



INTERNATIONAL CONFERENCE SMART BIO

2ND International Conference

„Smart Bio“

03-05 May 2018

KAUNAS

LITHUANIA

ABSTRACT BOOK

OUR SPONSORS



frazija



VYTAUTO
DIDŽIOJO
UNIVERSITETAS
Botanikos sodas



VYTAUTAS MAGNUS
UNIVERSITY
Faculty of Natural Sciences

Organizers

Chairman: Prof. Dr. **Saulius Mickevičius**, Dean of the Faculty of Natural Sciences, Vytautas Magnus University, Lithuania

Prof. Dr. **Aušra Blinstrubienė**, Dean of the Faculty of Agronomy, Aleksandras Stulginskis University, Lithuania

Assoc. Prof. Dr. **Rolandas Domeika**, Dean of the Faculty of Agricultural Engineering, Aleksandras Stulginskis University, Lithuania

Prof. Dr. **Virgilijus Sruoga**, Dean of the Faculty of Science and Technology, Lithuanian University of Educational Sciences, Lithuania

Dr. **Alvija Šlaševičienė**, Director of Food Institute, Kaunas University of Technology, Lithuania

Yulia Ovchinnikova, Dean of the Faculty of Biology, Vasyl'stus Donetsk National University, Ukraine

Dr. **Nerijus Jurkonis**, Director of Botanical Garden, Vytautas Magnus University, Lithuania

Assoc. Prof. Dr. **Asta Danilevičiūtė**, Vice Dean of the Faculty of Natural Sciences, Vytautas Magnus University, Lithuania

Prof. Dr. **Jana Radzijeuskaja**, Vytautas Magnus University, Lithuania

Assoc. Prof. Dr. **Jūratė Žaltauskaitė**, Vytautas Magnus University, Lithuania

Assoc. Prof. Dr. **Vaida Tubelytė**, Vytautas Magnus University, Lithuania

Dr. **Irma Ražanskė**, Vytautas Magnus University, Lithuania

Dr. **Indrė Lipatova**, Vytautas Magnus University, Lithuania

Deivydas Kiznys, PhD student, Vytautas Magnus University, Lithuania

Kamilė Klepeckienė, PhD student, Vytautas Magnus University, Lithuania

Martynas Klepeckas, PhD student, Vytautas Magnus University, Lithuania

Vesta Matulaitytė, PhD student, Vytautas Magnus University, Lithuania

Tadas Didvalis, PhD student, Vytautas Magnus University, Lithuania

Alona Oberemko, PhD student, Vytautas Magnus University, Lithuania

Marina Sidorenko, PhD student, Vytautas Magnus University, Lithuania

Sonam Chopra, PhD student, Vytautas Magnus University, Lithuania

Dinara Shakeneva, PhD student, Vytautas Magnus University, Lithuania

Diana Navickaitė, PhD student, Vytautas Magnus University, Lithuania

Scientific Committee

Chairman: Prof. Dr. **Algimantas Paulauskas**, Head of Center of Environmental Research, Vytautas Magnus University, Lithuania

Dr. **Gintaras Brazauskas**, Director of Lithuanian Research Centre for Agriculture and Forestry, Lithuania

Prof. Dr. **Jonas Rimantas Stonis**, Lithuanian University of Educational Sciences, Lithuania

Prof. Dr. **Natalija Burbulis**, Aleksandras Stulginskis University, Lithuania

Prof. Dr. **Kęstutis Navickas**, Aleksandras Stulginskis University, Lithuania

Prof. Dr. **Diana Adlienė**, Kaunas University of Technology, Lithuania

Assoc. Prof. Dr. **Vykintas Baublys**, Vice Dean of the Faculty of Natural Sciences, Vytautas Magnus University, Lithuania

