

CONTENTS

CHEMISTRY

(inorganic, organic, analytical, physical, colloid  
and high-molecular compounds )

<b>Karmanova O.G., Mukovoz P.P., Kozminykh V.O., Kozminykh E.N.</b> Synthesis and structure of 2,3- <i>bis</i> -(2-oxoalkylidene)- tetrahydro-1,2,3,4-quinoxalines.....	3
<b>Bubnov A.G., Buiymova S.A., Grinevich V.I., Zhuravleva N.I.</b> Assessment of detriment to population health because of chemical pollution of water and food stuffs.....	7
<b>Zarifyanova M.Z., Khusnutdinov I.Sh., Aristov I.V., Gryaznov P.I., Vafina S.D., Konstantinova A.V.</b> Oil sulfoxides. Message 1. Establishing correlation dependence of charge on oxygen atom of extractant and its extraction ability on base of quantum-chemical calculations.....	12
<b>Grechin O.V., Smirnov P.R., Trostin V.N.</b> X-ray diffraction study of aqueous solutions of lanthanum chloride and nitrate .....	15
<b>Yasinetskiy V.V., Ogorodnikov V.A., Matveychuk Yu.V.</b> Investigation of thermal decomposition of hydroxocompounds of zinc.....	20
<b>Malkova O.V., Andrianov V.G.</b> Kinetics of alkyl phenyl derivatieves complexation of porphyrins with zinc acetate in acetonitrile.....	25
<b>Berdiev A.E., Ganiev I.N., Gulov S.S., Sangov M.M.</b> Oxidation kinetics of AK7M2 alloy doped with germanim in solid state.....	28
<b>Gurbanov G.R.</b> Study of sections of GeSbBiTe <sub>4</sub> -GeSb <sub>4</sub> Te <sub>7</sub> and GeSbBiTe <sub>4</sub> -Ge <sub>2</sub> Sb <sub>2</sub> Te <sub>5</sub> of GeTe-Sb <sub>2</sub> Te <sub>3</sub> -Bi <sub>2</sub> Te <sub>3</sub> quasi triple system .....	31
<b>Plotnikova M.D., Shein A.B.</b> Corrosion inhibition of low-carbon steel in acid and neutral media.....	35
<b>Kashkarov B.I., Yashkin S.N., Svetlov A.A.</b> Determination of dispersion component of surface free energy of molecular crystals of fullerene C <sub>60</sub> .....	40
<b>Borisova N.S., Korolyova I.P., Zimin Yu.S., Gimadieva A.R., Mustafin A.G.</b> Spectrophotometric study of uracils interaction with apple pectin and its oxidation products .....	46
<b>Solomonov A.V., Rumyantsev E.V., Kochergin B.A., Antina E.V.</b> Spectral study on interaction of ascorbic acid with albumen and its bilirubin complex.....	51
<b>Mezhuev Ya.O., Korshak Yu.V., Shtilman M.I., Osadchenko S.V., Dolotko A.R.</b> Kinetics of oxidative polymerization of aniline in aqueous solutions of poly-(N-vynilpyrrolidone) of various molecular weights .....	56
<b>Smirnova N.N., Starikov A.N.</b> Spectroscopic study of interaction of sulfonate-containing polyphenylenphthalamides with basic dyes in aqueous solutions.....	60
<b>Popova S.S., Kovalenko O.G., Abdullin V.F.</b> Peculiarities of chitosan biopolymer electrodeposition from its polyelectrolyte solutions.....	65
<b>Al-Takhan Rana A.A., Kovalchukova O.V., Volyansky O.V., Kobrakov K.I., Kuznetsov D.N.</b> Studies of complexation processes of some functionally substituted arylhydrazones by metallic cations.....	68

CHEMICAL TECHNOLOGY

(inorganic and organic substances.  
Theoretical fundamentals)

<b>Klyuntina A.B., Gordina N.E., Prokofiev B.Yu.</b> Influence of conditions of hydrothermal crystallization on synthesis and properties of LTA type zeolite.....	73
<b>Eromasov R.G., Nikiforova E.M.</b> Broadening base of low-viscosity mineralizing additives – industrial waste.....	78

