%] 3-й (Th9,Th10)
[ -91%] 3-й (Th9,Th10)
```

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)



ЗНАЧЕНИЯ СИСТЕМ (Базовый)

```
3.3%  Органы зрения
2.2%  Эндокринная
1.4%  ЛОР-органы
-26.7%  Позвоночник
-49.5%  Бронхо-легочная / Молочные железы
-50.2%  Моче-половая
-53.2%  Периферические нейро-сосудистые пучки
-53.2%  Крупные суставы конечностей
-77.2%  Сердечно-сосудистая
-80.0%  Желудочно-кишечный тракт
-89.4%  Кроветворения
```

НАПРАВЛЕНИЕ К СПЕЦИАЛИСТАМ

Диагностическое обследование

```
Гематолог
Гастроэнтеролог, Гепатолог
Кардиолог
```

Профилактический осмотр

```
Сосудистый хирург, невролог
Артролог (ревматолог)
Уролог, Гинеколог
Пульмонолог, Маммолог (хирург, онколог)
```

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ

Степень эмоционального напряжения:
Внимание, мобилизация, активность 1 - степень напряжения.

Потребление кислорода тканями
Повышено.

Общее состояние вегетативной нервной системы
Эутония тонуса ВНС.

Потенциальные органы мишени
В области тонкого кишечника
В области печени
В области желудка
В области почки левой и мочеточника
В области желчного пузыря
В области пищевода
В области средней доли правого легкого

Локальные изменения тонуса В.Н.С.
Повышенная активность в правой брюшной части вагуса

Локальные нарушения лимфодинамики
Умеренные нарушения лимфодинамики в зоне интерстициального лимфатического ствола и подвздошного сплетения

Функциональные блоки позвоночника
Зоны: Th9, Th10, Th11, Th12, Th6, Th7, Th8

Тип распределения электропроводимости
Неравномерный

КАРТА ПОСЕЩЕНИЯ

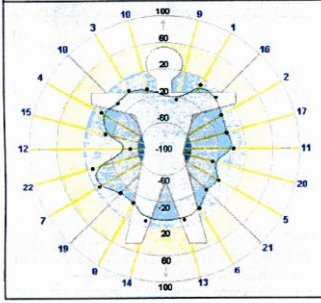
посещение:	06.03.2007 11:51
тип измерений	адаптивный
рост:	160
вес:	61

ЖАЛОБЫ (заметки)

Было отравление 22 февраля и простуда - вздутие живота,
отрыжка после еды
4 дня не принимала «Азеомед»
А\Д 107\61; п-с 71

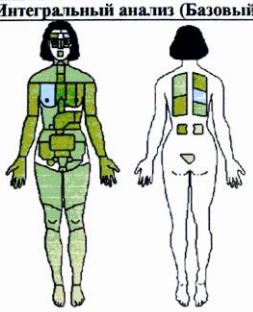
ТИП СОСТОЯНИЯ ОРГАНИЗМА (Базовый)
Смешанный тип.

КРУГОВОЙ ФАКТОР ОТКЛОНЕНИЯ (Базовый)



ТИП БИОСИММЕТРИИ (Базовый)
Симметрично

Интегральный анализ (Базовый)

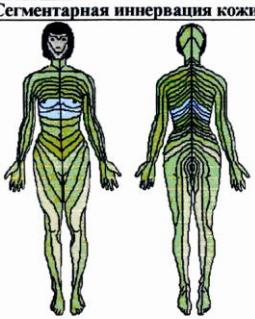


Органные | Интегральный анализ

ЗОНЫ МИШЕНИ

Список пуст

Сегментарная иннервация кожи (Базовый)

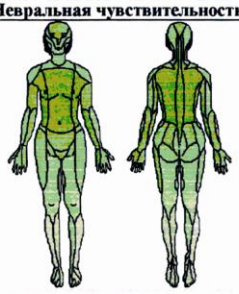


Топические | Сегментарная иннервация кожи

ЗОНЫ МИШЕНИ

Список пуст

Невральная чувствительность (Базовый)

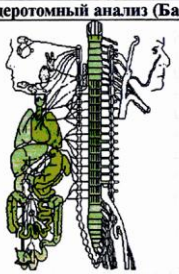


Топические | Невральная чувствительность

ЗОНЫ МИШЕНИ

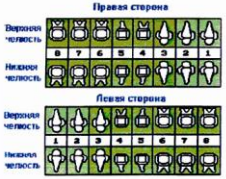
Список пуст

Висцеротомный анализ (Базовый)



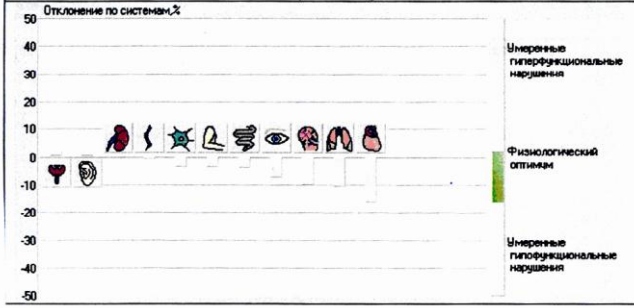
Топические | Висцеротомный анализ

Очаги одонтогенной инфекции (Базовый)



Топические | Очаги одонтогенной инфекции

ЛИНЕЙНЫЙ ГРАФИК СИСТЕМ (Базовый)




```
1.6%  Эндокринная
0.1%  ЛОР-органы
-0.1%  Моче-половая
-0.7%  Позвоночник
-3.4%  Периферические нейро-сосудистые пучки
-3.4%  Крупные суставы конечностей
-3.8%  Желудочно-кишечный тракт
-7.8%  Органы зрения
-10.2%  Кроветворения
-10.8%  Бронхо-легочная / Молочные железы
-16.5%  Сердечно-сосудистая
```

ОБЩАЯ ОЦЕНКА СОСТОЯНИЯ
Степень эмоционального напряжения:
Внимание, мобилизация, активность 1 - степень напряжения.
Потребление кислорода тканями
Снижено.
Общее состояние вегетативной нервной системы
Эутония тонуса ВНС.
Потенциальные органы мишени
Список пуст
Локальные изменения тонуса В.Н.С.
Умеренная активность в правой грудной части вагуса
Локальные нарушения лимфодинамики
Умеренные нарушения лимфодинамики в зоне поясничных лимфатических стволов, пахового и подвздошного сплетения
Функциональные блоки позвоночника
Зоны: Список пуст
Тип распределения электропроводимости
Неравномерный

Автоматизированная диагностическая система

"АМСАТ™ - КОВЕРТ™" v10

РОСС RU.ИМО2.В07070

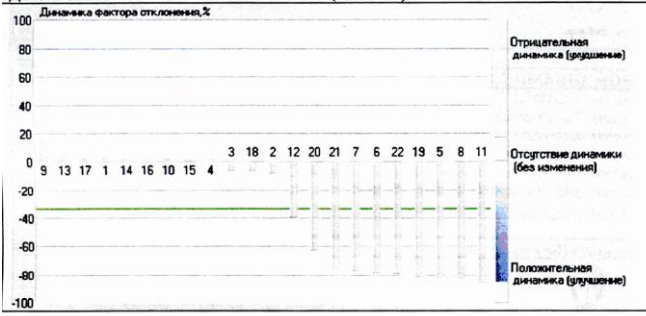
КАРТА ПАЦИЕНТА

пациент:	Абдуллаева Захра
пол:	женский
дата рождения:	27.07.1958

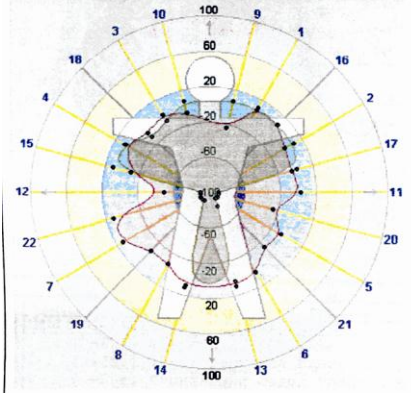
КАРТА ПОСЕЩЕНИЯ

посещение:	13.02.2007 11:26
	06.03.2007 11:51
тип измерений	адаптивный
рост:	160
вес:	64
профессия:	м\с

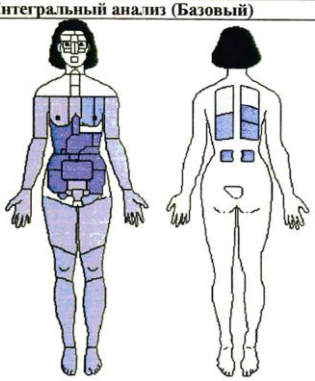
ДИНАМИКА ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



ДИНАМИКА КРУГОВОГО ФАКТОРА ОТКЛОНЕНИЯ (Базовый)



Интегральный анализ (Базовый)

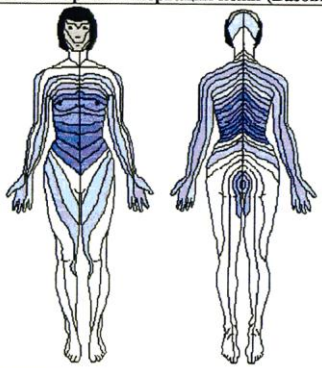


Органные | Интегральный анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-82%] В области желудка
[-84%] В области 12-перстной кишки
[-85%] В области восходящего отдела толстого кишечника
[-87%] В области нисходящего отдела толстого кишечника
[-87%] В области печени
[-89%] В области поперечно-ободочной кишки
[-90%] В области желчного пузыря

Сегментарная иннервация кожи (Базовый)

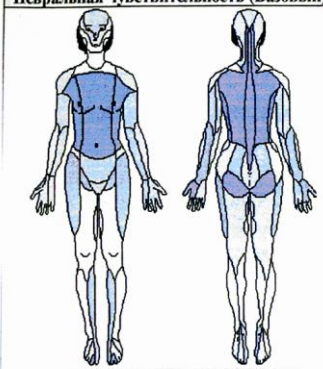


Топические | Сегментарная иннервация кожи

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-81%] Th11 зона справа
[-82%] Th5 зона слева
[-82%] Th5 зона справа
[-86%] Th9 зона слева
[-86%] Th10 зона слева
[-88%] Th9 зона справа
[-88%] Th10 зона справа

Невральная чувствительность (Базовый)

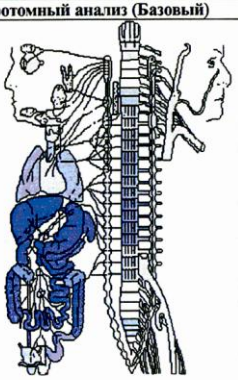


Топические | Невральная чувствительность

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-48%] Лучевой нерв
[-57%] Нижние нервы ягодиц
[-57%] Глубокий малоберцовый нерв
[-59%] Медиальные кожные ветви спинномозговых нервов
[-59%] Боковые кожные ветви спинных нервов
[-61%] Передние медиальные кожные ветви грудных нервов
[-61%] Боковые кожные ветви грудных нервов

Висцеротомный анализ (Базовый)



Топические | Висцеровокный анализ

ЗОНЫ С МАКСИМАЛЬНОЙ ДИНАМИКОЙ

[-82%] Желудок (C4-C8,Th6-Th12,L1,L2,L4)
[-85%] 12-ти перстная кишка (C3,C5,C7,Th2,Th4,Th7-Th9,Th11,L3,L5)
[-86%] Восходящий отдел толстой кишки (Th2,Th3,Th9,Th10)
[-86%] Почки (Th12,L1,L2)
[-87%] Нисходящий отдел толстой кишки (C4-C6,Th2,Th4,Th8-Th12,L1-L5,S1-S5)
[-90%] Желчный пузырь (Th5-Th12)
[-91%] Печень (Th5-Th12)

On the basis of the examination by means of computer medical system of analysis of therapy (AMSAT) we can conclude:

1. There aren't contraindications for taking «AZEOMED» tablets.

2. Taking of «AZEOMED» tablets in a dose of 1 tablet 2 times a day and 2 tablets 2 times a day brings to:

a) improving of the functional state of all organs and systems of the organism.

It is the most significant about the spine, gastrointestinal tract, liver, spleen, heart and vascular, broncho-pulmonary system.

b) normalizing the emotional status;

c) beneficially influencing on the tone of the ANS,

d) increasing the adaptive capacities of the organism.

3. The optimal duration of admission should be:

No less than 4 weeks at a dose of 2 tablets 2 times a day and not less than 6 weeks and at a dose of 1 tablet 2 times a day.

4. The duration of taking for people with severe allergies no less than 3 months of fractionally: 1 tablet for 10 days, interval – 1 week.

Hismatova E.A.

§ 3. USE OF PREPARATION «AZEOMED» IN THE COMPLEX TREATMENT OF PULMONARY TUBERCULOSIS

F.F. Agayev, A.U. Musayev, A.V. Alhasova, I.A. Mamedova, R.R. Aliyeva

Institute of Lung Diseases, 2007, Baku

The aim of research is:

To study the efficiency of the ppreparation «AZEOMED» on the basis of natural zeolite in the complex treatment of destructive pulmonary tuberculosis.

Tasks of the research:

– To plan the antibacterial therapy in the treatment of destructive pulmonary tuberculosis in aggregate with the natural zeolite – «AZEOMED».

– To set the minimum time of abacilling.

– To study the possibilities of shortening the duration of treatment of destructive pulmonary tuberculosis with the use of natural zeolite «AZEOMED».

Scientific novelty:

For the first time was determined the effectiveness of antibacterial therapy in combination with natural zeolite «AZEOMED» in patients with destructive forms of pulmonary tuberculosis.

Date and place of the work:

Dynamic observation was carried out in patients with the firstly revealed destructive pulmonary tuberculosis, who

weren't treated with anti-TB treatment. Results of complex treatment, including natural zeolite «AZEOMED» were studied two months after starting the treatment. The work was done in the therapeutic department of SRI of Lung Diseases.

Dosage and method of application:

The average duration of taking the «AZEOMED» was four weeks with a dosage of 1 tablet (500 mg) twice daily on a background of standard antituberculosis therapy. The drug was taken 15-20 minutes before eating. Materials of the research:

Patients with the revealed destructive pulmonary tuberculosis for the first time in their lives.

The main group:

20 patients who received standard chemotherapy and «AZEOMED».

The control group:

17 patients who received only standard chemotherapy.

Methods of researches:

– Clinical data;

– Ray methods of researches;

– microscopic researches of pathological material (sputum)

– research of indicators of peripheral blood;

– Immunological study peripheral blood.