Prof. Dr. **Saulius Šatkauskas**, Vytautas Magnus University, Lithuania

Prof. Dr. **Gintautas Saulis**, Vytautas Magnus University, Lithuania

Prof. Dr. **Vida Mildažienė**, Vytautas Magnus University, Lithuania

Prof. Dr. **Eugenija Kupčinskienė**, Vytautas Magnus University, Lithuania

Assoc. Prof. Dr. **Audrius Dėdelė**, Vytautas Magnus University, Lithuania

International Scientific Committee

Prof. Dr. **Artūras Žiemys**, The Houston Methodist Research Institute, USA

Prof. Dr. **Skirmantas Kriaucionis**, University of Oxford, United Kingdom

Prof. Dr. **Michal Stanko**, Institute of Parasitology, Slovak Academy of Sciences, Košice, Slovakia

Prof. Dr. **Isaak Rashal**, Institute of Biology, University of Latvia, Latvia

Prof. Dr. **Iryna Klimkina**, National Mining University, Ukraine

Prof. Dr. **Arnold Gegechkori**, Ivane Jagashvili Tbilisi University, Georgia

Prof. Dr. **Natalja Škute**, Daugpils University, Latvia

Prof. Dr. **Olav Rosef**, Rosef field research station, Norway Assoc. Prof. Dr. **Ghania Phagosian**, Yerevan State University, Armenia

Assoc. Prof. Dr. **Natalia Navumenka**, Belarusian State Pedagogical University named after Maxim Tank, Belarus

Assoc. Prof. Dr. **Oleg Ermishev**, Vasyl'stus Donetsk National University, Ukraine

PROGNOSIS OF MASS DISTRIBUTION OF STEM PESTS IN THE UKRAINIAN POLISSYA ZONE AND ITS RELEVANCE	108
<i>Svitlana Loginova, Eduard Kavun, Grigoriy Khaetskiy</i>	
ENVIRONMENTAL RISK ASSESSMENT OF SOIL CONTAMINATION BY TRACE ELEMENTS AROUND OPEN MINE AND TAILING DUMP OF THE AKHTALA ORE PROCESSING COMBINE	109
<i>K. Ghazaryan, H. Khachatryan</i>	
REPORTED AND POTENTIAL BIOLUMINESCENT SPECIES IN LITHUANIA.....	110
<i>Asta Malakauskienė</i>	
SAND LIZARD (<i>LACERTA AGILIS</i>) MONITORING IN LATVIA.....	111
<i>Maxim Vasilenko, Alena Gajdosova, Mykola Kuchuk</i>	
THE HEAVY METAL UPTAKE POTENTIAL OF <i>FRAXINUS EXCELSIOR</i> INVOLVED IN GREEN INFRASTRUCTURE OF YEREVAN (ARMENIA).....	112
<i>Lilit Khachatryan, Hasmik Hovhannisyan</i>	
INFLUENCE OF ENVIRONMENTAL FACTORS ON ADAPTATION PROCESSES OF FOREIGN STUDENTS IN RUSSIA	113
<i>Viktor Glebov, Elizabeth Anikina, Ksenia Mikhailichenko</i>	
INHIBITION OF NOS ACTIVITY AS AN EFFECTIVE ANTICANCER THERAPY AGAINST 7,12-DMBA RAT MODEL OF BREAST CANCER	114
<i>Mamikonyan A., Avtandilyan N., Javrushyan H., Trchounian A.</i>	
CHARACTERIZATION OF IMPREGNATED ACTIVATED CARBONS AND WATER TREATMENT RESIDUALS FOR COPPER(II) REMOVAL FROM AQUEOUS SOLUTIONS	115
<i>Edita Zubrytė, Audronė Gefenienė, Danutė Kaušpėdienė</i>	
BIOREMEDIATION OF Ni(II) AND Cu(II) BY MICROALGAL BIOMASS	116
<i>Nur Koçberber Kiliç, Gönül Dönmez</i>	
INFLUENCE OF METALS AND HALKOGENS NANOPARTICLES ON MESENCHYMAL STROMAL CELLS	117
<i>Kuzmenko V., Vasilenko I.A., Stanishevskaya I.E., Stanishevsky I.M.</i>	
BIOREMOVAL OF Cu(II) FROM WASTEWATERS BY HALOPHILE MICROALGAL STRAINS	118
<i>Kübra Erdem, Nur Koçberber Kiliç, Gönül Dönmez</i>	
CARDIOPROTECTIVE PROPERTIES OF AMINOACIDS IN EXPERIMENT.....	119
<i>V. Kardash, A. Korda</i>	
CHANGES OF INTRODUCED TO LITHUANIA SPECIES <i>JUGLANS CINEREA</i> AND <i>JUGLANS REGIA</i> PHENOLOGY IN 1980–2016.....	120
<i>A. Malakauskienė</i>	
CHANGES ON CANCER AND NORMAL CELLS VIABILITY AND ABILITY TO PROLIFERATE IN RESPONSE TO HYPERTHERMIA	121
<i>L. Degutytė-Fomins, G. Šilkūnienė, B. Jakštys, Z. Naučienė, R. Žūkienė, V. Mildažienė</i>	
CHANGES ON CANCER AND NORMAL CELLS VIABILITY AND ABILITY TO PROLIFERATE IN RESPONSE TO HYPERTHERMIA	122
<i>Eglė Galdikaitė-Brazienė, Algimantas Paulauskas, Jana Radzijeuskaja</i>	
CONSERVATION AND REPRODUCTION IN VITRO OF ENDANGERED SPECIES OF THE GENUS <i>SALIX L.</i>	123
<i>Oksana Chornobrov, Maria Manko, Oleksandr Chornobrov</i>	