<b>Butrim S.M., Bildyukevich T.D., Butrim N.S., Yurkshtovich T.L.</b> Obtaining cationic starches by semi dry method and their application .....	83
<b>Sufiyarov R.Sh.</b> Purification of polluted soil with lower boiling solvent.....	89
<b>Chernyavskaya A.S., Bobkov S.P.</b> Discrete methods application for fluids flow simulation .....	92
<b>Tsygankov M.P., Kruchinin D.S.</b> Characteristic features of mathematic modeling high-temperature heat exchangers.....	95
<b>Silkin S.V., Maximov A.I.</b> Estimate of dispersion kinetic of graphite electrode in underwater face discharge.....	99
<b>Evsevleva L.G., Sverdlova O.L., Dobrynina N.N.</b> A question on the simulation of adsorption monomolecular layer .....	102

#### SHORT COMMUNICATIONS

<b>Baiyramova Z.E., Garazade Kh.A., Lyutfaliev A.G., Magerramov M.N.</b> Thermal etherification of carboxylic and some fractions of oil acids by 2-(pyperidine-1-il), 2-morpholyne ethanols and N,N-diethylethanolamines .....	106
<b>Khodov I.A., Kumeev R.S., Nikiforov M.Yu., Golubev V.A., Alper G.A., Krestyaninov M.A.</b> Spatial structure of paracetamol in DMF-D <sub>6</sub> by 2D NOESY NMR spectroscopy .....	108
<b>Titova Yu.V., Stokozenko V.G., Garas'ko E.V., Aleksakhina E.L.</b> Effect of plasma-solution treatment on bactericidal and antifungal properties of flax fiber.....	110

#### PERSONALS

Aleksey Konstantinovich Krivtsov.....	112
Seventy-Fifth Anniversary Of Lev Nikolaevich Mizerovskiyy .....	114

А Б С Т Р А К Т С

*O.G. KARMANOVA, P.P. MUKOVOZ, V.O. KOZMINYKH, E.N. KOZMINYKH*

**SYNTHESIS AND STRUCTURE OF 2,3-BIS-(2-OXOALKYLIDENE)-TETRAHYDRO-1,2,3,4-QUINOXALINES**

The 2,3-bis-(2-oxoalkylidene)-tetrahydro-1,2,3,4-quinoxalines were obtained with the condensation of alkyl methyl ketones with diethyl oxalate and 1,2-diaminobenzene. Using spectral methods the four izomeric forms were revealed. Structure peculiarities of synthesized compounds are discussed.

**Key words:** 2,3-bis-(2-oxoalkylidene)-tetrahydro-1,2,3,4-quinoxaline, alkyl methyl ketones, 1,2-diaminobenzene, one-pot synthesis

*A.G. BUBNOV, S.A. BUIYMOVA, V.I. GRINEVICH, N.I. ZHURAVLEVA*

**ASSESSMENT OF DETRIMENT TO POPULATION HEALTH BECAUSE OF CHEMICAL POLLUTION OF WATER AND FOOD STUFFS**

The information on the discrepancy of quality of some food stuffs to regulatory requirements was presented for meat and milk products produced on four agricultural enterprises of Ivanovo and Kostroma regions as an example as well as the water from springs located in the Ivanovo and Kokhma cities of Ivanovo region. The assessment of risk value and expected reduction of life time of the population was carried out. The methodology of assessment of economic detriment caused to the health of the population from the consumption of these products was offered.

**Key words:** economic detriment, health risk, meat and milk products, water quality, spring

*M.Z. ZARIFYANOVA, I.SH. KHUSNUTDINOV, I.V. ARISTOV, P.I. GRYAZNOV, S.D. VAFINA, A.V. KONSTANTINOVA*

**OIL SULFOXIDES. MESSAGE 1. ESTABLISHING CORRELATION DEPENDENCE OF CHARGE ON OXYGEN ATOM OF EXTRACTANT AND ITS EXTRACTION ABILITY ON BASE OF QUANTUM-CHEMICAL CALCULATIONS**

The charges on the atoms in the molecules of acetophenone, tributyl phosphate, cyclic sulfoxides were calculated with methods of quantum-chemical calculations of MNDO and B3LYP/6-31G(d,p). It was shown that the molecules of cyclic sulfoxides have the highest value of negative charge on the oxygen atom. Correlation dependence between the charge on the oxygen atom of the extractant and its extraction ability was established.