Regression of symptoms of intoxication two months after treatment:

Group of patients

Main group: 87%

Control group: 80%

The increase in body weight after two months of treatment:

Group of patients

Main group: 76%

Control group: 68%

Results of clinical researches:

Normalization of auscultatory data two months later

Main group: 85%

Control group: 70%

Results of ray research in the dynamics:

The data of X-ray examination			
Groups of patients	***Closing of cavities of decay***	***Significant decrease of infiltrative changes***	***Absence of the dynamics***
Main group	3 (15 %) patients	16 (80 %) patients	1 (5 %) patients
Control group	1 (5.9%) patients	13 (76.5 %) patients	3 (17.6 %) patients

The results of microscopic examination of sputum in dynamics:

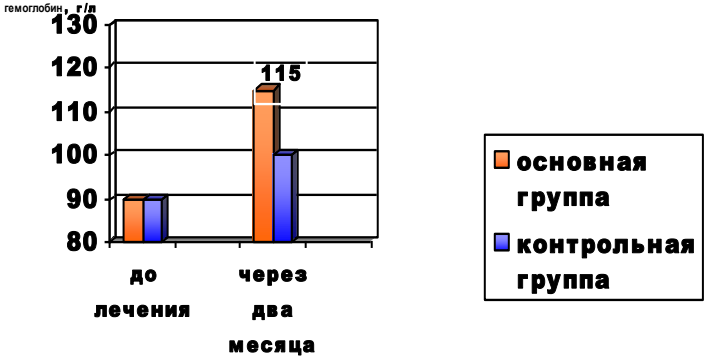
Abacilling

Main group 16 (8 main group 0%) patients

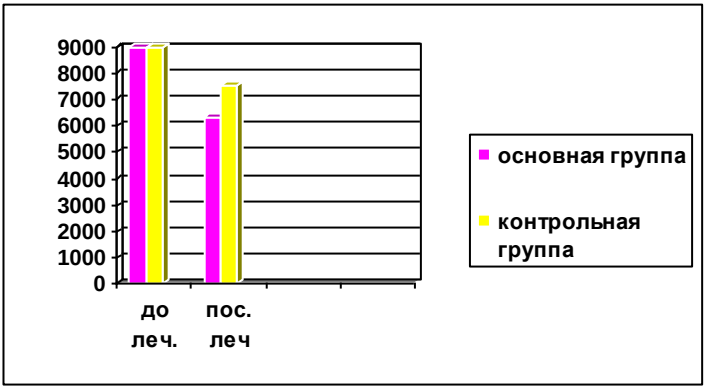
Control group 10 (58.8%) patients

The results of examination of peripheral blood.

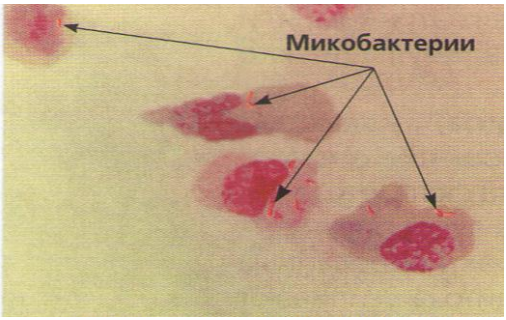
Indicators of hemoglobin in dynamics.



Results of examination of peripheral blood. Number of leukocytes in dynamics.



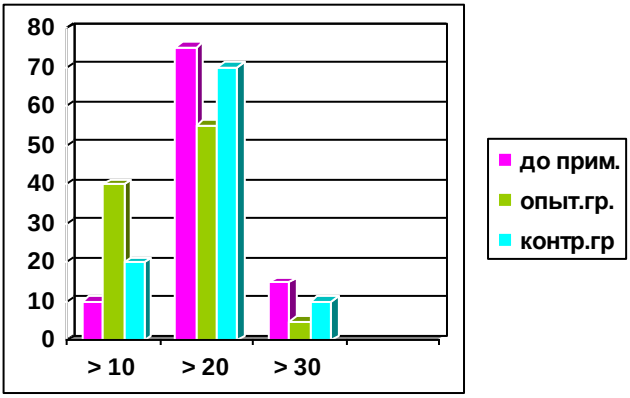
Studying the dynamics of immunological parameters with the use of preparation «AZEOMED» in patients with destructive pulmonary tuberculosis



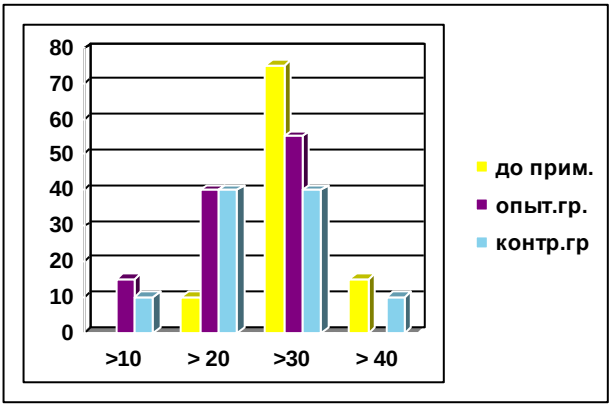
– Cellular immunity
– Humoral immunity
– Nonspecific factors of protection

Dynamics of immunological indices using the preparation «AZEOMED»

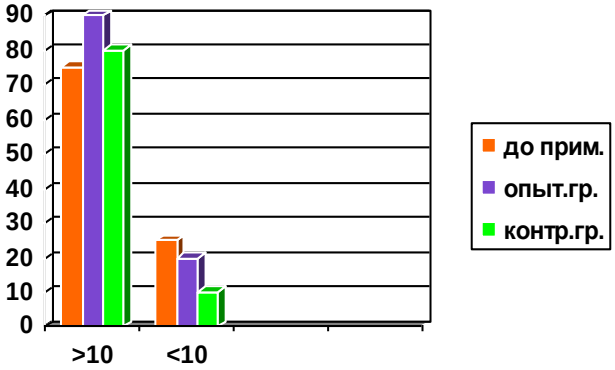
Nonspecific factors of protection
(NBT – test spontaneous)



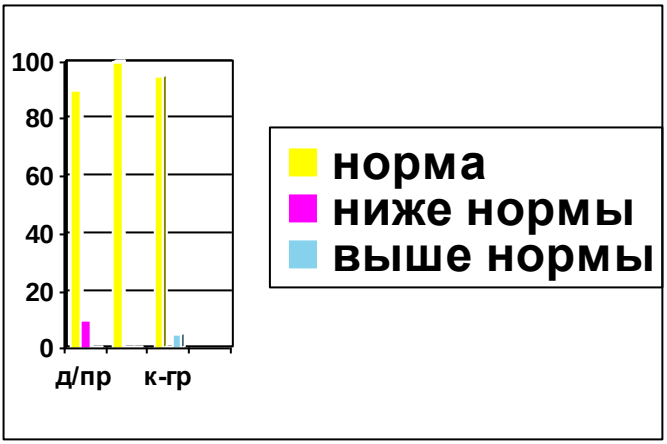
Nonspecific factors of protection
(NBT – test stimulated with PPD)



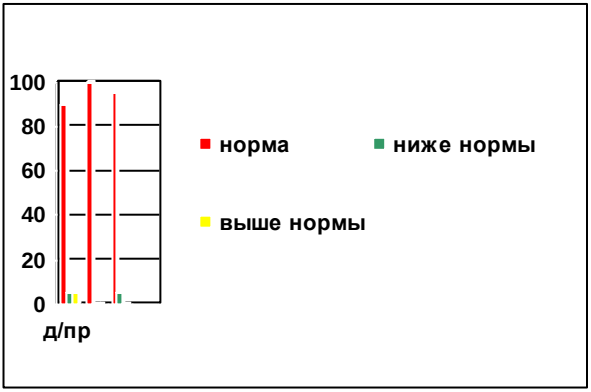
Nonspecific factors of protection (NBT – test)
Availability of adequate stimulation on PPD



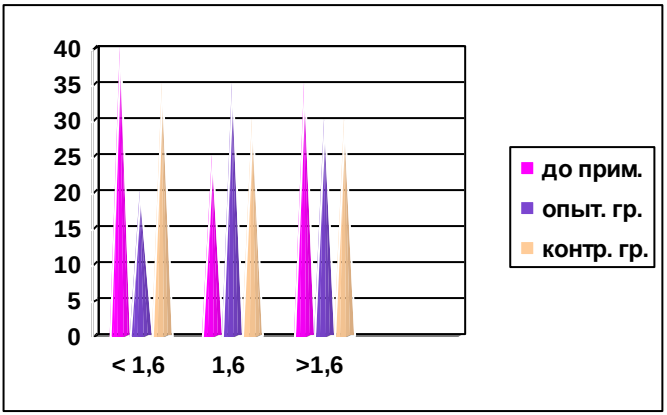
Cellular immunity Subpopulation of T-helpers.



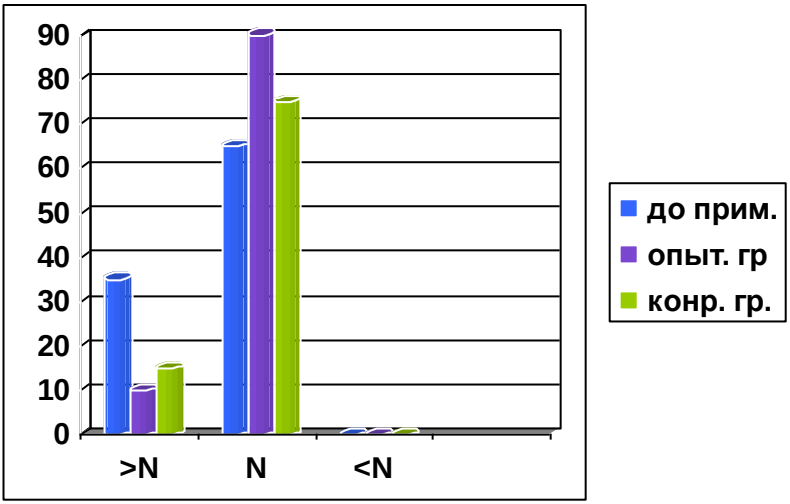
Cellular immunity Subpopulation of T-suppressors.



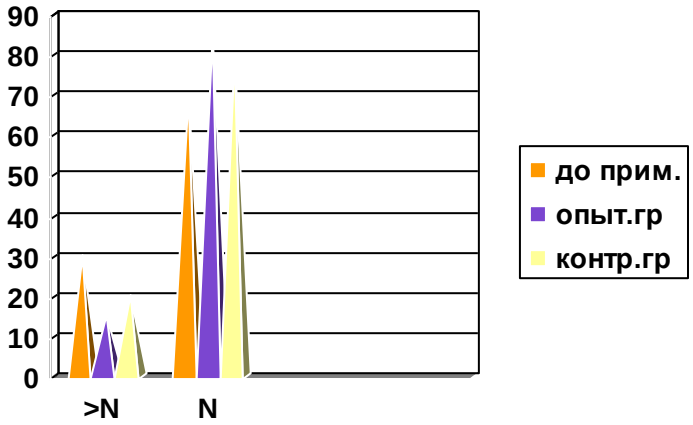
Cellular immunity IRI (T-h/T-s)



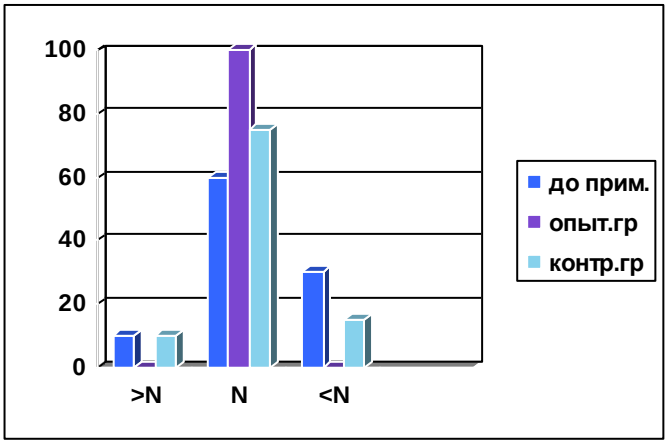
Humoral immunity. (Ig A)



Humoral immunity. (Ig M)



Humoral immunity. (Ig G)



§4. MEDICAL ASPECTS ON THE PRACTICAL APPLICATION OF BIOLOGICALLY ACTIVE MINERAL COMPLEX "AZEOMED"

H.I. Ibadova

International Scientific-Technical Complex «INTERGEO-TETHYS»

Technical revolution that is rapidly gaining paces during last two centuries has resulted in that we have practically ceased to take ecologically clean food, to breathe clean air, to bathe and drink clean water, to wear the underwear and clothes without synthetic additives, live in the house meeting the environmental requirements.We are surrounded by constant noise, magnetic waves: all are negative consequences of high technologies.As a result of it – oncological diseases, viral, cardiovascular pathologies, diseases of liver and gastro-intestinal tract, metabolic pathologies, diabetes mellitus are rapidly increasing. Patients without distinction in age have complains for: increased weakness, fatigue, headache, drowsiness, or insomnia, sluggishness, weakening of weakness, attention, excess weight.The diseaness incidence is increasing in almost all nosologies and parameters.

The abundance of chemicals on the market, their unsystematic prescription, availability has brought to free self-healing, and as a consequence to the violation of that precarious state of health, which has become one of the reasons of chronization of pathologies at an early age.

A man, his organism, as it is known, consists of water and microelements, almost whole periodic table – is the driving

principle of all his creatures. And if from its composition falls one or another part, namely, some element, then takes place the failure, one after another, leading to a particular disease.

"AZEOMED", being a natural mineral, has in its structure over 70 macro-and micro-elements and their compounds.Its amazing crystal lattice structure, consisting of tetrahedra, perfectly manifests itself in the organism: removing from the body the toxic substances, heavy metals and their compounds, it replaces them with the necessary micro-and macroelements. In this way the organism is able to restore its homeostasis and metabolism. Thus, the organism as a whole, or especially vulnerable organs – liver, brain, endocrine organs are protected from harmful influences and reinforce its resistance.

There is a saying – "a man in old age crumbles like sand." Isn't it an argument for a broad application of "AZEOMED" for medical purposes? Having scientific researches, carrying out in this area by scientists of many countries including Azerbaijan, the presence of micro-and macroelements, unusual ion-exchange and sorption properties that allow to use it in medicine.

In my practice from 2004 to 2009 inclusive I recommended to take the complex of "AZEOMED" to more than 500 people. These were people: absolutely healthy, sportsmen, pregnant women, old people, patients with different health conditions, diseases, nosologies, age criteria. The preparations have been used for external using in the form of powder and application and taking inside – tablets. Knowing that there is no embryotoxic, gonadotoxic, mutagenic action, I prescribed it

to pregnant women from first trimester, it is 4-8 weeks, in the second trimester,

20-24 weeks and in the third trimester, 32-36 weeks. These women did not have toxicity, the pregnancy was without complications. Blood and urine tests were without pathology. At the same time they had treatment for prophylaxis of anemia and vitamin therapy. Only two of the eighteen ones had flu, benign. The pregnancy ended with physiological childbirth; children are healthy, injuries and their consequences haven't been noted.

Mostly, young children are vulnerable to parasitic diseases, which as a rule are accompanied by loss of silicon, the linking informational element. Therefore, in the treatment program of parasitic diseases and their prevention I included "AZEOMED" in age dosages: from 1 to 3 year-old – 1 / 2 tab. 2 times a day, from 3 to 5 year-old 1 / 2tab 3 times a day during a meal, from 5 year-old and older: 1 tablet 2-3 times daily during a meal. 120 children were treated. Intoxication quickly passed in these children, the blood picture had restored earlier: hemoglobin and color index, erythrocytes, leukocytes. The sleep and skin manifestations were imroved. The course of treatment was 2 months.

