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MICROBIOCENOSIS'S STABILITY OF THE CHERNOZEM ORDINARY TO POLLUTION BY ANTIBIOTICS

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Akimenko Yuliya Viktorovna – Assistant, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: akimenkojuliya@mail.ru

Kazeev Kamil Shagidullovich – Doctor of Geographical Science, Professor, Ecology and Natural Management Department Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Kolesnikov Sergei Il'ich – Doctor of Agricultural Science, Professor, Head of Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kolesnikov@sfnu.ru

It was found a negative effect of antibiotics and their combinations on the chernozem ordinary. There is a direct correlation between the content of antibiotics in the soil and the degree of reduction in the number of microorganisms. Significant inhibition occurs when the number of microorganisms antibiotic concentrations of 100 mg/kg soil. According to the degree of resistance to antibiotics the group studied microorganisms formed following series: *p. Azotobacter* > *micromycetes* > *amylolytic bacteria* > *ammonifying bacteria*.

Keywords: antibiotics, pollution, microorganisms, resistance, chernozem ordinary.

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COMPLEXATION OF THE CONDENSATION PRODUCT OF ISATIN AND SALICYLOYLHYDRAZIDE

© 2016 г. I.S. Vasil'chenko, S.B. Zaichenko, A.V. Bicherov, G.S. Borodkin, E.N. Balakshina, A.S. Burlov

Vasil'chenko Igor' Stanislavovich – Candidate of Chemical Science, Leading Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia, e-mail: vas@ipoc.sfedu.ru

Zaychenko Svetlana Borisovna – Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia.

Bicherov Aleksandr Viktorovich – Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia.

Borodkin Gennadii Sergeevich – Candidate of Chemical Science, Main Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia, e-mail: nmr@ipoc.sfedu.ru

Balakshina Elena Nikolaevna – Candidate of Chemical Science, Senior Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia.

Burlov Anatolii Sergeevich – Candidate of Chemical Science, Main Researcher, Institute of Physical and Organic Chemistry of the Southern Federal University, Stachki Ave, 194/2, Rostov-on-Don, 344090, Russia, e-mail: garn@ipoc.sfedu.ru

Hydrazone on the base of isatin and salicyloylhydrazide was prepared for the first time. It was shown that this substance exists in the oxo-hydrazone tautomeric form both in solid state and solution. Complexation of the imine with Cu^{2+} and Cd^{2+} ions investigated. It was found that salicyloylhydrazone of isatin can form two types of coordination compounds – mononuclear for cadmium and binuclear for copper, notably that azo-phenolic tautomeric form of the ligand is stabilized in obtained metallocomplexes.

Keywords: isatin, salicyloylhydrazide, condensation.

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ANALYSIS OF INTRASPECIFIC COMPETITION IN *VIBRIO cholerae* BIOFILMS

© 2016 г. S.O. Vodop'yanov, S.V. Titova, A.S. Vodop'yanov, I.P. Oleinikov, L.K. Lysova

Vodop'yanov Sergei Olegovich – Doctor of Medical Sciences, Head of Laboratory, Rostov-on-Don Anti-Plague Institute of the Federal Service in the Sphere of Consumer Right Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: serge100v@gmail.com

Titova Svetlana Viktorovna – Candidate of Medical Sciences, Director, Rostov-on-Don Anti-Plague Institute of the Federal Service in the Sphere of Consumer Right Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: svetatitiva@bk.ru

Vodop'yanov Aleksei Sergeevich – Candidate of Medical Science, Team Leader, Rostov-on-Don Anti-Plague Institute of the Federal Service in the Sphere of Consumer Right Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: alexvod@gmail.com

Oleinikov Igor Pavlovich – Researcher, Rostov-on-Don Anti-Plague Institute of the Federal Service in the Sphere of Consumer Right Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: alexvod@gmail.com

Lysova Lyudmila Konstantinovna – Researcher, Rostov-on-Don Anti-Plague Institute of the Federal Service in the Sphere of Consumer Right Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: labbiobez@mail.ru

The purpose of this work – the development of model biofilms way quickly determine intraspecific inhibitory activity of *Vibrio cholerae* from a study INDEL-markers. We used three of toxigenic strains of *V. cholerae* and nontoxigenic strain isolated in 2015 from the river water. It is found that one of toxigenic strains studied is able to successfully withstand the inhibiting activity nontoxigenic strain, in planktonic form, and as part of the biofilm. In our opinion, the ability of toxigenic *Vibrio* strains resist intraspecific competition can be of great biological significance. The greatest danger when released into water bodies are toxigenic strains of *V. cholerae* «resistant» phenotype can withstand inhibitory activity nontoxigenic strains.

Keywords: *Vibrio cholerae*, biofilm, intraspecific competition, INDEL-markers.

