

# Hasmik Sedrak Movsesyan

## Faculty of Biology

Chair of Ecology and Nature Conservation

Associate professor

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## Education

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Biology
<b>Date</b>	1982 - 1985
<b>Degree name</b>	PhD student

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Biology/biochemistry
<b>Date</b>	1977 - 1982
<b>Degree name</b>	Qualified specialist

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## Scientific Rank/degree

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<b>Institution</b>	Yerevan State University
<b>Date</b>	2008
<b>Degree name</b>	Associate professor
<b>Specialty</b>	Biological sciences

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<b>Institution</b>	Yerevan State University
<b>Date</b>	1990
<b>Degree name</b>	Candidate
<b>Specialty</b>	Biological sciences
<b>Scientific Supervisor</b>	Davtyan M. A.
<b>Research Topic</b>	Isoenzymes of arginase and the process of biosynthesis of proline in regenerating rat liver, K.005.01.08

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## Language skills

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Հայերեն Русский English

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## Work experience

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<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2023 - 2024

<b>Rank/degree</b>	Head of the Chair of Ecology and Nature Conservation
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2008 till now
<b>Rank/degree</b>	Associate Professor at the Faculty of Biology, Chair of Ecology and Nature Conservation
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2007 - 2008
<b>Rank/degree</b>	Head of the Department of Faculty Qualification Improvement of YSU
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2002 - 2008
<b>Rank/degree</b>	Assistant Professor at the Faculty of Biology, Chair of Ecology and Nature Conservation
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2000 - 2002
<b>Rank/degree</b>	Assistant Professor at the Faculty of Biology, Chair of Biochemistry
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	1994 - 2004
<b>Rank/degree</b>	Researcher
<b>Institution</b>	Yerevan State University
<b>Period of time</b>	1985 - 2000
<b>Rank/degree</b>	Senior Assistant at the Faculty of Biology, Chair of Biochemistry

## Scientific interests

- Environmental and Occupational Health, Environmental Chemistry and Toxicology, Soil Ecology, Food Safety

## Participation in international conferences and seminars

<b>12/09/2023 - 17/09/2023</b>	III International Scientific Conference "Current state of chernozems" Southern Federal University Russian Federation (the)
<b>08/07/2012 - 12/07/2012</b>	International Conference of Agricultural Engineering CIGR-AgEng CIGR International Commission of Agricultural and Biosystems Engineering Spain

**17/07/2011 - 21/07/2011**      4th International Conference “Enzymes in the Environment: Activity, Ecology & Applications”  
Justus Liebig University  
Germany

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## Publications

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*Article*

**Chenopodium album L.: a promising NaCl accumulating and tolerant plant for mitigation of salinity stress**

Ghazaryan K.A., Margaryan G.H., Minkina T.M., Rajput V.D., Movsesyan H.S.

Revista Brasileira de Botanica 2024 1-20

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*Article*

**Advancing Agricultural Resilience in Ararat Plain, Armenia: Utilizing Biogenic Nanoparticles and Biochar under Saline Environments to Optimize Food Security and Foster European Trade**

Abhishek Singh, Gohar Margaryan, Anna Harutyunyan, Hasmik S. Movsesyan, Hrant Khachatryan,

Vishnu D. Rajput, Tatiana Minkina, Athanasios Alexiou, Dimitrios Petropoulos, Athanasios Kriemadis,

Hassan El-Ramady, Karen Ghazaryan

Egyptian Journal of Soil Science 2024 459-483

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*Article*

**Effects of environmental metal and metalloids on plants and human health: exploring nano-remediation approach**

Priyadarshani Rajput, Abhishek Singh, Shreni Agrawal, Karen Ghazaryan, Vishnu D. Rajput,

Hasmik Movsesyan, Saglara Mandzhieva, Tatiana Minkina, Athanasios Alexiou

Stress Biology 2024 1-25

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*Article*

**Nanobiotechnology combined approaches for sustainable agriculture. Chapter 1**

Vishnu D. Rajput, Abhishek Singh, Shivani Lalotra, Karen Ghazaryan, Hasmik S. Movsesyan,

Tatiana Minkina, Rahman Mohammad Al-Tawaha, Athanasios T. Alexiou, Priyadarshani Rajput

Sustainable Agriculture: Nanotechnology and Biotechnology for Crop Production and Protection 2024

1-16

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*Article*

**Nanoagriculture: Exploring Environmental Impacts and Sustainable Advantages**

Omkar Singh, Shivangi Singh, Prabhat Kumar Singh, Vijay Kant Singh, Anand Singh, Sakshi Singh,

Hasmik S. Movsesyan, Tatiana Minkina, Olga Nazarenko, Savr Mandzhiev, Elizaveta Latsynnik

Harnessing NanoOmics and Nanozymes for Sustainable Agriculture 2024 275-296

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*Article*

**Nanoparticle-mediated approaches in agriculture addressing abiotic stress from soil to plant cells**

Vishnu D. Rajput, Abhishek Singh, Bhavana Tomar, Tatiana Minkina, Hasmik S. Movsesyan,

Mohamed S. Elshikh, Shen-Ming Chena, Rupesh Kumar Singh, Karen Ghazaryan

Nanotechnology Applications and Innovations for Improved Soil Health 2024 72-89

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Article

**In-depth Exploration of Nanoparticles for Enhanced Nutrient Use Efficiency and Abiotic Stresses Management: Present Insights and Future Horizons**