Children and adults with intestinal infection, during stool inoculation of which were detected the pathogenic strains of microbes and signs of dysbacteriosis: lack of Escherichia coli, absence of bifidobacteria. They had pathogenetic treatment + "AZEOMED": the effect was observed in the first three days: clinical improvement, and two weeks later at re-inoculations was the absence of pathogenic flora and the restoration of the

normal one. Treatment for restoring the normal flora had lasted for 4 weeks.

I especially want to note a positive effect in the treatment of disseminated candidiasis in a patient A., born in 1970 who at an age of 14 had undergone the extensive peritonitis.

His complaints were: frequent colds, continuous tickling in the throat, cough, fatigue. He periodically took the antifungal drugs – without result. During examination: inoculation from the pharynx, sputum, urine and stool there was revealed candida albicans. I changed the tactics of treatment prescribing him the plasmaphoresis in 2 courses with an interval of 21 days, imunnostimulators, hepatoprotectors and "AZEOMED" in dosage of 2 tabs 3 times a day during a meal – 1 month, then 1 tab 3 times a day – 1 month, then 1 tab 2 times a day with an interval of 10 days.The result: against the background of improved general condition there wasn't revealed the fungi in the analysis. He was recommended to continue taking of "AZEOMED" 3 times a year as a prophylactic measure 1 tab 2 times a day during a meal.

During fungal pathology of feet, there were treated 15 people, 6 of them were women, 1 child:

1. the skin of feet was was treated with antiseptic "Eliminator" in the composition of which there is antium dioxide;

2. the powder "AZEOMED" was put 2 times a day. The socks were worn for the night. Plus – the treatment of shoes, and hygiene activities. The result was positive from the 1st week to 3 weeks.

"AZEOMED" can be used widely in the osteo-articular pathologies: radiculitis, osteochondrosis, arthritis. 1 tab 3 times a day or 2 tabs 2 times a day. Outwardly, in the form of appli-

cation with overlaying on the tissue and Dioxidin 1 l liter + 1 liter of water from 20 minutes to 2 hours. 76 people received the reatment.

Menopausal women were recommended outwardly phytocreme Endau + "AZEOMED" 14 tabs 2 times a day during the year with an interval of 1 month. Patients with periodontitis and other problems of oral mucosa (22 people) were recommended to spread the tablet in the mouth on the gums and teeth. Not to drink within 10 minutes till complete resorption. The dynamics is positive.

The next case – the patient had bedsores, within 4 days the wound skinned over, the powder was used 5-6 times a day.

Two people had Alzheimer's disease, 78 and 82 years old, they take "AZEOMED" 1 tab. x 2 times a day for 2 years, the condition is stable.

Viral infections: flu.

1 case. Patient P., 18 years old, temperature 40^{o} C, terrible headache, nasal congestion, fever. 10 tabs of "AZEOMED" – 1^{st} taking, then 2 tabs 3 times a day, on the 2^{nd} day he was practically healthy. Thus, to all patients with viral infections I recommend "AZEOMED" – shocking dose in the first hours, then – the maintenance therapy. Or on the scheme 1 tab. every 15 minutes during 2 hours, then 2 tabs 3 times a day during 3 days; then to continue 1 tab. 2 times a day – 7 days. With the aim of prophylaxis in the spring and autumn, in time of transition to take 1tab 2 times a day during a month.

Bioactive effect of "AZEOMED" especially showed itself to good advantage in old people: the general condition, the condition of osteo-articular muscle system, memory, power of

apprehension, appetite, and condition of the gastrointestinal tract are improved.

There was a surprising fact, when the cancer patient treated with "AZEOMED" within 2 years, revealed no gallbladders during ultrasound. Also, after long use, the problems of a general plan within 1 year of taking the "AZEOMED" there was found no stones in the kidney.

Thus, owing to its mechanism of action "AZEOMED" provides protection, supplementing the existing treatment without additional stress on the body from constant influence of new viruses, free radicals and harmful habits on the organism, which are inherent to our life style. For all of us living in an aggressive environment, the use of minerals – zeolites "AZEOMED" is the easiest way of protection and it will allow us to improve the quality of life, and provide good service to the health of our population.

Clinical observations under the leadership of Ibadova Hoshgedem

During the period 2004-2009 I have exemined about 600 patients who during the treatment were recommended "AZEOMED". The age group is from 1 year-old to 78 year-old. All of them had positive results.

SEPARATE EXAMPLES

The child, 1 year old. Allergic diathesis, purulent conjunctivitis, acute rhinitis. "AZEOMED" 1/2 tab. 3 times daily 20 minutes before a meal. After 3 weeks on repeat. The skin manifestations disappeared, his eyes cleared. Nose was breathing, discharge was decreased.

The child, 5 years old. Dysbacteriosis, hypotrophy II deg., anemia, anorexia. Against the background of general treatment with "AZEOMED" 1/2 tab. 2 times a day before a meal for 1 month. The stool was normalized during the first week, the sleep and the blood picture have improved.

The child, 1,5 years old. Rickets. Anemia. The child was hard and poorly cutting teeth, fever, diarrhea. "AZEOMED" 1/3 tab 3 times a day during a week, gave 1/3 tab. 2 times a day before a meal. The child felt much better. He became more active. The child was cutting teeth but there wasn't liquid stool.

The child, 11 years old. Nocturnal enuresis. Ascoridozi. He took "AZEOMED" within 3 months at a dose of 1 / 2 tabs 2 times 30 minutes after a meal. 6 months after it there was no complaints. The child began to sudy better, he became more intelligent.

The woman, 70 years old. Osteoporosis. CHD. Obesity III deg. Limitness of movements because of pain in the lumbar region. "AZEOMED" 1 tab. 2 times a day for 10 days, gave to 2 tabs 2 times a day for 20 days. Interval – 5 days, continued the course 1 tab 2 times a day. Her condition considerably improved. Grey hair began to take the natural color (got darker), sponginess disappeared, the pain decreased.

The woman, 78 years old. Dysbacteriosis. Anemia Stage II. Coronary heart disease, pancreatitis, osteoarthritis. Against the background of treatment her condition improved. The workability has increased (woman-journalist). Activity is significant, pain is minor. The dysbacteriosis considerably improved. She continues to take 1 tab. 2 times a day.

Thw woman, 50 years old. Osteoarthritis. Chronic hepatitis. Hypertensive heart disease. Postmenopausal syndrome.

Pancreatitis. Pyelonephritis. Against the background of the treatment she takes "AZEOMED" 1 tab. 3 times a day during a meals. 10 days later she noted the reduced pain in the lumbar area, improving the well-being, improving of workability, a month later the patient noted that, if before, during the lesson she had to often sit at the table, now she can stand at the blackboard very often. She continues treatment.

The boy, 11 years old. Rheumatism, the active phase. Ascariasis. Anemia. He had treatment + "AZEOMED" 1 tab. 2 times a day for 2 months. The condition considerably improved. He had been examining for 10 months. Now he has the second course of October and November in the same dosage, the complete remission.

Taking into account the ability of silicon to restore the intercellular connection, I prescribe "AZEOMED" to the patients with helminthic invasion and with parasitic one. In these patients the recovery period is much faster and more efficient is, and what is important, they are more protected from reinfection. Control analysis after 2, 3, 6 months are clean.

The man, 59 years old. Bronchiectasis RF I deg. Chronic hepatitis. He has been ill for 10 years, dyspnea, paroxysmal dry cough, bloating, and constipation. After taking "AZEOMED" against the background of basic therapy the improvement occurred within 3 weeks – the sweating and dyspnea decreased, cyanosis of the cutaneous covering disappeared, stool normalized, the patient became active. He is taking the second course of treatment at this time. The condition is satisfactory.

The woman, 36 years old. Mastopathy.

She took "AZEOMED" 1 tab 2 times a day on the background of general therapy, she notes the improvement of general well-being, "inner peace". The hardening is softer in consistency and smaller in volume. She continues the treatment.

The woman, 48 years old. She doesn't have complaints. With the aim of prevention within a month. Condition is satisfactory.

During the summer period there were several cases at different times with malnutrition, intestinal dysfunction. The patient was prescribed "AZEOMED" with a short course of 3-5 days 1 tab. 3-4 times a day. Monotherapy. We managed to stop diarrhea, to quickly restore the workability, activity without antibiotics and other medicines.

The man, 54 years old. Coronary heart disease, exertional angina, chronic hepatitis, chronic pancreatitis. Ascites. Against the background of basic therapy he took "AZEOMED" within 2 months, 1 tab. 2 times a day. The condition was slowly restored after 9 months on full re-examination of ultrasound. ECG analysis is in a satisfactory condition. He continues to take "AZEOMED" 1 tab. 2 times a day during a meal.

A young man, 22 years old. Lymphoma. Tuberculosis.

Basic treatment was corrected. Many drugs were canceled. Against the background of treatment he took "AZEOMED" 1 tab. 4 times a day for one week, the patient felt much better.

A young man, 23 years old. Chronic Glomerulonephritis. His condition was grave. Analysis of blood, urine, ultrasound. He took basic therapy, he was prescribed "AZEOMED" during the week, the state has stabilized. The skin got normal color with traces of pallor. He became less sleep. Asthenic

condition receded. Protein with 6 units became 1,0; urine – polyuria. The drunk volume 1,5 liter – l – dedicated 2 liters, gradually leveling off, the volume leveled. The smell of acetone practically disappeared. "AZEOMED" 1 tab. During the week brought to 6 tablets. He continues treatment.

The woman, 34 years old. Ovarian cysts. Dysbacteriosis. Chronic calculous cholecystitis. She takes "AZEOMED" the form of tampons, and the inside 1tab 2 times a day. Condition improves. The treatment continues.

The woman, 28 years old. Osteochondrosis.

She takes "AZEOMED" 1 tab. 3 times daily 20 min. before a meal, A month later to re-examining. The patient with 3rd risk group was in the 1st group. Condition is satisfactory.

During 2007 from January till December I did the following work:

1. Diagnostics on device AMSAT with the subsequent carrying out of treatment and supervision.

2. Consultations and examination of patients, with carrying out of dyagnostic tests, laboratory – clinical, biochemical, bacteriological, radiological with the subsequent recommendations and observations.

In total on device AMSAT 22 people have passed diagnostics

12 of them have passed the repeated diagnostics with an interval of 1 month – 3 people, 2 months – 1 person, 3 months – 4 people, 6 months and more – 4 people.

The investigated group on the age corresponded:

A – reproductive age – from 18 till 45 years old – 14 people.

B – climacteric age – from 45 till 60 years old – 5 people.

C – old age – from 60 years old and older – 3 people.

From 22 people of those who passed diagnostics, 20 people tookk "AZEOMED". 2 of them took "AZEOMED" as monotherapy. Complaints to fast fatigue, dream infringement, painful feelings in a backbone. After taking of "AZEOMED" 2 courses with 1tab. 2 times a day during meal, the condition have considerably improved. They marked inflow of forces, improvement of the general condition both physically and by diagnostic criteria. During a year "AZEOMED" was taken by more than 100 patients from the earliest age to the old age.

The children with disease a rickets and the musculoskeletal system, with the development of exudate-catharal diathesis, allergic manifestations, with threat of early closing of big fontanel of children till one year-old, and the weakened immunity in all age groups. I especially would like to note the positive influence of "AZEOMED" and as mineral additive to pregnant women, with the toxicosis. Taking "AZEOMED", their general condition have improved, it was easier to raise haemoglobin, their teeth practically did not collapse, and children born from these pregnancy differed by the best adaptation in the first 40 days after a birth.

To the children from 3 to 15 years old I prescribed "AZEOMED" with the purpose of improvement the immunity, prophylaxis and treatment of anaemia, caries, improvement of bearing, memory, stability to stresses, and fast adaptation to new conditions and changes, improvement of quality of a skin with its clarification at age acnes.

There were good results during the treatment of patients with a parasitic pathology. The therapy itself and the further restoration of mineral balance have passed easier. Patients took

"AZEOMED" 1 tablet 3 times a day in the first month, further 1 tab 2 times a month. At the beginning of the treatment the preparation perfectly works as a sorbent, allowing to reduce an intoxication to a minimum, and quickly to be restored in future.

There were good results during the treatment of patients with diseases of a gastrointestinal tract: chronic gastritis, chronic hepatitis, chronic pancreatitis, chronic colitis, chronic enterocolitis, dysbacteriosis, diarrhoeia.

It is very important that during the treatment of virus diseases the fast recover came at those patients who took "AZEOMED" at the moment of disease or at once as they got ill, than those who did not take it at all. During this period they took "AZEOMED" on 1tab every 2 hours in the first 2 days.

The patients of old age marked the improvement of both the general condition and physical activity, was improved the positive action of other preparations with minimisation of their side effects that is especially important.

Doses are prescribed individually depending on a pathology, secerity and age. The taking of the preparation is simple enough, and flavouring qualities of natural character make its taking pleasant and simple.

Отчет Ибадовой Хошгедем

Применеие Азеомеда при лечении больного Нагиева Агасалима

Лечение получает с 24.03.2009.
У больного были жалобы:

Жалобы	В начале лечения	В конце лечения
Головная боль	+	-
Головокружение	+	-
Общая слабость	+	-
Чувство горечи во рту	+	-
Боль и тяжесть в правом подреберье	+	-
Вздутие кишечника	+	-
Запоры, смешанные диареей	+	-
Кожа	Желто-бледная	бледная
Язык	Серый налет	+
Живот	Вздут	-
Отеки	нет	
АД	160/100	130/90
Сон беспокойный	+	-

Врач первой категории Ибадова Хошгедем

14 апреля 2009 года

Biomed spektr

Tibb mərkəzi
Bakıxanov küç.7
Tel:(+99412) 498 00 65

№ 45

Soyadı, Adı: *Nağıyev Ağasəlim*	**Təvəllüd:**	**Cinsi:** *k.*
Həkim: *İbadova X.*	**Tarix:***11.03.09*	

Biokimyəvi analizlər

Analizin Adı	Vahid	Norma	Nəticə
Ümümi bilirubin	mmol/l	4,6 - 20,0	17.7
Sərbəst bilirubin	mmol/l	0 - 5,1	5.2
Birləşmiş bilirubin	mmol/l	4,3 -15,4	12.5
ALT	u/l	K. <42 Q. <32	61 ✓
AST	u/l	K. <38 Q. <30	43 ✓
QQT	u/l	K: 10 – 50 Q: 8 – 35	75 ✓
Timol sinağı	vahid	0-5	4.0
Qələvi fosfataza	u/l	Böyük. <270 Uşaq. <800	118
Kreatinin	Mg/dl	K.0,7-1,4 Q.0,7-1,2	1.0
Sidik jövhəri	mmol/l	2,5-7,5	7.6
Qalıq azot	mmol/l	14,8	15.4 ✓
Xolesterin	Mq/dl	123-240	252 ✓
Ümumi zülal	q/dl	Uşaq 5,4-8,7 Böyük 6,7-8,7	7.8
Trigliseridlər	Mmol/l	< 1.7 – 2.3	3.8 ✓
Diastaza sidikdə	vahid	< 1000	482
a-amylaza	u/l	< 220	74

Həkim –laborant: İdrisova R.