**Key words:** quantum-chemical calculation, active atom charge, extraction ability, sulfoxides, molybdenum

*O.V. GRECHIN, P.R. SMIRNOV, V.N. TROSTIN*

**X-RAY DIFFRACTION STUDY OF AQUEOUS SOLUTIONS OF LANTHANUM CHLORIDE AND NITRATE**

The interpretation of the X-ray diffraction data are presented for aqueous solutions of chloride and nitrate of lanthanum in wide concentrations range. The origin of small-angle maxima of intensity are explained by manifestation of inter ionic distances which sequentially changing their contributions at dilution.

**Key words:** lanthanides aqueous solutions, structure, X-ray diffraction analysis, small angle peaks, radial distribution functions

*V.V. YASINETSIIY, V.A. OGORODNIKOV, Yu.V. MATVEIYCHUK*

### **INVESTIGATION OF THERMAL DECOMPOSITION OF HYDROXOCOMPOUNDS OF ZINC**

Thermolysis of zinc carbonate hydroxide, amorphous and crystalline zinc hydroxide was studied by TG/DTA, DSC and in addition - by FT-IR spectroscopy. The decomposition minimum temperature, the heat effects was determined which is of practical importance in the development of methods for producing zinc oxide.

**Key words:** zinc hydroxide, zinc carbonate hydroxide, FT-IR spectroscopy, thermogravimetry, calorimetry

*O.V. MALKOVA, V.G. ANDRIANOV*

### **KINETICS OF ALKYL PHENYL DERIVATIVES COMPLEXATION OF PORPHYRINS WITH ZINC ACETATE IN ACETONITRILE**

The kinetics of porphyrin derivatives complexation with alkyl -groups in different positions of phenyl rings in acetonitrile (AN) -  $Zn(Ac)_2$  solutions at 298-318 K were studied. The constants of complexation of these porphyrins were determined. The kinetic parameters of the process ( $k_v$ ,  $E_a$ ,  $\Delta S$ ) for coordination reaction of porphyrins with  $Zn(Ac)_2$  in AN were calculated.

**Key words:** alkyl phenyl porphyrin, complexation, acetonitrile, zinc acetate

*A.E. BERDIEV, I.N. GANIEV, S.S. GULOV, M.M. SANGOV*

### **OXIDATION KINETICS OF AK7M2 ALLOY DOPED WITH GERMANIUM IN SOLID STATE**

Kinetics of oxidation of AK7M2 alloy doped with germanium with the air oxygen was studied by thermo gravimetric method. It was shown that oxidation of alloys obeys to the parabolic law. As products of allow oxidation the phases of  $SiO_2$  and  $GeO_2$  were detected along with  $\gamma-Al_2O_3$ .

**Key words:** AK7M2 alloy, germanium, thermo gravimetric method, oxidation kinetics, oxidation rate, activation energy

*G.R. GURBANOV*

### **STUDY OF SECTIONS OF $GeSbBiTe_4$ - $GeSb_4Te_7$ AND $GeSbBiTe_4$ - $Ge_2Sb_2Te_5$ OF $GeTe$ - $Sb_2Te_3$ - $Bi_2Te_3$ QUASI TRIPLE SYSTEM**

For the first time, phase equilibria for  $GeSbBiTe_4$ - $GeSb_4Te_7$  and  $GeSbBiTe_4$ - $Ge_2Sb_2Te_5$  systems were investigated with the X-ray analysis, micro hardness and density on poly thermal sections of  $GeSbBiTe_4$ - $GeSb_4Te_7$  и  $GeSbBiTe_4$ - $Ge_2Sb_2Te_5$ , which are quasi binary and partially quasi binary sections. On the base of initial components into sections the areas of solid solutions were determined. On the base of studies of temperature dependences of some electrical-physical parameters of  $GeSbBiTe_4$  compound and solid solution of  $(GeSb_4Te_7)_x(GeSbBiTe_4)_{1-x}$  it was established that alloys are referred to semi conductors of n-type.

**Key words:** physical and chemical analyses, phase equilibria,  $GeTe$ - $Sb_2Te_3$ - $Bi_2Te_3$  system, chemical transport reactions

*M.D. PLOTNIKOVA, A.B. SHEIN*

### **CORROSION INHIBITION OF LOW-CARBON STEEL IN ACID AND NEUTRAL MEDIA**

The results of investigation of influence of some inhibitive compositions on electrochemical and corrosion behavior of steel St3 in acidic and neutral media by means of weight-loss, polarization and impedance methods are presented. Impedance spectra were described by equivalent circuits taking into consideration the inhibitive films on electrode surface. It has been shown that the investigated compositions are more effective in acidic media as compared with neutral media.

