

EVOLUTION OF BIOTITES OF THE CRYSTALLINE MASSIFS OF CATALONIA (SPAIN) DURING THEIR GEOCHEMICAL ALTERATION

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The biotites of the crystalline massif of Catalonia (Spain) are weathered into a complex assemblage of clay secondary minerals. This is mainly formed by hydrobiotites (I_v) with very different compositions. The K₂O of these phyllites changes from 7.2 to 2.8%. After this stage, the evolution is characterised by the genesis of protochlorites (Sm-C), then chlorites. Illites are less abundant in the studied profiles; while kaolinites are uncommon. The diversity of secondary minerals can be observed on a very small scale, often a centimetre and sometimes in one crystal of biotite only. A hydrobiotite - mineral close to chlorite- chlorite continuum occurs especially in the retromorphosis zone, not subject to weathering and these minerals are inherited in the saprolite formations. However, some chlorites can be the consequence of superficial weathering.

TO CERTAIN FEATURES OF THE INFLUENCE OF ORGANIC-ZEOLITIC FERTILIZERS ON CHARACTER OF DEVELOPMENT OF PLANTS

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The paper shows advantage of application of organo-zeolitic fertilizers in practices of plant-growing in comparison with chemical fertilizers. Organo-zeolitic fertilizers more effectively increase yield of crops, characterized by positive effect of after action (minimum two-three years) ecological safety and essentially low cost. The positive influence of these fertilizers on shift of bisexual plants to the direction of formation of female flowers (scallops) and on increased number of bunches of grapes has been established.

THE INFLUENCE OF RATIONAL DOSES OF FERTILIZERS ON PRODUCTIVITY OF TOPINSUNFLOWER (ASTERACEAE) IN KARTLI (GEORGIA)

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By means of our experiment in 1996-2008 optimum variants and norms of mineral fertilizers and their dependence on biological (green mass+tubers) productivity of Topinsunflower, in environmental ecosystem parameters have been established. With doses of mineral fertilizers, the diagnostic model of efficiency and productivity of Topinsunflower by means of differentiation of parameters and ecosystem and influence of propagation on morphological tests carried out. Also have established advantage of a variety with the nutrition area 70x70 cm on productivity and a quality indicator (green mass and tubers). Variety - N₁₈₀ P₆₀ K₄₀ with the nutrition area 70x70 cm has surpassed all other varieties in all indicators that has been caused, in mainly, optimization of parameters of a mineral nutrition, illumination. It has been established that Topinsunflower develops well on the irrigated brown meadow soils, characterized by an average mechanical structure, calcareous, the maintenance neutral or weak alkaline reaction.

ECOLOGICAL ESTIMATION OF THE SOILS OF THE LENKORANCHAY BASIN (AZERBAIJAN)

E.H.Nasirov, A.B.Akhundova

Basin soils were estimated on the basis of a scale, which was made according to the maintenance of microelements in soils. It revealed that Gleyic Luvisols (90-97 point) are characterized by the highest point. The ecological estimation of soils is carried out with taking into account concentration of microelements in soils. It is determined that rather high ecological point is marked in the cultivated Gleyic Luvisols.

WILD AND CULTIVATED PLANTS OF ARMENIA, USED INSTEAD OF INSECTICIDES AND PEST-KILLERS AGAINST PLANT VERMINS

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The paper deals with some wild and cultivated plants of Armenia used against vermins of safeguard berry, fruit-growing and vegetable crops, as well as ornamental plants. These plants, dried and cut or preparations from these plants are used for the control of harmful insects, fungi and pathogen microorganisms. These plants and preparations used instead of insecticides, chemical weed-killers and pest-killers will promote to good crop capacity and lead to low contamination of surroundings.