Keyfiyyətə nəzarət

ÖZƏL TİBB MƏRKƏZİ Biomed spektr

Biomed spektr

Tibb mərkəzi
Bakıxanov küç.7
Tel:(+99412) 498 00 65

№ 11

Soyadı, Adı: *Nağıyev Ağasəlim*	**Təvəllüd:**	**Cinsi:** *k .*
Həkim: *İbadova X.*	**Tarix:***14.04.09*	

Biokimyəvi analizlər

Analizin Adı	Vahid	Norma	Nəticə
ALT	u/l	K. <42 Q. <32	56
AST	u/l	K. <38 Q. <30	50
QQT	u/l	K: 10 – 50 Q: 8 – 35	27
Qalıq azot	mmol/l	14,8	13.2
Xolesterin	Mq/dl	123-240	254
Trigliseridlər	Mmol/l	< 1.7 – 2.3	2.32
Sidik turşusu	mmol/l	Q.140-340 K. 200-420	268

Həkim –laborant: İdrisova R.

Keyfiyyətə nəzarət

ÖZƏL TİBB MƏRKƏZİ Biomed spektr

From the above-stated it is possible to conclude that the mineral complex "AZEOMED" can be used widely in different age groups, at various pathologies, as monotherapy, and together with other preparations, allows to reduce a side effect of pharmaceuticals and chemotherapy and strengthening the effect of vitamins necessary for an organism. For the purpose of prophylaxis for improvement of quality of life it promotes longevity.

§ 5. CLINICAL OBSERVATIONS

S.A.Muradhanova

Scientific-production Company «YENI TEX» Ltd.

I carried out clinical researches of a mineral complex "AZEOMED" on several groups of patients with various pathologies:

I. The first group of patients with various forms of allergy (food, respiratory allergy on a sunlight). The best results have been received at patients with a food allergy.

1. Patient Maherramova Sabina, 27 years old. The diagnosis: Allergic dermatitis. The allergy was shown on reception of citrus and sweets. After the patient began to use "AZEOMED" the allergy symptoms began to quickly abated, on the 2^{nd} -3^{rd} day all symptoms of an allergy have passed. Though before it when she took claritin during allergy manifestaions, she had to treat the allergy more than a week and to make intestines clearance.

2. Patient Aliev Rahman 52 years old. Allergy on medical products which he took for a long time. Before taking of "AZEOMED" he took treatment thiosulfate sodium claritin and polypephan, however there has come only minor improvement.

After taking of "AZEOMED" on the 2^{nd} day all manifestations of an allergy have passed.

I applied "AZEOMED" at several patients with a bronchial asthma of allergic type, there has been noticed that after taking the "AZEOMED" + non-traditional therapy the duration of attacks was reduced.

3. Patient Mamedova Valida, 50 years old, has a bronchial asthma about 20 years. For a week the patient has up to 18-20 attacks. For cutting off the attacks she uses an aerosol "Servent". When she began to take "AZEOMED" the quantity of attacks had decreased till 7-10 for a week, the attacks began to be cut off faster.

It means that "AZEOMED" is a good adsorbent and unlike the polyiphepan and the activated coal the its adsorbing properties are considerably higher.

II. The good result has been received at patients with a diarrhoeia.

1. The patient Agabekova Aisa, 30 years old, after carrying out of plastic operation of rupture perineum, on the 2nd day the diarrhoeia began, that threatened with an inconsistency of sutures.

The patient was prescribed the antidiarrheal preparations, the effect does not come, after taking of "AZEOMED" in doses of 5tabs 2 times a day on the 2nd day the stool was normalised.

2. Other patient Siradzheva S.K., 38 years old, has come to the department with diagnosis of AYC, a diarrhoeia. In the outpatient settings the patient took sulfasalazon, inpiperix, bactisubtil, etc. In the department she was prescribed "AZEOMED";

At the beginning she was prescribed 10 tablets a day, then in process of reduction of a diarrhoeia a dose gradually was reduced, reduced it to 4 tablets a day. 12 days later the stool was normalised, the patient in a satisfactory condition was discharged from hospital.

I. Powder Application "AZEOMED".

I applied the powder "AZEOMED" at 4 patients with youthful acnes.

As a result of application the acnes of 3 patients have dried on the 5th day, and of the 4th one on the 7th. The powder was applied both in a dry form, and in the form of damp masks.

II. Application of tablets "AZEOMED".

1. Muradkhanova Dinara, 9 years old.

The diagnosis – Allergic dermatitis. The preparation was used as monotherapy; on the 2nd day the manifestations of allergy began to fade, on the 6th day the rashes have completely passed.

2. Osmanova Lamiya, 38 years old. The diagnosis. Enterocolitis. Diarrhoeia.

Traditional therapy did not give the effect. After taking of "AZEOMED" the diarrhoeia has passed on the 4th day.

Then she applied along with "AZEOMED" the sulfasalazon to consolidate the effect.

3. Mukhtarova Leyla, 46 years old.

Diagnosis – a condition after mastoectomy.

After operation the patient had radiation therapy, had appreciably weakened, could not move without assistance. 20 days after preparation application the general condition has considerably improved, she moves without assistance.

4. Ahmedova Ira, 62 years old. Diagnosis – ostheoarthtitis of knee joint. She is tormented by acute pains in the right knee joint which were cut off by injections of diclofenac, after taking of "AZEOMED" she began to notice that the pains in joints began to abate, and 15 days after taking it, they have completely passed; now she continues to take a preparation with short breaks.

5. Aliyeva Fatma, 71 years old. Diagnosis – the diabetes.

Against the background of taking of "Diabeton" she began to take "AZEOMED", marks considerable improvements of the general condition.

6. I carry out the analysis of treatment of 2 patients with the diagnosis of ulcerative colitis.

1st patient Mamedov Rafig, 41 years old, had traditional medicamentous treatment; the recovering was noted on the 28th day.

2nd patient Aliev Zuleyha, 48 years old, along with traditional medicamentous therapy she received "AZEOMED" 1tab 3 times a day, on the 17th day there was noted the absolute recovery (rectomonoscopy, the ulcers have cicatrised).

7. A unique case: patient Fatullayeva Kenul Zahir, 28 years old.

Diagnosis – a condition of postnatal sphincter rupture of 2-3 degree.

On the 3rd day after operation the diarrhoeia of the patient has developed that was threat for the made operation. The patient had been prescribed the corresponding treatment, but it was not possible to normalise a stool; on the 4th day after that, I prescribed "AZEOMED" 1tab 3 times a day; and literally on the 2nd day against the background of the carried out therapy the stool was normalised; she took it 7 days.

On September, 2008 – September, 2009 I examined, observed and treated 146 patients. During observation I paid attention to the fact that: those patients who took "AZEOMED", together with complex treatment and monotherapy, gained the effect 2 times faster, than those did it without "AZEOMED".

For example, the patient Karimova Anara, has arrived with complaints to periodic pains in epigastric, 2 hours after a meal, heartburn, sour eructation, appetite is normal, constipation susceptibility.

During objective research, the tounge is slightly furred at a root, local soreness in pyloroduodenal to a zone. At palpation of thick intestines there is considerable meteorism, D/S chronic antral gastritis, associated with helicobacter, moderate activity with the increased sector function of a stomach. The patient has taken the complex treatment together with "AZEOMED".

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

№

Name, surname: Kerimova A.	**Date of visiting**	**sex:**
Doctor: Suleymanova N.	**Data: 6.05.09**	**F.**

COAGULOGRAM

Name of analysis	Measurement unit	Norm	Quantity
Coagulation time (Li-Uayt)	dəq	6-10	4.2

Laboratory doctor: ***Idrisova R.***

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

Name, surname: Kerimova A.	**Date of visiting**	**sex:**
Doctor: Suleymanova N.	**Data: 10.06.09**	**F.**

COAGULOGRAM

Name of analysis	Measurement unit	Norm	Quantity
Coagulation time (Li-Uayt)	dəq	6-10	7

Laboratory doctor: ***Idrisova R.***

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

Name, surname: Kerimova A.	**Date of visiting**	**sex:**
Doctor: Suleymanova N.	**Data: 6.05.09**	**F.**

Biochemical analysis

Name of analysis	**Measurement unit**	**Norm**	**Quantity**
Whole bilirubin	mmol/l	4,6 – 20,0	25,3
Free bilirubin	mmol/l	0 – 5,1	6,7
Conjugated bilirubin	mmol/l	4,3 – 15,4	16,1
AAT	u/l	K. <42 Q. <32	10
AST	u/l	K. <38 Q. <30	13
GGT	u/l	K: 10 – 50 Q: 8 – 35	26
Diastase in urine	unit	< 1000	728
α- amylase	u/l	< 220	173

Laboratory doctor: ***Idrisova R.***

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

Name, surname: Kerimova A.	**Date of visiting**	**sex:**
Doctor: Suleymanova N.	**Data: 6.06.09**	**F.**

Biochemical analysis

Name of analysis	**Measurement unit**	**Norm**	**Quantity**
Whole bilirubin	mmol/l	4,6 – 20,0	18,3
Free bilirubin	mmol/l	0 – 5,1	4,8
Conjugated bilirubin	mmol/l	4,3 – 15,4	
AAT	u/l	K. <42 Q. <32	30
AST	u/l	K. <38 Q. <30	28
GGT	u/l	K: 10 – 50 Q: 8 – 35	30
Diastase in urine	unit	< 1000	850
α- amylase	u/l	< 220	200

Laboratory doctor: ***Idrisova R.***

Patient ***Gulieva Minasa*** has arrived with complaints to constant pains in the top half of stomach, radiating in a back, appetite decrease, a weight loss, an unstable stool, meteorism.

At palpation a pancreas is condensed and increased.

The patient has received the complex treatment together with "AZEOMED".

She has appreciable improvement according to the clinical and laboratory data. I observed the patient during 6 months. There wasn't any exacerbation during this period, though before taking of "AZEOMED" according to patient's words the exacerbations were rather frequent.

D/S xp. Chronic pancreatitis, recurrent form of medium severity, an exacerbation phase.

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

Name, surname: Guliyeva M.	**Date of visiting**	**sex:**
Doctor:	**Data: 12.01.09**	**F.**

Biochemical analysis

Name of analysis	**Measurement unit**	**Norm**	**Quantity**
Whole bilirubin	mmol/l	4,6 – 20,0	22,6
Free bilirubin	mmol/l	0 – 5,1	
Conjugated bilirubin	mmol/l	4,3 – 15,4	20,3
AAT	u/l	K. <42 Q. <32	16
AST	u/l	K. <38 Q. <30	10
GGT	u/l	K: 10 – 50 Q: 8 – 35	
Diastase in urine	unit	< 1000	1680
α- amylase	u/l	< 220	326

Laboratory doctor: ***Idrisova R.***

«BIOMED SPEKTR»
Medical centre
Bakikhanov St., 7
tel: *(+99412) 498 00 65*

Name, surname: Guliyeva M.	**Date of visiting**	**sex:**
Doctor:	**Data: 18.02.09**	**F.**

Biochemical analysis

Name of analysis	**Measurement unit**	**Norm**	**Quantity**
Whole bilirubin	mmol/l	4,6 – 20,0	18,6
Free bilirubin	mmol/l	0 – 5,1	
Conjugated bilirubin	mmol/l	4,3 – 15,4	10,3
AAT	u/l	K. <42 Q. <32	26
AST	u/l	K. <38 Q. <30	18
GGT	u/l	K: 10 – 50 Q: 8 – 35	28
Diastase in urine	unit	< 1000	950
α- amylase	u/l	< 220	176

Laboratory doctor: ***Idrisova R.***

«BIOMED SPEKTR»

Medical centre

Bakikhanov St., 7

tel: *(+99412) 498 00 65*

Name, surname: Guliyeva M.	**Date of visiting**	**sex:**
Doctor:	**12.01.09**	**F.**

Total blood analysis

Indicator	**Mea-surement Unit**	**Norm**	**Quantity**
WBC – leukocytes	10^9/L	4.0-10.0	9,0
LY # – lymphocytes (#)	10^9/L	0.8-4.0	0,8
MID # – monocytes (#)	10^9/L	0.1-0.9	
GRAN # – granulocytes (#)	10^9/L	2.0-7.0	
LY % – lymphocytes (%)	%	20.0-40.0	
MID % – monocytes (%)	%	3.0-9.0	
GRAN % – granulocytes (%)	%	50.0-70.0	
HGB – haemoglobin	g/l	110-160	130
RBC – erythrocytes	10^{12}/L	3.50-5.50	
HCT – homotocrytes	%	37.0-50.0	
Indicator of colour		0.86-1.05	0,8
MCV – mean corpuscular volume of erythrocytes	fl	82.0-95.0	
MCH – mean value of haemoglobin in erythrocytes	pg	27.0-31.0	

MCHC – average concentration of haemoglobin in erythrocytes	g/l	320-360	
RDW – CV – the schedule of coefficient of a variation of mean value of erythtocytes	%	11.5-14.5	
RDW – SD – the schedule of the standard of measurement of erythrocytes	fl	35.0-56.0	
PLT – thrombocytes	10^9/L	100-300	
MPV – mean corpuscular volume of thrombocytes	fl	7.0-11.0	
PDW – anisocytosis of thrombocytes		15.0-17.0	16,0
PCT – thrombocrit	%	0.108-0.282	
EÇS – Erythrocytes sedimentation rate	Mm/saat	k:1-10 q:2-15	25
LEUKOGRAM:			
Stab	%	1-6	
Segmentated	%	47-72	
Eosinophils	%	0-5	
Basophils	%	0-1	
Monocytes	%	3-11	
Lymphocytes	%	19-37	
Granularity of leukocytes	%		

Laboratory doctor: ***Velibeyova G.***

«BIOMED SPEKTR»

Medical centre

Bakikhanov St., 7

tel: *(+99412) 498 00 65*

Name, surname: Guliyeva M.	**Date of visiting**	**sex**
Doctor:	**Дата: 18.02.09**	**F.**

Total blood analysis

Indicator	**Mea-surement Unit**	**Norm**	**Quantity**
WBC – leukocytes	10^9/L	4.0-10.0	9,0
LY # – lymphocytes (#)	10^9/L	0.8-4.0	0,8
MID # – monocytes (#)	10^9/L	0.1-0.9	
GRAN # – granulocytes (#)	10^9/L	2.0-7.0	
LY % – lymphocytes (%)	%	20.0-40.0	
MID % – monocytes (%)	%	3.0-9.0	
GRAN % – granulocytes (%)	%	50.0-70.0	
HGB – haemoglobin	g/l	110-160	136
RBC – erythrocytes	10^{12}/L	3.50-5.50	
HCT – homotocrytes	%	37.0-50.0	
Indicator of colour		0.86-1.05	
MCV – mean corpuscular volume of erythrocytes	fl	82.0-95.0	
MCH – mean value of hae-moglobin in erythrocytes	pg	27.0-31.0	
MCHC – average concentra-tion of haemoglobin in erythrocytes	g/l	320-360	

RDW – CV – the schedule of coefficient of a variation of mean value of erythtocytes	%	11.5-14.5	
RDW – SD – the schedule of the standard of measure-ment of erythrocytes	fl	35.0-56.0	
PLT – thrombocytes	10^9/L	100-300	
MPV – mean corpuscular volume of thrombocytes	fl	7.0-11.0	
PDW – anisocytosis of thrombocytes		15.0-17.0	16,0
PCT – thrombocrit	%	0.108-0.282	
EÇS – Erythrocytes sedimen-tation rate	Mm/saat	k:1-10 q:2-15	14
LEUKOGRAM:			
Stab	%	1-6	
Segmentated	%	47-72	
Eosinophils	%	0-5	
Basophils	%	0-1	
Monocytes	%	3-11	
Lymphocytes	%	19-37	
Granularity of leukocytes	%		

Laboratory doctor: ***Velibeyova G.***

Proceeding from the carried out clinical research, it is possible to make conclusions that "AZEOMED" is a good adsorbent and on adsorptive force excels all known adsorbents.