**Key words:** corrosion, inhibitor, protective action, impedance

*B.I. KASHKAROV, S.N. YASHKIN, A.A. SVETLOV*

### **DETERMINATION OF DISPERSION COMPONENT OF SURFACE FREE ENERGY OF MOLECULAR CRYSTALS OF FULLERENE $C_{60}$**

With the method of inverse gas chromatography under conditions of extremely low concentrations of adsorbate in the gas phase at different temperatures the values of dispersion component of surface free energy,

entropy, and heats of adsorption of n-alkanes on the C<sub>60</sub> molecular crystals were determined. The values obtained were compared with those for graphitized thermal carbon black.

**Key words:** adsorption, fullerene molecular crystals, carbon adsorbents, surface free energy, free energy dispersion component, adsorption heat, adsorption entropy, ideal gas two-dimensional model

*N.S. BORISOVA, I.P. KOROLYOVA, Yu.S. ZIMIN, A.R. GIMADIEVA, A.G. MUSTAFIN*  
**SPECTROPHOTOMETRIC STUDY OF URACILS INTERACTION WITH APPLE PECTIN  
AND ITS OXIDATION PRODUCTS**

The complexation of apple pectin and low molecular weight products of its oxidation with uracils was studied by the ultraviolet spectrophotometric method in an aqueous medium. The composition of complexes was determined and their stability constants were calculated. The influence of the substituents nature in the molecule of 6-methyluracil on the stability of the forming complexes was studied.

**Key words:** complex formation, apple pectin, uracil and its derivatives, stability constant, UV-spectroscopy

*A.V. SOLOMONOV, E.V. RUMYANTSEV, B.A. KOCHERGIN, E.V. ANTINA*  
**SPECTRAL STUDY ON INTERACTION OF ASCORBIC ACID WITH ALBUMEN  
AND ITS BILIRUBIN COMPLEX**

Using electronic absorption and fluorescence emission spectroscopy the interaction of ascorbic acid (ASC) with albumen (BSA) and its macromolecular complex with bilirubin (BR·BSA) was investigated. The interaction between proteins and ASC is provided by static quenching of fluorescence and has a predominantly hydrophobic character. The numerical values of binding constants of ASC·BSA and BR·BSA were  $2.2 \cdot 10^4$  and  $1.5 \cdot 10^4$  l/mol, respectively. The average distance between the donor (protein) and acceptor (ASC) was 1.67 and 2.07 nm, respectively. Synchronous fluorescence spectroscopy analyzes allowed to study the influence of ASC on the conformational changes of protein molecules.

**Key words:** bilirubin, ascorbic acid, bovine serum albumen, electronic spectroscopy, synchronous and emission fluorescence, fluorescence quenching, Stern-Volmer equation, Förster's theory

*Ya.O. MEZHUEV, Yu.V. KORSHAK, M.I. SHTILMAN, S.V. OSADCHENKO, A.R. DOLOTKO*  
**KINETICS OF OXIDATIVE POLYMERIZATION OF ANILINE IN AQUEOUS SOLUTIONS OF  
POLY-(N-VYNILPYRROLIDONE) OF VARIOUS MOLECULAR WEIGHTS**

The rate of oxidative polymerization of aniline was shown to increase with the increase of poly-(N-vinylpyrrolidone) molecular weight up to its definite value. The new kinetic model of oxidative polymerization of aniline up to deep conversions taking into consideration the system heterogeneity was proposed.

**Key words:** polyaniline, aniline, kinetics, poly-(N-vinylpyrrolidone)

*N.N. SMIRNOVA, A.N. STARIKOV*  
**SPECTROSCOPIC STUDY OF INTERACTION OF SULFONATE-CONTAINING  
POLYPHENYLENPHTHALAMIDES WITH BASIC DYES IN AQUEOUS SOLUTIONS**

The interaction between sulfonate-containing polyphenylenphthalamides of different structure with basic dyes methylene blue and methyl violet in aqueous solutions was studied. Complexes of polymeric electrolytes with basic dyes were shown to mainly stabilize by Coulomb forces arising between functional groups of the polymers and the oppositely charged groups of dyes. The essential influence upon the interaction of polyelectrolyte with dye renders the structure of polyelectrolyte, the type of opposite ion of its functional groups and the ionic force of solution.