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BIOLOGICAL ACTIVITY OF RED AND INFRARED LASER RADIATION IN THE EXPERIMENTAL SIMULATED CONDITIONS

© 2016 г. V.V. Zhukov, A.A. Kozhin, V.V. Mrykhin

Zhukov Vladimir Valentinovich – Candidate of Physical and Mathematical Science, Associate Professor, Quantum Radiophysics Department, Faculty of Physics, Southern Federal University, Zorge St., 5, Rostov-on-Don, 344090, Russia, e-mail: zhukov@sfnu.ru

Kozhin Aleksandr Alekseevich – Doctor of Medical Science, Honored Worker of Science of the Russian Federation, Winner of the Russian Federation Government Prize, Corresponding Member of the Russian Ecological Academy, Professor, Department of Biophysics and Biological Cybernetics, Faculty of Physics, Southern Federal University, Zorge St., 5, Rostov-on-Don, 344090, Russia, e-mail: irxus@yandex.ru

Mrykhin Vladimir Valer'evich – Candidate of Medical Science, Associate Professor, Department of Psychiatry and Narcology, Faculty of Professional Development and Professional Retraining of Experts, Rostov State Medical University, Suvorov St., 119, Rostov-on-Don, 344022, Russia, e-mail: 2793665@mail.ru

There were described multifunctional rearrangements in neuroendocrine system of rats in terms of simulating pathomorphological changes of asthenic character and given the correction through low-intensity laser radiation (LLR) applied endonasally. Higher biological activity of pulsed LLR within IR-spectrum ($\lambda = 890,0$ nanometers) compared to continuous helium-neon laser radiation ($\lambda = 632,8$ nanometers) was revealed. It was found that biological effects of LLR are distinguished by more intense character when applied in terms of reduced functional activity of organism structures.

Keywords: low-energy laser radiation, cytophotometric researches, endocrine system, asthenic state.

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BIOLOGICAL DIAGNOSIS OF ENVIRONMENTAL CONDITION OF THE SOIL MONITORING PLOTS RESERVE «UTRISH»

© 2016 г. *K.Sh. Kazeev, M.P. Chernikova, S.I. Kolesnikov, Yu.V. Akimenko, Yu.S. Kozun', V.S. Poluvyanova, O.N. Bykhalova*

Kazeev Kamil Shagidullovich – Doctor of Geographical Science, Professor, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kamil_kazeev@mail.ru

Chernikova Mariya Petrovna – Post-Graduate Student, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Kolesnikov Sergei Il'ich – Doctor of Agricultural Science, Professor, Head of Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kolesnikov@sfedu.ru

Akimenko Yuliya Viktorovna – Assistant, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Kozun' Yuliya Sergeevna – Assistant, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Poluvyanova Viktoriya Sergeevna – Student, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Bykhalova Olga Nikolaevna – Deputy Director on Science, State Nature Reserve «Utrish», Anapa.

The reserve «Utrish» investigated the original soil of the Black Sea Coast of Russia. The regularities of the distribution of different subtypes of chromic cambisols, differing in the degree of carbonate, stone and other parameters. If you violate the soil as a result of recreational load deteriorating physical and biological properties of soils. The activity of soil enzymes, along with the content of humus and soil physical properties can be used to monitor the ecological state of the soil reserve.

Keywords: *bioindication, soil cover, anthropogenic impact, subtropical soil, enzyme activity.*

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ASSESSMENT OF STABILITY OF bROWN FOREST aCIDIC pODZOLIZED sOILS OF BLACK SEA COAST OF THE CAUCASUS TO CHEMICAL

© 2016 г. S.I. Kolesnikov, A.A. Kuzina, N.A. Evstegneeva, K.Sh. Kazeev

Kolesnikov Sergei Ilich – Doctor of Agricultural Science, Professor, Head of Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kolesnikov@sfedu.ru

Kuzina Anna Andreevna – Post-Graduate Student, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Evstegneeva Natal'ya Andreevna – Student, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Kazeev Kamil Shagidullovich – Doctor of Geographical Science, Professor, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kamil_kazeev@mail.ru

As a result of modeling studies found that the brown forest acidic podzolized soils are the least resistant to pollution of Cr, Cu, Ni, Pb and oil among the major soils of the Black Sea Coast of the Caucasus. Pollution leads to a significant deterioration of their biological properties: it reduces the total number of bacteria, the activity of catalase and dehydrogenase, cellulolytic capacity, abundant bacteria of the genus Azotobacter, worsens the germination and initial growth of radish. By the degree of negative impact on the biological properties of the brown forest acidic podzolized soil heavy metals form the following series: Cr > Cu ≥ Pb > Ni.

Keywords: brown forest acidic podzolized soil, biological properties, stability, pollution, heavy metals, oil.