CHAPTER IV

USE OF ZEOLITES IN COSMETOLOGY AND DERMATOLOGY

§ 1. APPLICATION OF ZEOLITES IN COSMETOLOGY

It is known that with the age the skin becomes especially sensitive to the factors causing the destruction of the lipid layer of the stratum corneum. And the delayed restoration of lipid barrier of the skin after damages is observed. In the epidermis takes place a decrease of speed of synthesis of the main stratum corneum lipids – ceramides. The weakening of the lipid barrier leads to increasing of evaporation of water from the skin. A gradual dehydration of the dermis due to the gradual destruction of substances saving the moisture (mucopolysaccharides, collagen), and also due to the reduction of intensity of the blood flow in the vessels of the dermis. Dehydration is the main problem of the aged skin. For moistening the skin there are used the ceramides, enriched with essential fatty acids and vitamin E, hyaluronic acid, which forms something like a mantle on the skin, and the substances that increase the synthesis of lipids in the epidermis – phytoestrogens, alpha-hydroxy acids. In the work together with 1,3-beta-glucan, as a cosmetic dietary supplement replacing the expensive litho-phyto-complexes use a mixture of natural zeolites (clinoptilolite, chabazite, heulandite, phyllipsite), providing a nonspecific activation of epidermal macrophages and restoration of the content of the

bound water in the collagen of skin and polysaccharides of intercellular matrix.

In the invention is given the composition of the compact powder, which is in contrast to the known compositions, referred to by the authors propose a new structure, which, along with the positive properties of existing compounds have the effect of therapeutic, regenerating and toning the skin. The problem is solved by the fact that, as a mineral base, it contains a natural zeolite (zeolite tuff, consisting mainly of zeolite-clinoptilolite) and cation-replacing forms with copper ions (Cu-zeolite) and zinc (Zn-zeolite). Zeolite additive beneficially effect on the skin that is explained by its ion-exchange and sorption properties. And the toxins are immobilized, and skin electrolytes are supplied with biologically active micro-elements Na^+, Ca^{2+}, K^+, Mg^{2+}, contained in the original zeolite and the Cu and Zn at the account of a modified zeolite, which particularly increase the regenerating and tonic effect of the proposed cosmetic product.

In the composition for skin, hair, eyelashes, lips care, along with cosmetic oils of vegetable, mineral, animal origin there is zeolite.

Litho-phyto-complex on a basis of a dietary supplement, which a natural zeolite (clinoptilolite, chabazite, heulandite) is used as, which provides non-specific activation of epidermal macrophages and restoration of the content of bound water in the collagen of the skin and the polysaccharides of intercellular matrix.

§2. WORKING OUT OF MEDICINAL-COSMETOLOGY MEANS ON THE BASIS OF NATURAL RAW MATERIALS

[1]M.N. Veliyeva, [2]T.Sh. Khalilova, [3]P.M. Veliyev

[1]Azerbaijan Medical University,
Chair of pharmaceutical technology,
economy and the pharmacy organisation
[2]Scientific-production Company "YENI TEX" Ltd.,
[3]Azerbaijan Medical University,
Chair of children's diseases

Cosmetology is the scientific discipline studying the methods of diagnostics, prophylaxis, treatment of diseases, elimination of cosmetic lacks of a skin, the birth and acquired defects of a head, face and body, and also carrying out the check on harmlessness of cosmetic means, created and produced by the cosmetic industry. In translation from Greek the "cosmetology" means "art to decorate himself", science about remaining the beauty with the help of numerous means and methods.

Cosmetology is closely connected with medicine – with dermatology, surgery, stomatology, and also with chemistry, physics and other sciences. The cosmetology can be divided on medical and decorative one. The medical cosmetology includes preventive, diagnostic and medical cosmetology; the medical one – conservative and surgical ones; the decorative one – household and theatrical ones.

Cosmeceutics (from connection of words "cosmetics" and "pharmaceutics" – the preparations of the cosmetic orienta-

tion combining the expressed medical properties and principles of creation of such kind of preparations; medical active cosmetics. Here are included the preparations containing, for example, fruit acids (AHA), vitamin E, hyaluronic acid, ceramides and sun-protection factors. Into a category of cosmeceutics are included the means of protection from sun and solar burns; anti-cellulite; against skin ageing; for acne treatment; for elimination of wrinkles; for treatment of alopecia. Modern tendencies and problems of cosmetology have brought to occurrence of cosmeceutics. Cosmeceutics, or cosmetic means with the bioactive components, admitted in modern manufacture, are safe and satisfy to numerous inquiries of consumers concerning high efficiency of production.

In Azerbaijan considerable growth of interest to own vegetative raw materials and creation of various pharmaceutical productions, including perfumery-cosmetological one is planned. In world practice for manufacture of perfumery-cosmetology products are used more than 200 natural essential ois in various cosmetology forms [7, 8].

Azerbaijan has rich vegetative flora; essence plants take a worthy place among herbs. In national literary sources the considerable quantity of medical-cosmetologiccal means used by Azerbaijanians during various historical epoch [2] is described [2].

The aim of the present work was working out of some medical-cosmetological means on the basis of local vegetative raw materials.

Preliminary we had studied the technological forms, the basic and auxiliary substances, then we developed the medical-cosmetological prescriptions with use of modern technologies.

The most widespread methods in cosmetology can be: application of liposomes, microcapsules, transdermal systems, aerosols, use of the auxiliary substances facilitating the penetration of biologically active substances through cell membrane.

Considering the basic components, used in cosmetological means, it is necessary to notice that in cosmetology the various preparations of seafood enjoy special popularity: chitosan geleous – polysaccharide preparation from an armour of the crabs, used as a humidifier, emulsifier, which have anti-inflammatory and softening action; collagenase – proteolytic enzyme from a liver of crabs, which as a part of creams and balms promotes the rejection of necrotic cells of epidermis and causes moderated hyperaemia; lipidic extract – carbohhydrate and protein and meat of mussels. It is applied as a part of photoprotective creams and dermatological compositions, reduces negative ultra-violet effects and promotes normalisation of fermental systems of skin cells.

Chitin is one of the most widespread natural polysaccharides; it is a part of armours of arthropods (crabs, lobsters, etc.); insects, cellular walls of bacteria and mushrooms. It is often considered as a derivative of cellulose though it is not met in the organisms making cellulose. Also, as well as cellulose, chitin is B-1,4-glucon. The difference is that 2-OH-group of cellulose is replaced in chitin on acetamide group – NHCOCH. In cosmetological production is usually used a chitin-hitozan derivative.

It was formed by means of N- deacetylation of chitinous molecule. In the nature there is a mix of chitin and hytozan, which cannot always be divided. For adhesion (i.e. linkages) of

hytozan with skin and hair are important both electrostatic, and hydropobic properties. They cause the interaction of hytozan with proteins and lipids, which are part of not only cellular membranes, but also of intercellular substance. The lipids, as it is known, play the important role in barrier function of epidermis.

Besides, thanking these properties the hytozan is quite good stabilizer of emulsions that is important at working out of cosmetological substances [10].

Hytozan, being the hydrocolloid, can keep water itself. Besides, cooperating with proteins and lipids of epidermis and forming the film connected with them, it improves the moisture-holding properties of skin. Owing to the ability to form the dense, biocompatible films connecting water, hytozan deserves the greatest attention as anti-burn agent. In cosmetological production for hair the ability of hytozan is used to form a protective film on a hair surface. Processing of hair with the means of containing hytozan, it removes an electrostatic charge, brightens, and improves combing. In cosmetological production, for skin are used such properties of hytozan as ability to form the pure protective covering, helping to keep moisture, and its bactericidal properties.

Amber acid accelerates a turn of dicarboxylic parts TAC (succinate-fumarat-malate) and reduces the concentration of lactate that is very important at its combination with polysaccharides (glycyrrhizic acid, hytozan) and the zeolite, which are powerful stimulators of immune system [9, 10]. Amber acid raises the circulation of TAC, consequently, increases the volume of the energy necessary for synthesis of ATP and GABA that is also important in a combination of AA and preparations.

Zeolites are natural minerals. They are tectoalumosilicate in which there are almost all elements of system of Mendeleyev. Zeolites have variety of properties: sorption, ion-exchange, molecular-sieve, catalystic. Zeolite is capable to show sorption properties mainly in relation to compounds with low molecular weight (methane, hydrogen sulphide, ammonia and other toxins), entering to the direct interaction with vitamins, amino acids, proteins, leaving them in a gastrointestinal tract. The ions in an organism can join in crystal structure of a mineral, and from a mineral the organism receives those inorganic elements which it needs. There occurs the so-called selective ion-exchange. Zeolites promote the normalisation of lipid, albuminous, carbohydrate exchange; the immunity increase; they increase the stability to stress; improve reproductive function; functions of hepatocytes. They promote decrease of various kinds of intoxication of an organism by residue exchange, including at hepatic failure and renal insufficiency, food intoxications, and also at pregnancy toxicoses, to deducing from an organism the compounds of heavy metals, improvement of digestion at the expense of increase the area of biochemical reactions in intestines; have antihypoxic, antiischemic, antisclerous, antisensitizer actions. They normalise the functions of endocrine and nervous systems, stimulate the regenerative processes.

Last years in cosmetological means are widely use biologically active substances of phytogeneous. Healing properties of various plants are defined by a complex of biologically active and auxiliary substances. Now are scientifically proved more than 5 million organic compounds, many of which are in plants. Therefore for the purpose of their rational use it is nec-

essary to skillfully classify them and consider the changes of properties of extractable substances depending on the extractant.

For the purpose of convenience of using the biologically active substances of a phytogenenous in practice of medical cosmetology can be divided on extracted polar and nonpolar solvents. It has been proved that not polar substances are extracted by nonpolar and low-polarity solvents: gasoline, hexane, CO_2, freons, acetone, etc. Changing the polarity of extractant it is possible to select a spectrum of taken substances, and applying consistently some solvents it is possible to reach full extraction of the extracted substances.

Lipophil substances: fatty acids, mono-di-triglycerides, phospholipids, stearines, wax, gums, fat-soluble vitamins, carotinoids, esters are extracted from the plants by nonpolar and low-polarity solvents.

Polar substances: alkaloids, glycosides, including saponins, flavonoids, tanning agents, organic acids, amino acids, mono-oligo-polysaccharides, pectin K, mineral substances, alcohols are extracted by polar extractants: water, water alcohol, alcohols, dimethyl sulfoxide, ethyl acetate.

In medicinal plants there are various biologically active substances, which provide the selective permeability of skin, promote the moisture preservation, and render antioxidant, antiallergenic, anti-inflammatory actions. In numerous literary sources are described cosmetological properties of many medicinal plants and extracts received of them [9].

In table 1 are presented the extraction properties of solvents depending on polarity of biologically active substances extracted from vegetative raw materials.

Table 1.

Extraction properties of solvents depending on polarity of BAS

Name of solvents of BAS	water	dimethyl silfide	water alcohol	ethyl acetate	acetone	freons	gasoline	hexane	carbonic gas
Hydrocarbons				+	+	+	+	+	+
Carotinoids				+	+	+	+	+	+
Diglycerides				+	+	+	+	+	+
Monoglycerides			+	+	+	+	+	+	+
Sterols			+	+	+	+	+	+	
Phospholipids			+	+	+	+	+	+	+
Tocopherols		+	+	+	+	+	+	+	
Terpenoids		+	+	+	+	+	+	+	+
Aldehydes, ketones		+	+	+	+	+	+	+	+
Esters		+	+	+	+	+			
Flavon aglycons	+	+	+	+	+	+			
Alcohols	+	+	+	+	+				
Org. acids	+	+	+		+				
Org. acids	+		+						
Carbohydrates	+	+	+						
Alkaloids	+	+							
Tanning agents	+	+							
Phenol compounds	+								
Glycosides	+	+							
Mineral substances	+	+							
Polisaccharides	+								
Oligosaccharides	+								
Proteins, peptides	+								
Pectins	+								

Preparation of vegetative raw materials to extraction is usually reduced to its crushing. The most convenient fraction of raw materials for extraction can be 3-5 mm with minimum quality of a vegetative dust. Such fractional structure allows the extragent to get into all parts of raw materials, without worsening its drainage properties. The crushing opens in separate kinds of plants the target substance concluded under a bark, increases a surface of phase contact of operating weights. In these purposes various mills, feed mills, disintegrator and others are applied.

Crushing with the help cryotechnology, ultra-dispersion it is possible to reach very thin crushing with damage of cellular walls that accelerates the process of extraction and completeness of extraction of extractive substances at 5-10 times. However thus considerably increases the hydrodynamic resistance, especially during using of water solvents when the swelling of vegetative raw materials is possible. Biologically active substances from plants are taken in ex-tractors of a various design. In diffusers consistently occur diffusion, osmosis and dialysis through a permeable cellular wall. In the most perfect extractors such methods as counter-current extraction are used, gradient extraction in a combination with filtration and so on. Selecting the polarity of solvent, it is possible to vary a spectrum, the taken substances or to divide extractive substances into fractions.

For extraction of natural substances from vegetative raw materials are used the following condensed gases: carbon dioxide (CO_2), the propane (C_2H_8), butane (C_4H_{10}), chlorine and fluorine-containing hydrocarbons (freons, C (H, C1, P) 2n+2). These condensed gases which are under superfluous pressure

are the colourless thin liquids, soluble in organic solvents and almost insoluble in water. Under normal conditions they are in a gaseous state. Viscosity of the condensed gases is much less than viscosity of normal organic solvents that characterises them as extractants with the best diffussion properties. In the chemical relation they are the inert substances showing chemical indifference in relation to substances taken from processed raw materials and constructional materials of equipment. They are not toxic, do not form the explosive mixes with air, fire- and explosion-proof (exceptions are the propane and butane). Low values of heat of vaporization and boiling temperature condensed gases shows the rather small power inputs which are necessary for evaporation and condensation. It allows to delete quickly the gas from extracts already at insignificant temperature influence and to regulate the temperature отгонки solvent. Soft temperature conditions of evaporation of solvents from extracts allow to keep the thermolabel compounds from destruction. The freons extract the fatty oils, derivatives of coumarines: athamantine, peucenidine, bergapthene, xanthotoxine, psoralen, visnadine, and others, furanochromone kellin carotenoids, tocopherols, sesquiterpenes, terpenoids, sterols, some iridoids, chlorophylls, alkaloids and a number of other natural compounds practically do not extract the water-soluble substances (polycaccharides, proteins, phenolic compounds, etc.).