THE EFFECT OF TECHNOGENIC DISCHARGE ON THE AGRICHEMICAL INDEXES OF SOILS WITHIN THE AREA OF VANADZOR CHEMICAL PLANT

S.A. Hunanyan

The article studies the effect of industrial discharge on the agrichemical, physical-chemical indexes (humus, amount of absorbed bases, content of basic nutrients -N, P, K, per specific weight and bulk density, pH) of soils in technogenic zones of Vanadzor town. The effect of technogenic discharge on the soil agrichemical indexes depends on the rate of soil cover pollution.

ECOLOGICAL CHARACTERIZATION OF SOILS OF ALPINE AND SUBALPINE MEADOWS OF THE RIVERS GUSARCHAY-GUDIALCHAY BASIN

J. A. Shabanov

The paper considers the up-to-date soil cover condition of the alpine and subalpine meadows of the rivers the Gusarchay-Gudialchay basin located on the northeasterly declivity of the Big Caucasus (at the territory of Azerbaijan). The paper presents some physico-chemical factors of the soils of the current territory, which were taken as criteria of soil quality. As a result, the main scale of soil bonitet of the study area has been composed.

STUDY OF ETHYLENEDIAMINETETRAACETIC-ACID AND MICROELEMENTS CONTAINING COMPOUNDS

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There have been established characteristics of synthesized compounds by roentgenographic study of chelate complex (general formula $Me \cdot EDTA \cdot nH_2O$) containing microelements (Mg, Mn, Zn, Fe, Co, Cu) and ethylenediaminetetraacetic-acid (EDTA). There have been also determined that some of the compounds represent roentgenamorphous compounds and

others form isostructural lines. Biological efficiency of fertilizers, which are produced from above listed synthesized compounds, has been studied on corn crop in laboratory settings.

APPLICATION OF PRESERVED SULFURIC ACID FOR CHEMICAL MELIORATION OF SOLONETZ AND SALINE LANDS

V. A. Papinyan

For the first time for melioration of soda solonetz and saline lands of Ararat plain of the Republic of Armenia, instead of 1% of sulfuric acid solution in industrial conditions (MAK-13, <<358 hectare>> object of Argavand district in Armavir region) on 6 hectare is used preserved (80-82%) sulfuric acid. For melioration were required on average 100.000-120.000/hectare preserved sulfuric acid and up to 30.000 m³/hectare flushing water. Under the influence of preserved sulfuric acid we observed decomposition of ground carbonates (CaCO₃ - 0,7%, MgCO₃ - 0,3%), neutralization of normal soda, formation of water soluble salts CaSO₄ and MgSO₄ for extrusion from ground absorbent complex (GAC) of exchangeable sodium which is lixiviated from a meter ground thickness in the form of NaSO₄. After melioration the ground was desalinated, the composition of exchangeable sodium in the GAC was lower than 3,0 mg - equivalent on 100 hectare ground. Meanwhile in the same year of agricultural development of meliorated solonetz and saline lands the yield of winter wheat made 23 centner/hectare. When applying preserved sulfuric acid, melioration technology is reduced, labor time is cut down and expenses on solonetz and saline lands development are dropped.

HYDROLOGICAL REGIME OF THE CHERNOZEMS ORDINARY OF THE IORI PLATEAU

Ts.I. Pipia, G.V. Aptsiauri, E.O. Nikolaishvili, I.V. Shelia

On the bases of stationary investigation, which were took place in period of high moisture on ordinary chernozems of the Iori plateau under natural grass. It was stated that for soils are characterized by sporadic rinsing type of water regime of atmospheric nutrition. In case of agricultural crops frequency deep flush growth and water regime of this territory may be labeled as periodical by washed type.

LOCALIZATION OF NATURAL NEGATIVE DOMINANT MUTATION IN SOUTH CAUCASIA WHEAT

R.R.Sadoyan

South Caucasia is one of world regions where high concentration of various types of natural negative mutations is observed. Depending on a diversity of nature-climatic conditions, extension area and biotype the dominant complementary genes of hybrid depression in the South Caucasia countries occurred with various frequency, and some of them are absent. Comparative study of varietal and geographical localization of hybrid depression genes in world-wide and South Caucasian collection of wheat was held.