ENVIRONMENTAL RISK ASSESSMENT OF SOIL CONTAMINATION BY TRACE ELEMENTS AROUND OPEN MINE AND TAILING DUMP OF THE AKHTALA ORE PROCESSING COMBINE

K. Ghazaryan¹, H. Khachatryan²

¹CHAIR OF ECOLOGY AND NATURE PROTECTION, FACULTY OF BIOLOGY, YEREVAN STATE UNIVERSITY, ALEX MANOOGIAN ST. 1, 0025 YEREVAN, REPUBLIC OF ARMENIA, ²MINISTRY OF EDUCATION AND SCIENCE OF RA, ARMENIAN NATIONAL AGRARIAN UNIVERSITY, TERYAN ST. 74, 0009 YEREVAN, REPUBLIC OF ARMENIA
KGAZARYAN@YSU.AM

Abstract

One of the most considerable problems is the pollution of environment with heavy metals. Metal mining is an essential human activity to provide rough materials for our society. The development of mining technology enabled the progressive substitution in the 1950s of the old methods based on underground exploitation by modern and profitable surface extraction technologies. That is the reason that the volumes of metal extracted were increased. A similar process has occurred also in our studied area and the closed mine working not far from a city Shamlugh about 15-20 years ago was replaced by a more profitable surface extraction technologies. The main objective of this study is the assessment of the soils pollution level of the open mine and tailing dump of the surrounding territories of Akhtala ore processing combine by heavy metals.

The soils of two riskiest sites of this region were studied: surroundings of open mine near the Shamlugh town and surroundings of the Chochkan active tailing dam. The mountain cambisol was the main soil type in the study sites. To classify soil pollution level contamination indices like Contamination factors (Cf), Degree of contamination (Cd), Pollution load index (PLI) and Geo-accumulation index (I-geo) are calculated. The distribution pattern of trace metals in the soil profile due to I geo, Cf and Cd values shows that the soil is very polluted. The PLI values for the 19 sites were >1 , which indicates deterioration of site quality. The significant correlation between some of the heavy metals showed that the pollution of soils by heavy metals in the studied territory was directly due to human activities, particularly mining and smelting industry. The variation of high pollution with Cu and some heavy metals near the open mine and the surroundings of Chochkan active tailing dam was due to the character of industrial activities, the moving direction of airstreams as well as the physicochemical peculiarities of soils. It is actual case as the some parts of these highly polluted regions are inhabited by population, and also the agriculture is highly developed there. Taking into consideration that heavy metals can enter human body through soil-plant-human or soil-plant-animal-human chain causing various diseases, this is more urgent theme for investigation. Consequently it is highly important to study the concentrations and health implications of these heavy metals in residents of the Shamlugh town and the Chochkan village.