CO_2 -extraction is one of perspective methods of reception of vegetative extractive substances. In supercritical conditions under pressure more than 70 atm. the carbon dioxide is condensed at a room temperature. By means of CO_2-extraction it is possible to receive a wide spectrum of lipophil substances. Modifying a method of application of auxiliary solvents (in-

creasing the polarity of extractant) it is possible to increase the escape of extracts at the expense of extraction of polar connections. One more advantage of CO_2-extraction it is possible to receive the absolute extracts for removal the traces of residual solvents. By means of CO_2 -extraction it is possible to fractionate the lipophil compounds, for example, to extract nonpolar lipids and lycetine, leaving in the rest the more polar phospholipids: cephalin, phosphatidyl serine, phosphatidyl inositol and others.

The most general method for reception of essence is the distillation with water steam or extraction of nonpolar solvents. The received strippant or the extract is cleared of accompanying substances by means of various methods – stripping, extraction by various solvents, crystallisation of impurity and others.

The universal method of clearing the solutions from various impurities is the adsorption. The most widespread sorbents, which are used in photochemistry are the activated coals, aluminium oxide, various ion-changing pitches and the modified sorbents. Thus it is possible to apply both the sorbents selectively extracting the substances from a solution and sorbents, selectively absorbing the impurities. Concentration of solutions in phytochemical manufacture is reached by evaporation. Evaporation process is carried out in vacuum at the hung up and atmospheric pressure. Evaporation under vacuum gives the chance to carry out the process at lower temperatures that is important in cases of concentration of solutions of the substances decaying at high temperatures. For these purposes are applied the vacuum-circulating devices, rotary evaporators and various film dryers. The alternative and eco-

nomic method of concentration the solutions are the membrane technologies. Applying the membranes with various sizes of pores, it is possible to reach the dividing of extractive substances on fractions on the size of particles. To perspective methods are referred the cryof oconcentration, using the principle of sublimations of the solvent (water). The evaporation takes place in extrasoft conditions that allows to keep the thin structure of biologically active substances (for example, enzymes, proteins and others). The drying up of the condensed extracts is carried out in dryers of a various construction. It is preferrable to use the contactless dryers in which the process of drying up is carried out by means of the gaseous heat-carrier, usually the hot air. Is perspective the thin-film drying, the drying in fluidized bed, the spray drying, the drying in combination with filtering and others.

Not less important problem in manufacture of cosmeceutics is the correct choice of auxiliary substances for purposeful transport in cages.

Biological action of vegetative lipophil substances is diverse. The absorption of water and the salts dissolved in it through a skin practically does not occur. Some quantity of water-soluble substances is absorbed through oil-hair bags and through excretory ducts of sudoriferous glands in the period of absence of perspiration. Fat-soluble substances are absorbed through the external layer – epidermis. On the basis of it, it is clear how important the correct selection of auxiliary substances facilitating the penetration of biologically active substances in cells is.

All biological structures of a cell are surrounded by the membranes which are the bilayer formed by molecules of phospholipids.

At the damage of membranes which comes as a result of processes of ageing, influences of oxidants, (reactions of POL), a solar burn, frostbite and others, all processes of life activity of a cell are broken. The content of phospholipids in cells is very high. In responsible tissues (heart, liver, etc.) ther is about 12gr of phospholipids on 100gr of the weight. Very important indicator is the fluidity of biomembranes and their temperature of fusion which should be a little less than the temperature of a human body. These indicators directly depend on degree of nonsaturation of the fat acids which are a part of phospholipids. At reduction of factor of nonsaturation, the indicators of ionic transport are decreased, the reactionary ability of membrane enzymes is decreased, and the oxidation-reduction processes are slowed down. Polynonsaturated phospholipids in vegetable oils are built in the damaged sites of membranes and restore the broken functions of the cage. One of the unique properties of many vegetative extracts is the high content of the natural antioxidants, braking the reactions of POL. For effective braking of the POL it is important the presence of various groups in the extracts the antioxidants operating on independent mechanisms. The known antioxidants: carotinoids, tocopherols, flavonoids, ascorbic acid, influence on different segments of reactions of the POL and in a combination they act much more effectively. For phytochemists there is important the question – whether it is necessary to us the native compositions or to allocate the pure substances with the refined properties. Certainly, the use of the whole combination of biologically active sub-

stances in native condition is very important. On the other hand for strengthening the biological action sometimes it is necessary to allocate the individual substances. Reception of individual substances is as a rule is the multiphasic process connected with the big power expenses and rather small escape (no more than 50-75 %). For productive use of phytocompositions it is necessary to consider the polarity and content of operating substances. The correct choice of auxiliary substances is able to increase the operating substances (sometimes in several times). Thus it is possible to reach not only the increasing of biological effect, but also the considerable economic effect. Besides the components which are a part of cosmetology means, the important value has the technological equipment for preparation and manufacture of phytocosmetology production. To achieve an ideal combination of technology and art of creation of the cosmetology means, allowing to make cosmeceutics of excellent quality corresponding to the world standards it is desirable to apply in the industrial purposes the equipment of the Swedish company Alfa Laval.

Licorice is the medicinal-technical plant which is the natural resources of Azerbaijan, serves as panacea for many diseases during many centuries. It is in detail studied in pharmacological and clinical aspects [1, 4, 6].

It is revealed a number of effective actions of licorice. The particular interest for medical cosmetology is its anti-inflammatory, lymphotropic, antitumor, softening properties. Only during last 5 years (2000-2005) the various developers offered and introduced in manufacture over 300 names of cosmetology production with licorice. Considering the high efficiency of the developed perfumery-cosmetology means and a

great demand of the population for these kinds of production we have studied in detail and developed the new formulations on medical-cosmetology means with licorice.

There are certificates of conformity for all preparations for perfumery-cosmetology production of State standard of the Russian Federation and Committee of Standardization, Metrology, Patent services of the Republic of Azerbaijan.

In modern cosmetology are widely used the following medicinal forms:

1. Lotions and other preparations with the liquid disperse environment.
2. Creams for skin care and other means for skin clearing and bleaching.
3. Photoprotective and sunbathe creams.
4. Cosmetology ointments and pastes.
5. Cosmetology gels.
6. Cosmetology peelings.
7. Cosmetology masks.
8. Cosmetology balms.
9. Cosmetology rubbing oils.
10. Shampoos.

The cosmetology means developed by us on the basis of licorice are the following:

1. The nutrient cream (day)

It has a dry extract of licorice, zeolite, amber acid, jasmin oil, chytozan succinate, lipidic extract, sea-buckthorn oil, stearin, wax, apitoxin, chytozan hydrogel formation, distilled water, glycerine.

It has rejuvenating, moisturizing effect, improves a functional condition of a skin, promotes the accelerated healing of wounds and burns.

It is recommended for care of a withering face skin in age groups.

2. Nutritious cream (night)

It has a dry extract of licorice, zeolite, amber acid, jojoba oil, chytozan water-soluble, collagenosa, sea-buckthorn oil, apitoxin, glycerine, calendula extract, a camomile extract, vitamins A, E, lanolin, lipopholc, euxile.

It has a fine feeding properties, smoothes the wrinkles.

3. Nutritious cream-mask

It has a dry extract of licorice, zeolite, amber acid, extracts of wheat germs, barley and oats; essence "ilang-ilang", stearin acid, glycerine, beer honey natural, sea-buckthorn oil natural, emulsion wax, water-soluble chytozan, distilled water.

REFERENCES

1. Veliyev P.M. Efficiency of of application immune preparations of licorice in complex treatment of some children diseases. The abstract cand. dis.Moscow, 1997, p.22
2. Velieva M. N, Aliev N.A., Veliev P.M. Medicinal and vegetative means applied in sport medicine. Baku, 2004. p.400.
3. Velieva M. N. Licorice and its application in medicine. Baku "Tebib", 1995, p.165
4. Velieva M. N. Antihemolymphocoagulating and lymphostimulating medicinal vegetative means of flora of Azerbai-

jan//Abstract Doc. thesis of pharm. sciences. Moscow, 1998. p.380.

5. Best grasses. “Health by nature” journal. Moscow, 2006 N1 p. 41-46.
6. Muravyov I.A. Materials to studying of licorice of the USSR: Abstract Doc. thesis of pharm. sciences – Pyatigorsk, 1953, p.28.
7. Natural products in medicine and cosmetics. The collection – M: Letavr, 1993, p.234.
8. Rabinovich A.M. – Medicinal grasses and recipes of ancient times – Moscow, 1991 – p.176.
9. Recipes of beauty and health. Application of herbs in cosmetics and medicine. Leninzdat, 1992.
10. Simonova L.V., Pashuk L.K. Chitin and chytozan. Cosmetics journal. Medicine Moscow, 1998, N1, p. 15-19.

§3. ZEOLITES IN DERMATOLOGY

I.A.Amirova, S.D.Ahmedova
Azerbaijan Medical University,
Chair of dermatovenerology

Zeolites are natural aliminum silicates of volcanic origin. The ability of crystals natural aluminium silicates to cause "a boiling up" phenomenon at heating has defined their name – zeolite that in translation from Greek means "a boiling stone" (Kronsted, 1756). Zeolite is aluminum silicate with skeletal structure as the crystal lattice made of tetrahedrons and containing the emptiness, occupied by large ions (calcium, sodium, magnesium, iron, phosphorus, manganese and others) and water molecules. Ions are mobile enough, therefore natural zeolite has the unique properties of an ionic exchange both among themselves, within a natural crystal lattice, and with surrounding substratum. The specific crystal mineral structure of zeolite perfectly proves as an adsorbent, adhering to itself such toxic substances, as ammonia and other compounds of nitrogen, heavy metals, with the subsequent elimination of them from an organism. The removed toxic substances are replaced with those minerals which the organism requires. This way is supported the ion-exchange in an organism and the homeostasis is restored.

Zeolite (clinoptilolite), getting to an organism, shows its surprising properties – adsorbs and removes from an organism the radioactive elements, ions of heavy metals, toxic chlorine-fluorine-containing compounds, ammonium and other substances harmful to an organism. On the other hand, natural zeo-

lite contains a considerable quantity of valuable and necessary for an organism minerals, microelements, metals and chemical compounds with which enriches an organism, improving thereby exchange processes.

Last researches have shown that zeolite suppresses the biological activity of many pathogenic microorganisms and adsorbs them, accelerating thereby the recover from infectious diseases.

According to the joint international scientific program of the Azerbaijan and East European Sections of the International Academy of Science and through the mediation of companies "Azerzeolite" and "YENI TEX", since October, 2002 on the basis of the Azerbaijan natural zeolite of the Aydag deposit and dolomite the release of a mineral complex "AZEOMED" has begun.

"AZEOMED" is the mineral additive, it is issued in tablet form according to Technical Requirements N TR Az 1781832-01-2001, confirmed by the State Committee on standardization, metrology and the patent and Ministry of Health of the Azerbaijan Republic. Tablets "AZEOMED" are issued in two variants: pure zeolite-dolomitic complex and zeolite-dolomitic complex enriched by saffron. Dolomite is the valuable mineral supplying an organism with necessary microcells and substances, is widely used in medicine for prophylaxis of diseases of a gastroenteric tract, gastritis, a stomach ulcer etc.

Saffron is the spice, which medical properties are checked up by centuries, reduces the risk of cardiovascular diseases, helps at cough, asthma, diseases of liver, spleen, gallbladder, infringements of menstrual cycle.

Within the limits of the social and humanitarian programs which are carried out by the Azerbaijan Section of the International Academy of Science, on the basis of chair of dermatovenerology of AMU were carried out the clinical researches of natural zeolite, as preparation of topical effect in the form of 20 % zeolitic ointment on the basis of vaseline, at treatment of patients with various dermatosis. Topical therapy is a leading link in treatment of dermatological patients, and at a number of dermatoses (a scab, pediculosis, pityriasis rosea, epidermophytia plicarum, etc.) is carried out as monotherapy.

The aim of research is to study the clinical efficiency of 20 % zeolitic ointment and its variants in therapy of patients with various dermatoses.

Materials and methods of research.

In the process of preliminary experimental researches on laboratory animals (horses) was revealed the efficiency of 20 % zeolitic ointment on the basis of vaseline. In the next researches we developed the following structures of zeolitic ointment:

– the zeolitic ointment enriched by zinc (zeolite – 17 %, the zeolite enriched by metal zinc (2п) – 3 %. Zinc participates in immunogenesis, various exchange processes of an organism.

– the zeolitic ointment enriched by copper (zeolite – 17 %>, zeolite enriched by copper metal (С) – 3 %. Copper plays the important role in antioxidant protection of the organism as together with the zinc it is in the structure of antioxidant enzyme – superoxide dismutase and antioxidant protein of blood plasma caerulloplasmine which is a carrier of this metal. Copper has anti-inflammatory and antiseptic properties.

– zeolitic ointment enriched by zinc and copper (zeolite – 17 %, zeolite enriched by metal zinc) – 1,5 %, zeolite enriched by metal copper (Cu) – 1,5 %) – "mixed-ointment" .

Also the cosmetic clearing mask has been developed for care of a face skin, including a base (60-75 %) – fine-dispersed mineral sorbents from zeolite-containing tuf of the Aydag deposit and biologically active substances (25-40 %) – the crushed medicinal vegetative raw materials containing in identical proportions the dried up camomiles flowers, beggar-ticks grass, a grass field horsetail, nettle leaves, oregano grass, violet petals, thyme, a root of valerian and licorice.

82 patients with various dermatoses at the age from 8 months till 76 years old, which have been casually selected during in RDVD and volunteers who agreed to have treatment of 20 % zeolitic ointment in its various variants, participated in clinical researches. Among patients at 28 ones (34,1 %) the psoriasis was diagnosed, at 26 ones (31,7 %) – prurigo , at 20 (24,4 %) – atopic dermatitis, at 8 ones (9,8 %) – acrodermatitis enteropathica.

The clinical status at patients with acrodermatitis enteropathica (children at the age of 8 months – 3 years old) was characterised with vesiculobulosis precipitations and erythematic-erosive focuses mainly round the natural foramens, on distal parts of extremities with transition to the next sites of a smooth skin and to mucous membranes.

The clinical picture at patients with atopic dermatitis (16 children and 4 adults) was characterised with pruritic erythematous-squamose, erythematic vesicular, erythematic-papular symmetric focuses, wrong outlines with the indistinct borders, of different sizes, with growing infiltration, lichenifi-

cation and with primary localisation on the face, neck, the upper part of the body, elbow, knee and radiocarpal bends.

Prurigo at children (п =14) was clinically shown with strongly pruritic papular elements, and at adults (п =12) – papular-vesicular and nodulous elements, red-brown colour, of semispherical form, not inclined to fusion with primary localisation on a skin of extensor surfaces of extremities and a trunk. Clinical displays of psoriasis (18 children and 10 adults) were characterised with erythematous-squamose сквамозными papulae and the plaques of the roundish form inclined to fusion with primary localisation on a hairy part of a head, of external surfaces of extremities and a trunk.