PROBLEMS OF LANDSCAPE ECOLOGY AND NATURAL ZONING

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The paper deals with physiographic (natural) zoning and landscape-ecological problems, namely, the ways and principles of landscape differentiation and the methods and principles of physiographic zoning; the variety of landscapes, bio, soil and forest ecosystems diversity; some theoretical problems of landscape planning and landscape program. It also analyses the anthropogenic transformation of landscapes, landscape potential and durability the rational utilization of natural resources and some geographical aspects of nature management.

MICROSCOPIC FUNGI – *ASPERGILLUS VERSICOLOR* D1 – THE ACTIVE PRODUCER OF PROTEIN

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To receive protein-rich biomass under submerged fermentation conditions, screening of microscopic fungi cultures has been performed. Thermophilic strain of *Aspergillus versicolor* D1, the active producer of cellulase was selected. Due to established nontoxicity of the strain, possibility of its biomass application as a food additive has been demonstrated. To reach maximum content of protein in biomass, optimization of cultivation conditions for *A. versicolor* D-1 was performed. Optimal parameters for cultivation – duration, temperature, initial pH of nutrient medium and inoculum age – were established.

THE ANALYSIS OF THE DEFLECTED MODE AT CUTTING OF THICKLY STEMS BY LONGITUDINAL ROTOR-TYPE CUTTERBAR

A.P. Tarverdyan, A. S. Baghdasaryan

In the paper are presented results of analyses of deflected mode at cutting of thickly stems by longitudinal rotor-type cutterbar. We have defined expressions for calculation of angular velocity at acting of the cutterbar. In the paper have been defined magnitudes of cutter force and value of power necessary for cutting.

WATER RESOURCES AND THE PROBLEMS OF THEIR USE IN GEORGIA

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The paper provides a description of water resources of the World and Georgia, their heavy use as the main lever of economic development potential. Georgia is rich in water resources, but their uneven spatial and temporal distribution creates big problems for their rational use. The paper gives some recommendations for overcoming these problems.

CALCULATION OF FLOW RATE OF VERTICAL WELL, EMBEDDED IN ARTESIAN LAYER UNDER STEADY-STATE FILTERING

N.L.Melikyan, N.G.Aloyan

The paper considers the problem of calculating of vertical wells flow rate, embedded in high-pressure artesian aquifer under steady-state filtering. It is shown that during the movement of water flow from the aquifer to the wellhead, all the positive pressure of the layer is expended on overcoming the resistance of filtration, resulting in a porous medium, hydraulic resistance along the water receiving filter and along the water-lifting tube (blank part of the well), the additional resistance arising from imperfection of the well and creation of a dynamic pressure of the wellhead. To determine the pressure loss, the corresponding analytical expressions are obtained, the sum of which makes it possible to obtain the calculation formula for determining the flow rate of these wells. The paper also presents empirical formula for determining the coefficient of the well's imperfection as its penetration into the formation.

CALIBRATION OF THE DYNAMOMETER TO DETERMINE THE OPTIMAL BILATERAL PRESSING OF “DUTCH” CHEESE

S.S.Manukyan

Calibration showed that the relation between load and display divisions is straight-line. Consequently, the dynamometer can be used to establish the optimal two-sided pressing of fine cheese such as “Dutch.”

BLUE-GREEN ALGAE OF RIVERS OF PAMBAK AND TANDZUT

A.S. Mamyán, L. R. Hambaryan

The phytoplankton community of Pambak and Tandzut tributaries of Debed river was studied. The special focus was put to the presence of blue-green algae within phytoplankton. According to quantitative and qualitative parameters blue-green algae were sub-dominating group and were mainly represented by toxic species. The maximal content of blue-green algae were registered in the point observation located after town Vanadzor. This indicates that the waters of rivers polluting with organic matter, which promote the bloom of blue-green algae. The last factor influences negatively on river Debed ecological conditions in general.