**Key words:** sulfonate-containing polyphenylenphthalamides, polyelectrolytes, dyes

*S.S. POPOVA, O.G. KOVALENKO, V.F. ABDULLIN*  
**PECULIARITIES OF CHITOSAN BIOPOLYMER ELECTRODEPOSITION FROM  
ITS POLYELECTROLYTE SOLUTIONS**

The process of electro deposition of chitosan biopolymer was studied and the conditions of its carrying out were determined. The identity of the electrodeposited chitosan chemical structure and the original powder were pointed out.

**Key words:** chitosan, chitin, biopolymer, electro deposition, polyelectrolyte, polysaccharide, amino group protonation

*A.A. AL-TAKHAN RANA, O.V. KOVALCHUKOVA, O.V. VOLYANSKY,  
K.I. KOBRAKOV, D.N. KUZNETSOV*

**STUDIES OF COMPLEXATION PROCESSES OF SOME FUNCTIONALLY SUBSTITUTED  
ARYLHYDRAZONES BY METALLIC CATIONS**

The processes of ionization and complex formation in ethanol-aqueous solutions for some functionally substituted arylhydrazones were studied with the help of spectrophotometric titration. The acidic dissociation constants of the organic molecules and the formation constants of their metalocomplexes were calculated.

**Key words:** arylhydrazones; complexation; spectrophotometric titration; acidic dissociation constants; formation constants

*A.B. KLYUNTINA, N.E. GORDINA, B.Yu. PROKOFIEV*

**INFLUENCE OF CONDITIONS OF HYDROTHERMAL CRYSTALLIZATION ON SYNTHESIS  
AND PROPERTIES OF LTA TYPE ZEOLITE**

The hydrothermal crystallization was shown to increase the content of crystalline phase of LTA zeolite from 55 to 95 % which was produced using methods of mechanochemical activation. The working solution of an alkali which is used at hydrothermal crystallization step was established to may be used repeatedly not less than 15 times. The dynamic activity on the water vapor of synthesized Zeolite was revealed to be from 18.9 to 20.5 g/100 g of sorbent. The mechanical strength was kept after 10 cycles of mechanical strength.

**Key words:** LTA zeolite, mechanochemical activation, hydrothermal crystallization, mechanical strength, dynamic activity

*R.G. EROMASOV, E.M. NIKIFOROVA*

**BROADENING BASE OF LOW-VISCOSITY MINERALIZING  
ADDITIVES – INDUSTRIAL WASTE**

Results of study of rheological properties of the mineralizers in the temperature range of firing building ceramics are given. Formulated principles for evaluating the mineralizers allowed selecting, testing and recommending the series of promising industrial waste of aluminum segment containing a complex of low-viscosity mineralizers. The composition and process parameters were developed for obtaining facing ceramic materials based on anthropogenic row materials.

**Key words:** mineralizer, aluminum production waste, viscosity, surface tension, water absorption

*S.M. BUTRIM, T.D. BILDYUKEVICH, N.S. BUTRIM, T.L. YURKSHTOVICH*

**OBTAINING CATIONIC STARCHES BY SEMI DRY METHOD AND THEIR APPLICATION**

The regularities of semi dry cationization of corn starch with the use of 3-chloro-2-hydroxypropyltrimethylammonium chloride and catalysts calcium oxide and/or sodium hydroxide were investigated. The possibility of application of the synthesized cationic starch samples as inter mass additive for the purpose of the water yield increase and strengthening ability increase in a dry condition of the test liner and fluting was shown.

**Key words:** cationic starch, substitution degree, semi-dry cationization, catalyst, test-liner, fluting

*R.Sh. SUFIYANOV*

**PURIFICATION OF POLLUTED SOIL WITH LOWER BOILING SOLVENT**

The problems associated with the extraction of petroleum hydrocarbons containing in oil-polluted soils with low boiling solvent were considered.

**Key words:** polluted soil, purification, low boiling solvent

*A.S. CHERNYAVSKAYA, S.P. BOBKOV*

**DISCRETE METHODS APPLICATION FOR FLUIDS FLOW SIMULATION**

The application of Lattice Boltzmann Method as an alternative to a real physical experiment in the simulation of fluid motion is considered. The results of simulation allowing observing the formation of turbulent flows were given.