Treatment of 20 % zeolitic ointment at half of patients with psoriasis (п =14), почесухой (п =13), atopic dermatitis (п =10) was carried out in complex with traditional preparations of systemic action (antihistamine, desensitizing, immune, sedative, hepatoprotector, vitamins of B groups), and at other half of patients – in complex with the mineral additive "AZEOMED". At patients with acrodermatitis enteropathica the treatment with 20% zeolitic ointment was combined with reception per os the zinc oxide and "AZEOMED".

Efficiency of treatment was defined on dynamics of the resolution of clinical displays: insignificant clinical improvement, clinical improvement, considerable clinical improvement, clinical recover. 20% zeolitic ointment and its variants were prescribed for the lesion focus 2 times a day within 2-4 weeks, in parallel with application of systemic preparations of a traditional number and with the mineral additive "AZEOMED". "AZEOMED" was prescribed 1-2 tablets (500 mg) 2-3 times a day during a meal. The control group was made by 18

patients (psoriasis – 5, prurigo – 5, atopic dermatitis – 5, acrodermatitis enteropathica – 3) which treatment was carried out with traditional preparations systemic and topic actions.

Results of research and discussion.

As a result of the spent treatment, clinical improvement begun on the 2nd day – at patients with acrodermatitis enteropathica (in control group – on the 3-4th day), on the 2-3rd day – at patients with atopic dermatitis (in control group – on the 3-5th day), on the 2-5th day – at patients with prurigo and psoriasis (in control group – for 4-7th day) and was expressed with blanching of erythema, reduction of peeling, infiltration, pruritis, up to a total disappearance, the termination of occurrence of fresh elements. Clinical recover was diagnosed for all patients with acrodermatitis enteropathica. Among patients with atopic dermatitis at 3 patients (15,0 %) are registered the clinical recover, at 10 patients (50,0 %) – the considerable clinical improvement, at 7 patients (35,0 %) – the clinical improvement. In the group of patients with prurigo the clinical recover was noted at 6 patients (23,0 %), the considerable clinical improvement at 15 patients (57,6 %), insignificant clinical improvement at 5 patients (19,2 %). Among patients with psoriasis the clinical recover is diagnosed at 8 patients (28,5 %), considerable clinical improvement at 15 patients (53,5 %), clinical improvement at 5 (18,0 %) patients.

The analysis of efficiency of application of zeolitic ointment at topic therapy of the dermatoses given above has shown the faster coming of clinical effect at application of mixed-ointment application – a variant of zeolitic ointment in a complex with Zn and Cu. The analysis of catamnesis data has revealed the absence of a syndrome of cancellation and more

stable remission within 4-9 months at patients with atopic dermatitis, prurigo, psoriasis.

Thus, zeolitic ointment is a preparation of choice at heavy skin pathologies, as peeling, regenerating, antipruritic, sedative, restoring the trophism topic means increasing the efficiency of treatment of skin diseases. Large- scale application of zeolitic ointment in dermatology demands further biochemical and clinical-immunological researches at the level of cellular and humoral immunity.

CHAPTER V

§ 1. ZEOLITE-CLINOPTILOLITE – "AZEOMED"

G.F.Sharifzade
The Research-production company "YENI TEX" Ltd

For a long time it has been known to mankind the influence on it various external ecotoxicants.

Every year their quantity is increased and is increased the fatal role for a human body – stress – factors, and is reduced of protective functions of organs and its systems (2) from external influences.

To endure all above-mentioned negative factors, the most optimal is preventive application of the preparations deducing the toxins from an organism and restoring functions of organs and an organism as a whole. For preparations is required a number of conditions where besides standard ones it is also considered: the ecological cleanliness, the content of natural components thanking to which the preparation will be digested at cellular level, not only not doing harm to an organism, but also introducing many positive qualities (1, 2, 5).

Such remedy has been found. The mineral complex "AZEOMED", made by the company "YENI TEX" in Azerbaijan has the above-mentioned properties.

For its reception are used the components of a natural origin: zeolite and dolomite. It is known, that not all kinds of zeolites are suitable for use in medicine into the organism (5). Here is important the application of plastic high-silicon zeolite – clinoptilolite which definition is reached by means of x-ray dif-

fractometry, which allows to define the phase (mineralogical) structure of rocks, and also to establish the quantitative interrelations of components composing them (3, 4). Also are established their physical properties: thermal stability, the content of water in zeolite structure. Electron-microscopic studying has established that the deposit of Aydag located on the western suburb of Tauz in Azerbaijan, has a great bulk of the zeolite composed from clinoptilolite. The oxide formula for clinoptilolite:

$$(Na_2K_2)OAl_2O_3\times10SiO_2\times8H_2O,$$

And probable crystal-chemical one is – $Ca_{4,5}Al_9Si_{24}O_{72}$ (5).

It has been found out that the crystal structure of clinoptilolite is characterised by presence of the open enough channels formed by 10 and 8-membered tetrahedral rings, and the cations occupy the emptiness of a crystal lattice. It can be cations of various metals and microelements at the account of which takes place ionexchange with the cells of organism.

The important sorption characteristic of clinoptilolite is the quantity of water in intracrystalline cavities (this volume can be up to 50 % of a crystal).

According to the chemical analysis of zeolite and dolomite, carried out at Institute of Chemical problems named after M.F.Nagiev we have:

Indicators of colour, smell, granularity and humidity (table 1).

Table 1.

Physical indicators

№	Indicators	Norm	Fact
1	**Appearance**	Light grey – white	Corresponds
2	**Smell**	Without smell	Without smell
3	**Content of clinoptilolite in zeolite**	73% – 75%	73,5%
4	**Granularity** **Fraction 00** **Fraction 01**	 90 – 95 5 – 10	 91,0 8,0

And also the chemical analysis (table 2).

Table 2.

The chemical analysis of zeolite and dolomite

№	Na_2O	MgO	Al_2O_3	SiO_2	P_2O_5	K_2O	SO_3	CaO	TiO_2	MnO	Fe_2O_3
Seolit	2.69	0.47	12.65	64.38	0.12	2.25	0.035	3.30	0.085	0.10	1.27
Dolo-mit	0.047	20.11	0.79	4.77	0.017	0.045	0.16	29.40	0.032	0.034	0.55

Thus, having carried out all the listed analyses, we have received the confirmation that the given zeolite (клиноптилолит) is suitable to use for the preventive and medical purposes.

Proceeding from the above-mentioned, we make conclusions that the mineral complex "AZEOMED" is that auxiliary means for an organism, which is used both for the purpose of restoration of microelement structure of an organism and for adsorption and deducing the toxic substances.

REFERENCES

1. Bgatova N.P. Use of biologically active food additives on the basis of natural minerals for detoxication of an organism. Novosibirsk 2000.
2. Ershov J.A., Pletneva T.V. Mechanism of toxic action of inorganic compounds. – M: Medicine, 1989.-p.272.
3. Pylev L.N., Vasilyeva L.A., Valamina I.E. Analys of biological aggression of zeolites of various deposits of RF/Natural minerals on service of the person. Scientif. Conf. Novosibirsk 1999 p. 68-70.
4. Khalilov E.N., Bagirov R. A. Natural zeolites, their properties, production and application. Baku-Berlin. 2002 p.37-39.
5. Pauling L.The nature of the chemical bond and the structure of molecules and crystals L 1960, P 85.

§ 3. ZEOLITE IS THE HEALTH AND YOUTH ELIXIR

A.A.Jafarov

The Scientific-production company "YENI TEX" Ltd.

Zeolites are natural minerals of silicate, from colourless to white or light pink with the possible shades, the most valuable for the industry are considered the high-silicon ones and their varieties – clinoptilolite, mordenite, chabazite, etc. More than 40 zeolite minerals by this time have been already found. In 20-30th of the XX-th century it has been established that dehydrating zeolites absorb the molecules of various substances, and this absorption depends on their size which is evidence of microporous structure of a crystal skeleton.

Natural zeolites is the biggest group of aluminum silicate with frame structures, in crystal lattice of which there are the cavities-pores, which are communicated among themselves by open channels-windows.

In zeolites are distinguished three types of systems of channels:

1) system of one-dimensional not crossed channels (analsim);

2) two-dimensional system of channels (natrolite, thomsonite, mesolit, mordenite, heulandite, clinoptilolite, etc.);

3) two variants of three-dimensional systems of crossed channels: in one variant all channels are equivalent and free diameters are identical (chabazite), in the second one – channels are not equivalent and their diameters depend on crystallographic direction (1).

Clinoptilolite and heulandite are plastic zeolite and are characterized by perfect cohesion. Hay and Banister carried out the x-ray studying, having found out that monocrystals rotate round an axis similarly (10).

Typical oxide formula of clinoptilolite is – $(Na_2K_2)OAl_2O_3 \times 10SiO_2 \times 8H_2O$, and probable кристалло-химическая – $Ca_{4,5}Al_9Si_{24}O_{72}$.

Necessity of use of zeolite for improvement of a physiological condition of a human body is confirmed with its valuable qualities.

Since ancient time Hippocrat knew about possibility of using the mineral and natural sorbents in medicine (400 years BC).

It was established that natural clinoptilolite and mordenite-containing rocks have sorption, ion-exchange catalytic properties, according to works of Swedish scientist V.V. Sheele and the French scientist A.F.Fountain, and that zeolites can be applied not only in various branches of national economy, but also in medicine (2).

It is necessary to tell that medicine is not only rather new sphere of their application, but also as the practice shows, – extraordinary perspective.

During the last decades, thanking to experience of using the natural zeolites as biologically active additives (BAA) to the food, was possible to find out many things concerning the influence of zeolites on an organism. In 1996 for the first time was obtained the permission for industrial production of biologically active additives to food (BAA) with the use of zeolites, a number of positive clinical effects is connected with it.

These properties of BAA are explained with sorption-adhesive and ion-selective properties of zeolites, and also their famous saturation with various chemical elements.

Potential utility of zeolites, applications in medicine which does not cause doubts is their powerful antitoxic action. Such action is proved by numerous modelling experiments and clinical tests, is stipulated with well studied sorption and ion-exchange properties (3).

It is well-known that heavy metals, free radicals, decay products and toxins from the internal environment negatively influence on immune system of an organism, namely attack our glands of internal secretion and are accumulated in them, thereby, suppressing their activity in development of hormones. As a result of a disbalance of harmonious work of glands of internal secretion the organism failures and the person falls ill with such diseases as cancer, goiter, diabetes, atherosclerosis, heart attack, etc.

It is considered absolutely proved that the zeolites at getting in a digestive tract sorb the heavy metals, free radicals, decay products and toxins from the internal environment, thereby, incurring a considerable part of function of antitoxic system of an organism, first of all, of a liver. The given effect as the medical practice shows, can have the essential value at any diseases, in particular the diseases of a liver, such as hepatosis, hepatitises, a cirrhosis, echinococcosis, etc., and also at acute and chronic (professional) poisonings. What is very remarkable, the zeolite it is a sorbent natural-dosed, i.e. using of 1-2 tabs of it is enough.

Efficiency of influence of zeolite-containing rocks as medical means appreciably depends on a concrete set of its

minerals, and also biologically accessible chemical elements in their structure. During long-term research works it was established that natural zeolites of the Aydag deposit has the unique ability to selective adsorption, catalysis and ion-exchange. These qualities of natural zeolites allowed to use them in processes of detoxication of an organism methods by hemosorption and immunoadsorption. Zeolites of the Aydag deposit has a set of unique features of adsorptive exchange and catalysis, comprising the necessary elements for an organism in easy-to-digest form, such as potassium, calcium, silicon, zinc, phosphorus, sodium, iron, magnesium, etc. Thanking to these properties zeolites by means of ionic exchange "extort" from an organism the heavy metals, mercury, radionuclides, nitrates and phenols, clearing from slags and toxins which are the decay products from oxidation-reduction reactions which are in a human body. It is known that our skin is the most complicated body which carries out a number of functions, connected with a metabolism. It deduces "slags", participates in a water-salt, carbohydrate and salt metabolism. Its great value in work of immune system (9) was proved.

In live activity of cutaneous coverings the minerals also play an indispensable role. Enzymes, vitamins, hormones and other physiologically active substances do not work without them. If their balance in an organism is broken for any reasons, it is reflected at once on a skin condition. At contact with a skin surface, between it and zeolite there occurs the ionic exchange providing the restoration of a mineral homeostasis and substantially promotes the restoration of exchange processes.

From 92 chemical elements meeting in the nature 81 of them were found out in a human body. 12 elements are called

structural ones as they are 99 % of element structure of a human body (C, O, H, N, Ca, Mg, Na, K, S, P, F, Cl).

The elements which are present in a human body in very small, trace quantities are called microelements (trace elements). They are first of all 15 essential – Fe, J, Cu, Zn, Co, Cr, Mo, Ni, V, Se, Mn, As, F, Si, Li, and conditionally – essential B, Br. Elements Cd, Pb, Al, Rb are serious candidates for essentiality. In the study about ME is especially distinctly visible the justice of words of Paracelsus that "there are no toxic substances, and there are toxic doses".

The table of dependence of deficiency of either element, and accompanying symptoms of a condition of the person is shown below.

№	Symptoms and conditions	Deficiency or the raised requirement
1	Bad appetite	Zinc, Iron
2	Diseases of a liver	Selenium, Zinc
3	Raised acidity of a stomach	Magnesium
4	Choleastasis	Magnesium
5	Affection of the mucous of Gastrointestinal tract	Selenium, Zinc, Potassium, Iron
6	Liquid stool	Zinc, Potassium
7	Constipations	Magnesium, Manganese, Zinc, Chrome
8	Dysbacteriosis	Zinc, Iron, Calcium, Cobalt

9	Food allergy	Zinc, Selenium, Manganese, Magnesium, Calcium
10	Bad digestion	Chrome, Zinc, Iron
11	Alcohol and drug abuse	Zinc, Magnesium, Selenium, Lithium
12	Bad memory	Zinc, Manganese, Copper
13	Chronic lassitude	Magnesium, Manganese
14	Bad mood	Copper, Manganese, Potassium, Zinc
15	General weakness	Potassium, Magnesium, Zinc
16	Sleep disorder	Magnesium, Manganese
17	Psychological developmental lagging in children	Manganese, Zinc, Copper, Cobalt
18	Physical developmental lagging in children	Zinc, Copper, Magnesium, Cobalt, Calcium, Iron
19	Hearing loss	Manganese, Copper
20	Visual impairment	Zinc, Copper, Magnesium, Chrome
21	Overweight	Chrome, Manganese, Zinc
22	High level of sugar in blood	Chrome, Manganese, Zinc, Magnesium
23	Abnormality of cardiovascular activity	Potassium, Magnesium, Selenium
24	Weakness of joints and liga-ments. Infringement of posture	Copper, Silicon, Manganese

25	Fragility of bones	Manganese, Calcium, Magnesium, Copper, Silicon
26	Anemia	Iron, Copper, Zinc, Cobalt
27	Hair fall	Zinc, Selenium, Silicon
28	Bad growth of hair and nails	Zinc, Selenium, Silicon, Magnesium
29	Acnes	Chrome, Selenium, Zinc
30	Inflammation, Skin irritation	Zinc, Selenium, Silicon
31	Infringement of skin pigmentation	Copper, Manganese, Selenium
32	Fragility of nails	Silicon, Selenium
33	Skin allergies	Selenium, Zinc
34	Allergies of upper air passages	Copper, Manganese, Selenium, Calcium, Cobalt
35	Decrease of immunity (frequent diseases)	Zinc, Selenium, Magnesium, Cobalt
36	Pregnancy	Calcium, Zinc, Copper, Iron, Magnesium
37	Lactation	Magnesium, Calcium, Zinc, Copper, Silicon
38	Infringements of functions of prostate gland	Zinc, Selenium
39	Infringements in gynecologic sphere	Copper, Potassium, Manganese

40	Susceptibility to urolithiasis	Potassium, Magnesium, Zinc
41	Psychoemotional high physical activity	Iron, Zinc, Chrome, Potassium, Manganese
42	Hypererethism of children	Magnesium, Zinc
43	Susceptibility to neoplasms	Zinc, Selenium, Manganese, Silicon
44	Climax	Copper, Selenium, Magnesium, Manganese
45	Inflammatory diseases of an oral cavity	Zinc, Copper

It is well-known that microelements have a wide spectrum of synergetic and antagonistic interrelations. So, it is shown that between 15 well-known essentially necessary elements there exist 105 bilateral and 455 tripartite interactions. This position is a natural basis for studying of displays and an estimation of development of a disbalance of a microelement homeostasis, so characteristic at deficiency of even one essential element.