THE QUALITATIVE AND QUANTITATIVE STRUCTURE OF CIANOBACTERIAL TAXA OF CERTAIN RIVERS OF LAKE SEVAN CATCHMENT BASIN

T.G. Khachikyan

Algological studies of Lake Sevan main streams planktonic algae held in 2008-2010 revealed 17 species of blue-green algae (cyanobacteria). The identified algae belong to two orders: Chroococcales (5 species) and Hormogonales (12 species). Changes in qualitative and quantitative parameters of phytoplankton community have been observed. The maximum value of density was registered in 2009, and the maximal biodiversity of algae -- in 2010. Versus to data for the period of 1990-1991, tendencies of increase of blue-green algae toxic representative quantity has been marked, which is alarming and requires further detailed study.

ACCUMULATION OF HEAVY METALS IN THE VEGETABLE CROPS GROWN IN THE VICINITY OF TECHNOGENIC ZONES OF ALAVERDI TOWN OF LORI MARZ RA

S. A.Hunanyan

The pollution intensity of vegetable crops grown on the soils in the vicinity of the mining and smelting plant in Alaverdi town of Lori marz has been studied. The study has revealed the regularity of pollutants accumulation subject to the soil pollution rate and plants biological peculiarities and organ function.

STUDYING THE TOXICITY LEVEL OF SOILS CONTAMINATED WITH HEAVY

METALS IN REGIONS OF GEORGIA (RACHA, SVANETI)

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In two regions of Georgia (Racha, Svaneti), the percentage of arsenic in soils of the area adjoining the arsenic-containing landfills have been studied using the TCLP (toxicity characteristic leaching procedure) and WET (waste extraction test) standards. Also their forms, valence, solubility, and range were identified. As a result of the study, the soils have been found to contain liquid forms of arsenate, namely sodium arsenates being noted for high toxicity level and range. Using modern safe microbiological techniques will make it possible to clean/ decontaminate the soils from harmful toxic pesticides in a simple way and with minimum costs.

COMPARATIVE ANATOMY OF LUMBOSACRAL PLEXUS OF A CAUCASIAN SHEPHERD AND A DOG

E.M. Buzariashvili, G.T. Ramishvili

On the 20 corpses of Caucasian Shepherds and jackals (10 per species) with the conventional method of the macro – mikro preparation by Acad. V.P. Vorobiev there was studied external architectonics, radicular structure and variation forms of lumbar - sacral plexus. It is stated that the ventral branches, extending from the lumbar and sacral spinal segments and forming the plexus, are connected to each other at a sharp angle. The plexus is located ventrally to the lumbar segment of the spine and the nerves separate from each other early; the lumbo-sacral plexus through n. furcalis is divided into the lumbar and sacral plexuses. In the Shepherd preparations a typical dual nerve is the seventh lumbar segmental nerve; while in the jackal preparations the dual nerve is not marked and the connection between the two plexuses occurs through the obturator nerve.

RESTRUCTURING OF JOINT STOCK COMPANIES AS A MEANS OF IMPROVEMENT OF THEIR ACTIVITIES

A.A. Arshakyan, A.A. Azakharyan

The article is devoted to the problems concerning the restructuring of joint stock companies of the Republic of Armenia. Taking into consideration the problems concerning the improvement of the operation of the majority of joint stock companies of the Republic of Armenia, there is an attempt in this article to find out the basic factors which contribute to the growth of effectiveness of restructuring in joint stock companies. There is a great emphasis on the forms of restructuring- confluence, joining, separation, allocation and transformation. As restructuring of joint stock companies has strategic meaning, the further development both for further development of joint stock companies and economy in general, the State and joint stock companies should be interested in them.

THE WAYS OF OVERCOMING THE FINANCIAL-ECONOMIC CRISIS IN REPUBLIC OF ARMENIA

A.S. Tonikyan

At first it was financial crisis, then it spread and took other spheres and became financial-economic crisis. And it is known, that nowadays it's impossible for each country to develop alone and this case was the reason, which created crisis in the world. Armenia has also suffered the negative consequences of it. In this article is analyzed the situation and are being offered the effective solutions.