**Key words:** fluid simulation, cellular automata, lattice gas, Boltzmann method, cell, velocity channel, boundary conditions

*M.P. TSYGANKOV, D.S. KRUCHININ*

### **CHARACTERISTIC FEATURES OF MATHEMATIC MODELING HIGH-TEMPERATURE HEAT EXCHANGERS**

The characteristic features of mathematical modeling heat exchangers at the conditions of high-temperature heat transfer are considered. It is specified that the distribution of heat transfer coefficient along the heat transfer area should be considered to avoid the temperature profiles distortion that leads to mistakes in mathematical modeling heat-exchanging equipment which is performed to optimize the operating procedure of such equipment as well as technical diagnostics.

**Key words:** high-temperature heat exchanger, heat carrier flow sheet, functional diagnostics, heat balance, mathematical model, heat

*S.V. SILKIN, A.I. MAXIMOV*

### **ESTIMATE OF DISPERSION KINETIC OF GRAPHITE ELECTRODE IN UNDERWATER FACE DISCHARGE**

The kinetics of graphite electrode dispersion under the action of underwater face discharge on alternating current was studied as well as at the use it as a cathode. Cathode dispersion rate was found to be linear increasing with the growth of discharge current. At discharge actions on alternating current this dependence was non-linear, respectively. Cathode surface topography and size distribution of microroughnesses were also under the investigation. Their dependences on discharge current and treatment time were founded.

**Key words:** underwater discharge, dispersion, kinetic, erosion, microroughnesses

*L.G. EVSEVLEEVA, O.L. SVERDLOVA, N.N. DOBRYNINA*

### **A QUESTION ON THE SIMULATION OF ADSORPTION MONOMOLECULAR LAYER**

Produced theoretical study of the structure of the Langmuir adsorption layer on the basis of simple concepts of probability theory. It is shown that the Poisson distribution and normal distribution can be used as an approximation to the real distributions of particles in the adsorption of monomolecular layers

**Key words:** Lengmyur's adsorption model, Poisson's distribution, normal distribution

*Z.E. BAIYRAMOVA, Kh.A. GARAZADE, A.G. LYUTFALIEV, M.N. MAGERRAMOV*

### **THERMAL ETHERIFICATION OF CARBOXYLIC AND SOME FRACTIONS OF OIL ACIDS BY 2-(PYPERIDINE-1-IL), 2-MORPHOLYNE ETHANOLS AND N,N-DIETHYLETHANOLAMINES**

Possibility of obtaining the ethers with high enough yields of etherification of carboxylic and oil acids by 2-(piperidine-1-il), 2-morpholine ethanols and N,N-diethylethanalamines in the absence of catalyst was established.

**Key words:** carboxylic acids, oil acids, 2-(piperidin-1-yl) ethanol, 2-morpholinoethanol, N,N-diethylethanalamine, thermal etherification, p-toluenesulfonic acid

*I.A. KHODOV, R.S. KUMEEV, M.Yu. NIKIFOROV, V.A. GOLUBEV, G.A. ALPER, M.A.*

*KRESTYANINOV*

### **SPATIAL STRUCTURE OF PARACETAMOL IN DMF-D<sub>6</sub> BY 2D NOESY NMR SPECTROSCOPY**

Spatial structure of N-(4-hydroxyphenyl) acetamide (paracetamol) was studied by two-dimension NOESY spectroscopy. Effective interproton distances for paracetamol in dimethylformamide were obtained. The most probable conformations of paracetamol in solution were determined by comparison with the results of quantum-mechanical calculations

**Key words:** two-dimensional NMR spectroscopy, <sup>1</sup>H NMR spectroscopy, spatial structure, NMR conformational analysis, drugs design

*Yu.V. TITOVA, V.G. STOKOZENKO, E.V. GARAS'KO, E.L. ALEKSAKHINA*

### **EFFECT OF PLASMA-SOLUTION TREATMENT ON BACTERICIDAL AND ANTIFUNGAL PROPERTIES OF FLAX FIBER**

Bactericidal and antifungal actions of gas discharge initiated in the volume of electrolyte solution on flax fiber placed into the solution were under study. The fiber after plasma-solution treatment and 30 day of storage has no bactericidal properties but showed the partial antifungal activity towards *Candida albicans*.

**Key words:** gas discharge, plasma-solution system, antifungal activity