The microelement homeostasis can be broken at insufficient receipt of essential ME and/or superfluous receipt into the organism of the toxic ME. And, taking into account the difficult antagonistic and synergetic interferences and relations between elements, the picture of an intoxication or occurrence of a pathological condition and diseases can be very difficult for interpretation. In this case it is very important the adequate diagnostics of microelementosis, connected, first of all, with ex-

act quantitative definition of elements in indicator biosubstrata of the person.

The gained by this time scientific and medical data about a role of mineral elements in functioning of separate organs, systems and a human body as a whole, the data about consequences, for health of the person, deficiency of biogene, vital elements and excess of toxic ones are generalised and are used in diagnostic and medical practice by the Center of Biotic Medicine under the lesdership of D.m.s. A.V.Skalniy.

Elements necessary for an organism for construction and life activity of cells and organs are called the biogene elements.

For 30 elements the biogenic property was established (4). There are some classifications of biogene elements:

A) According to their functional role:

1) organogenes, there are 97,4% of them in the organism (C, H, O, N, P, S),

2) elements of electrolytic background (Na, K, Ca, Mg, Cl). These ions of metals 99% of the general maintenance of metals in an organism;

3) microcells are biologically active atoms of the centres of enzymes, hormones (transitive metals).

B) According to concentration of elements in an organism the biogene elements are divided:

1) macroelements;

2) microelements;

3) ultramicroelements.

The biogene elements, which content exceeds 0,01% from weight of a body, are referred to macroelements. 12 elements are referred to them: organogenes, ions of electrolytic background and iron. They are 99,99% of a live substratum. It

is even more amazing that 99% of living tissues contain only six elements: C, H, O, N, P, Ca. Elements of K, Na, Mg, Fe, Cl, S are referred to oligobiogenic elements. Their content fluctuates from 0,1 to 1%. The biogene elements, which total content is size of order of 0,01%, is referred to microelements. The content of each of them is 0,001% (10^{-3} – 10^{-5}%). The majority of microelements is basically in liver tissues. This is the depot of microelements (7). Some microelements show the affinity to certain tissues (iodine – to a thyroid gland, fluorine – to enamel of teeth, zinc – to a pancreas, molybdenum – to kidneys, etc.). The elements, the content of which is less than 10^{-5}%, are referred to ultramicroelements. The data about quantity and biological role of many elements is obscure till the end (5). There are constantly some of them in an organism of animals and the person: Ca, Ti, F, Al, As, Cr, Ni, Se, Ge, Sn and others. Their biological role is found out a little. They are referred to conditionally biogene elements. Other impurity elements (Te, Sc, Ag, In, W, Re and others) are found out in a human body and animals, and the data about their quantity and biological role is not found out. The impurity elements are also divided on accumulating ones (Hg, Pb, Cd) and not accumulating ones (Al, Ag, Go, Ti, F).

All live organisms have close contact with the environment. The life demands a constant metabolism in an organism. The food and consumed water promotes the receipt of chemical elements to the organism. The organism consists of water on 60%, 34% fall on organic substances and 6% on inorganic ones. The basic components of organic substances are C, H, O. Into their structure are also included N, P, S. In the content of inorganic substances there certainly are 22 chemical elements.

For example, if the weight of the person is 70 kg, then there are (gr): Ca – 1700, K – 250, Na-70, Mg – 42, Fe – 5, Zn – 3 in it. On a share of metals falls 2,1 kg. The content of elements IIIA-VIA groups in the organism, covalent bonded with an organic part of molecules, decreases with growth of a charge of a kernel of atoms of the given group of periodic system of D.I. Mendeleyev. For example, w (O)> w (S)> w (Se)> w (Fe). The quantity of the elements which are in an organism in the form of ions s-elements IA, IIA groups, p-elements of VIIA group), with growth of a charge of a kernel of atom in the group is increased to an element with optimum ionic radius, and then it is decreased. For example, in IIA group at transition from Be to Ca the content in an organism is increased, and then from Ba to Ra is decreased. Elements, analogues having a close structure of atoms, have many things in common in biological action.

According to the recommendation of dietologycal commissions of National Academy of the USA the daily receipt of chemical elements with food should be at certain level (table 1).

Table 1.

Daily receipt of chemical elements
In the organism of a man

The chemical element	**Daily consumption, in mg**	
	Adult	**Children**
Potassium	2000-5500	530
Sodium	1100-3300	260
Calcium	800-1200	420
Magnesium	300-400	60

Zinc	15	5
Iron	10-15	7
Manganese	2-5	1,3
Copper	1,5-3,0	1,0
Titan	0,85	0,06
Molybdenum	0,075-0,250	–
Chrome	0,05-0,20	0,04
Cobalt	About 0,2 Vitamin B_{12}	0,001
Chlorine	3200	470
PO_4^{3-}	800-1200	210
SO_4^{2-}	10	–
Iodine	0,15	0,07
Selenium	0,05-0, 07	–
Fluorine	1,5-4,0	0, 6

The same quantity of chemical elements should be deduced, as their content in an organism is in a relative constancy.

At insufficient receipt of an element in an organism is caused the essential damage to growth and development of the organism. It is explained by decrease of activity of enzymes which structure includes an element. At increase of a dose of this element the response reaction of the organism is increased, reaches the norms (the biotic concentration of an element). The further increase of a dose brings to decrease in functioning owing to toxic action of surplus of an element up to a fatal outcome. Deficiency and surplus of biogene element harms to an organism. All live organisms react to a lack and surplus or an

unfavorable proportion of elements. It is appropriate to remember the words of Tadjik poet Rudaki: "That now for a medicine has a reputation, tomorrow becomes poison".

Being in harmony with the nature, the mankind has stopped that side which a lot of hundreds centuries protected our population; we breathe the air poisoned by the plants, factories, exhaust gases of cars etc., we drink the chlorinated water, (as it is known the chlorine atomic is the destroyer of our immune system), water from reservoirs and the rivers with doubtful reputation (concerning cleanliness) where a sewage poured out from neighborhood settlements and cities, and also waste products and the mining industry, washing waters from fields of agrarian sector, etc. we eat vegetables, fruit, cereal, filled with herbicides and insecticides, we eat meat of animals and birds grown on these poisons and gene modified forages, as a mine of the delayed action , and also that has important value, we use in our diet a lot of gene modified products, brought from abroad, and different flavouring additives to food, etc.

There is the way out of this critical situation (except a solicitous regard to the nature and using of pure technologies). This is the balanced diet and a life. Also along with it is very important to use the mineral complex made of natural zeolite – clinoptilolite, with the trade name – "AZEOMED", made by "YENI TEX" Ltd.

As it is known there isn't the panacea from all illnesses, but the man on a long way of the evolutionary development and aspiration to absolute mind, is able to make certain steps in the sphere of increase of life expectancy at qualitative level. For this purpose it isn't required too much – to know himself,

to be attentive to the own organism, to timely prevent the illnesses and the most important thing is to self-purify by soul and body.

Cllinoptilolite of the Aydag deposit on basis of which is made a mineral complex "AZEOMED" in tablets, in its structure and component has almost all known elements in various proportions, the majority of which are so necessary for our organism. The organism needs every day: 2,5 gr of sodium ions, 3 gr of ions of potassium, 1 gr of calcium ions, 0,4 gr of magnesium ions, 0,003 gr of copper ions, 0,005 gr of manganese ions, 0,015 gr of zinc ions, 0,015 gr of iron ions, 50 mkg of cobalt, 88 mkg of ions of silver, 0,00005 gr of ions of selenium, chrome, molybdenum, titanç etc. and all this is in necessary quantities in clinoptilolite of the Aydag deposit. The correct and rational use of this bioadditive is capable to relieve an organism of many illnesses. This deliverance is carried out by means of clarifications of an organism from slags and toxins, first of all, and saturation the organism with necessary micro- and macroelements. These elements in microdoses are essential for development of an organism and they are called microcells. The science which study them, is called microelementology.

In a living organism many processes have cyclic, wavy character. The chemical processes lying in their basis, should be reversible. The reversibility of processes is defined, as it is known, by the interaction of thermodynamic and kinetic factors. Under these conditions of concentration of initial substances and reaction products can be in commensurable concentrations and at their change in some range it is possible to achieve the reversibility of process. From kinetic positions there should be low values of energy of activation. Therefore

the ions of metals are a convenient carrier of electrons in living systems (iron, copper, manganese, cobalt, molybdenum, zinc, silver and others). Joining and loss of electron cause the changes of only electronic configuration of ion of metal, without changing, essentially, the structure of an organic component of a complex. The unique role in living systems is taken to two oxidation-reduction systems: Fe^{3+}/Fe^{2+} and Cu^{2+}/Cu^{+}. Bioligands stabilise in a greater degree in the first pair the oxidised form, and in the second pair – mainly the restored one. Therefore, formal potential of the systems containing the iron, are always lower, and of the systems containing the copper, the oxidation-reduction systems containing the copper and iron, are often higher, block a wide range of potentials that allows them to interact with many substrata, accompanied by moderate changes of thermodynamic and kinetic factors that meet the conditions of reversibility. The important stage of a metabolism is removal of hydrogen from nutrients.

Atoms of hydrogen turn into ionic condition, and separated from them electrons come to respiratory chain; in this chain, turning from one compound into another, they give their energy to formation of one of the basic energy sources the adenosinetriphosphoric acid (ATA), and, they, finally, joining the oxygen molecule, form the water molecules. The bridge, on which the electrons are oscillated, is the complex compouns of iron with porphyrines kernel, similar to the haemoglobin on its structure (14).

The big group of ferruginous enzymes, which catalyze the process of electron transport in mitochondrions, is called cytochromes (c.c.). About 50 cytochromes are totally known.

At a lack of iron in the organism the anaemia progressees as it is a part blood haemoglobin. Daily receipt of this element in an organism should be 12 mg.

Deficiency in iodine food – from an iodine lack "Basedow's disease" progresses.

It is characteristic for an organism the maintenance at constant level of concentration of ions of metals and ligands, i.e. the keeping of metall-ligand balance (metal-ligand homeostasis).

Infringement of balance of microelements is possible as a result of not receipt or insufficient receipt that also can be connected with features of biogeochemical provinces, or with manufacture. For example, almost two thirds of territory of our country are characterised by an iodine lack, in particular, in mountainous terrains, on valleys of the rivers it causes the endemic increase of a thyroid gland and goitre in people and animals. Preventive iodination promotes the prevention of endemic disease and epizootic. The fluorine lack results in fluorosis. In oil recovery places is observed the deficiency of ion of cobalt, etc.

Chelating of free ions of metals entering into structure of zeolite – clinoptilolite – "AZEOMED" with polydent ligandsin an organism transforms them in steady, more coordinated-saturated particles, capable to restore the whole biocomplex of a human body.

Zeolite easily copes with this role, which clears our organism fro all slags and harmful substances, without exception, deducing even the radiation from an organism.

Zeolite is a component of the globe, and as it is known the Earth is susceptible to self-cleaning, it means that the zeo-

lite isalso all-purifying means, the means necessary for health and the prolonged youth.

From the above-stated is seen, the mineral complex "AZEOMED" for a human body is of great value, in particular about its influence on immune system, hemodynamics and a psychoemotional condition.

Therefore the use of this bioadditive has huge value as it is the agents of the prolonged influence on the active centres of immune system.

REFERENCES

1. Khalilov E.N., Bagirov R.A. Natural zeolites, their properties, production and application, Baku-Berlin, 2002, p.35.
2. Avramenko V.A., Vasilevskiy V.A. New sorbents on basis of modified zeolites and their application in ecology, agriculture and medicine. Trans. of Scient.Pract.Conf. Vladivostok. 1994, p.16-19.
3. Panichev A.M. Gulkov A.N. Natural minerals and causal medicine of future. Vladivistok. Publ.House BTGU 2001, p.216.
4. Avsin A.P., Javoronkov A.A. et al. Human microelements. M.: Medicine, 1991, p.496.
5. Yershov Y.A., Popkov V.A., Berland A.S., Knijnik A.Z., Mikhaylichenko N.I. General chemistry. Biophysical chemistry. Chemistry of biogenic elements. M.: Vysshaya shkola, 1993, p. 560.
6. Yershov Y.A., Pletneva T.V. Mechanisms of toxic action of inorganic compounds. M.: Medicine, 1989. p.272.
7. Avsin A. P., Javoronkov A.A. et al. Human microelements. M.: Medicine 1991, p. 496.
8. Pilev L.N., Vasilyeva L.A., Valamina I.E. Analysis of biological aggressivity of zeolites of different deposits. RF/ Natural minerals on the service of a man. Math. Sc. Conf. Novosibirsk, 1999, p.68-70.
9. Khaloliv E.N., Bagirov P.A. Natural zeolites, their properties, production and application. Baku-Berlin, 2002. p.158.
10. Hey M.N., Banister P.A. Clinoptilolite a silicarich variete of yeulandite – "Mineral Mag", 1934, t.23, 556.
11. Davis F.F./ Allen F.W., Biol.Chem. 217, 13 (1955).

12. Gurd F.R.N. Wilcox P.E., Adv, Protein Chem., 11, 311 (1956).
13. Emeri T Abst.158 the Am. Chem. Soc. Meeting, New York 1969, 8-12 September.
14. Lever A.B.P., Adv. Inorg. Chem. Radiochem., 7, 27 (1965).

Science Without Borders ®

International Publishing House "SWB",
(UK, Bulgaria, Turkey, Czechia)
Office in Bourgas: Bulgaria, city of Bourgas,
15-B "Khan Krum" Street
Office in London: EIC, 19 Kathleen Road, London,
SW112JR,
United Kingdom of Great Britain and Northern Ireland
Phone: + 44 207 760 63 31;
Fax: + 44 207 691 95 60;
www.wosco.org
e_mail: publishing_house@wosco.org

Technical editor: N.A. Ligina
Computer imposition: A.L. Dukhanina

Date of an order: 11.03.2010
Orden: 102/010
Format: 60×84 1/16
Offset printing
Conventional printer's sheet: 24,78
Copies of the book were printed: 1,000
Bulgaria, Bourgas

ISNB 978-9952-451-07-8