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EFFECTS OF POLLUTION BY NANOPARTICLES OF NICKEL AND IRON OXIDES ON BIOLOGICAL PROPERTIES OF ORDINARY

© 2016 г. S.I. Kolesnikov, A.N. Timoshenko, K.Sh. Kazeev, Yu.V. Akimenko

Kolesnikov Sergei Il'ich – Doctor of Agricultural Science, Professor, Head of Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kolesnikov@sfnu.ru
Timoshenko Alena Nikolaevna – Post-Graduate Student, Ecol-

ogy and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Kazeev Kamil Shagidullovich – Doctor of Geographical Science, Professor, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia, e-mail: kamil_kazeev@mail.ru

Akimenko Yuliya Viktorovna – Assistant, Ecology and Natural Management Department, Academy of Biology and Biotechnology of the Southern Federal University, B. Sadovaya St., 105/42, Rostov-on-Don, 344006, Russia.

Contamination of chernozem ordinary by oxides of Ni, Fe and nanoparticles caused a deterioration of its biological status. For microbiological parameters (total number of bacteria and the abundance of bacteria of the genus *Azotobacter*) more strongly influenced nanoforms of Ni and Fe oxides. On enzymatic activity (activity of catalase and dehydrogenase) greatly affect the oxides of Ni and Fe, and not their nanoparticles. On the phytotoxicity (germination and root length of the radish) oxides of Ni and Fe and nanoforms had roughly the same influence.

Keywords: nanoparticles, nickel, iron, pollution, chernozem ordinary, biological properties.

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THE DYNAMICS OF THE ECG (ELECTROCARDIOGRAM) UNDER THE INFLUENCE OF THE MODEL «SFIGMATON»

© 2016 г. M.A. Nagoeva, M.T. Shaov, O.V. Pshikova

Nagoeva Mar'yana Aslanovna – Post-Graduate Student, Department of Human and Animal Physiology, Berbekov Kabardino-Balkarian State University, Chernyshevskii St., 173, Nalchik, KBR, 360004, Russia, e-mail: solnce.09@bk.ru

Shaov Mukhamed Talibovich – Doctor of Biological Science, Professor, Head of Department of Human and Animal Phys-

iology, Berbekov Kabardino-Balkarian State University, Chernyshevskii St., 173, Nalchik, KBR, 360004, Russia, e-mail: shaov_mt@mail.ru

Pshikova Olga Vladimirovna – Doctor of Biological Science, Professor, Department of Human and Animal Physiology, Berbekov Kabardino-Balkarian State University, Chernyshevskii St., 173, Nalchik, KBR, 360004, Russia, e-mail: olgapshikova@mail.ru

In this work it was studied the influence of the model «Sfigmoton» on the dispersion of the QT interval and R-R. The operation of «Sfigmoton» was copied from «the voice» of the pulse which was adapted to impulse hypoxia of man, and reproduced with the help of modern computer technologies. Revealed normalization duration present interval which suggests processes of repolarization of the myocardium are stabilized. A slow decrease of the frequency of the heart beat and more effective increase of the duration of intervals R-R and QT in response to a measured effect of the «voice» of the pulse provides greater efficiency of the function of the cardiovascular system.

Keywords: «the voice» of pulse, adaptation, cardiovascular system, imparting technology, sound.

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THE POSSIBILITY OF WATER OBJECTS INFECTION BY *VIBRIO cholerae* BIOFILMS

© 2016 г. S.V. Titova, L.M. Verkina, L.K. Lysova

Titova Svetlana Viktorovna – Candidate of Medical Science, Director of the Rostov-on-Don Anti-Plague Institute of the Federal Service on Supervision in the Sphere of Consumer Rights Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: svetatitova@bk.ru

Verkina Lyudmila Mikhailovna – Candidate of Medical Sci-

ence, Head of Laboratory, Rostov-on-Don Anti-Plague Institute of the Federal Service on Supervision in the Sphere of Consumer Rights Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: labbiobez@mail.ru

Lysova Lyudmila Konstantinovna – Researcher, Rostov-on-Don Anti-Plague Institute of the Federal Service on Supervision in the Sphere of Consumer Rights Protection, M. Gorkii St., 117/40, Rostov-on-Don, 344002, Russia, e-mail: labbiobez@mail.ru

An experimental system is presented with the use of *Vibrio cholerae* biofilm intended for modeling of ecological processes, actually occurring in different environmental objects. The authors have examined the possibilities of cholera vibrio biofilm usage as a pathogenic biological agent by way of water object infecting by *V. cholerae* bacterial cells dispersed from biofilms. It is demonstrated that the rate of contamination depends on biofilm maturity, water temperature and reservoir volume.

Keywords: experimental biological/ecological model, causative agent of cholera, biofilm, contamination of aqueous environment.

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