Abhishek Singh, Aishwarya Sharma, Omkar Singh, Vishnu D. Rajput, Hasmik S. Movsesyan, Tatiana Minkina, Athanasios Alexiou, Marios Papadakis, Rupesh Kumar Singh, Sakshi Singh, João Ricardo Sousa, Hassan Ragab El-Ramady, Faisal Zulfiqar, Rahul Kumar, Abdullah Ahmed Al-Ghamdi, Karen Ghazaryan  
Plant Stress 2024 1-24

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Article

**Earthworms As An Emerging Biotechnological Intervention in the Mitigation of Microplastics**

Aishwarya Sharma, Shailja Kumar, Abhishek Singh, Ragini Sharma, Vishnu D. Rajput, Hasmik S. Movsesyan, Tatiana Minkina, Rupesh Kumar Singh, Hassan El-Ramady, Karen Ghazaryan  
Egyptian Journal of Soil Science 2024 1219-1238

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Article

**Uncharted risk measures for the management of sustainable mining**

Beatriz A. Watts, Valéria C. Palmeira Zago, Lakshmi Gopakumar, Karen Ghazaryan, Hasmik Movsesyan  
Integrated Environmental Assessment and Management 2023 949-960

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Article

**Effects of Sodic Water Irrigation and Neutralizing Amendments on Physiological, Biochemical, and Nutritional Quality Traits of Fodder Sorghum**

Hasmik S. Movsesyan, Govind Makarana, Rajender Kumar Yadav, Parvender Sheoran, Rakesh Kumar, Ashwani Kumar, Hardev Ram, Malu Ram Yadav, Dinesh Kumar, Saurabh Kumar, Tatiana Minkina, Saglara S. Mandzhieva, Vishnu D. Rajput  
Agronomy 2023 1128 (18 t2)

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Article

**Seed Nanopriming: An Innovative Approach for Upregulating Seed Germination and Plant Growth Under Salinity Stress**

Abhishek Singh, Shreni Agrawal, Vishnu D. Rajput, Karen Ghazaryan, Hasmik S. Movsesyan, Tatiana Minkina, Abdel Rahman Mohammad Al Tawaha, Athanasios Alexiou, Badal Singh, Santosh Kumar Gupta  
Nanopriming Approach to Sustainable Agriculture 2023 290-313

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Article

**Insight into Methanobiology and Role of Emerging Technologies in Methane Management**

Abhishek Singh, Karen Ghazaryan, Hasmik S. Movsesyan, Athanasios T. Alexiou, Abdel Rahman Mohammad Al Tawaha, Neha Chakrawarti, Ragini Sharma, Shreni Agrawal, Omkar Singh, Uday Pratap Shahi  
Biogeosystem Technique 2023 12-31

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Article

**Study of tolerance and phytodesalination potential of wheat, oat, emmer, and barley for sustainable saline agriculture**

GHAZARYAN, K.A., HARUTYUNYAN, A.S., KHACHATRYAN, H.E., SINGH, A., MINKINA, T.M., RAJPUT, V.D., MOVSESYAN, H.S.

*Article*

**Biogeochemical and microscopic studies of soil and *Phragmites australis* (Cav.) Trin. ex Steud. plants affected by coal mine dumps**

Karen Ghazaryan, Hasmik Movsesyan, Tatiana Minkina, Grigoriy Fedorenko, Dina Nevidomskaya, Aleksei Fedorenko, Svetlana Sushkova, Saglara Mandzhieva, Victor Chaplygin, Yuri Litvinov, Yuri Popov, Christopher Rensing, Vishnu D. Rajput, Ming H. Wong

Environmental Science and Pollution Research 2023 406-421

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*Article*

**Phytoremediation of copper-contaminated soil by *Artemisia absinthium*: comparative effect of chelating agents**

Ghazaryan K.A., Movsesyan H.S., Minkina T.M., Nevidomskaya D.G., Rajput V.D.

Environmental Geochemistry and Health 2022 1203-1215

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*Article*

**The identification of phytoextraction potential of *Melilotus officinalis* and *Amaranthus retroflexus* growing on copper- and molybdenum-polluted soils**

Karen A. Ghazaryan, Hasmik S. Movsesyan, Tatiana M. Minkina, Svetlana N. Sushkova, Vishnu D. Rajput

Environmental Geochemistry and Health 2021 1327-1335

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*Article*

**Adaptive potential of *Typha laxmannii* Lepech to a heavy metal contaminated site**

Tatiana M. Minkina, Grigoriy M. Fedorenko, Dina G. Nevidomskaya, Yuri A. Fedorov, Tatiana N. Pol'shina, Aleksei G. Fedorenko, Victor A. Chaplygin, Saglara S. Mandzhieva, Karen A. Ghazaryan,

Hasmik S. Movsesyan, Tara M. Hassan

Plant and Soil 2021 273-287

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*Article*

**Influence of soil pollution on the morphology of roots and leaves of *Verbascum thapsus* L**

Victor Chaplygin, Natalia Chernikova, Grigorii Fedorenko, Aleksei Fedorenko, Tatiana Minkina, Dina Nevidomskaya, Saglara Mandzhieva, Karen Ghazaryan, Hasmik Movsesyan, Vladimir Beschetnikov

Environmental Geochemistry and Health 2021 1-17

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*Article*

**ZnO and CuO nanoparticles: a threat to soil organisms, plants, and human health**

Vishnu Rajput, Tatiana Minkina, Svetlana Sushkova, Arvind Behal, Alexey Maksimov, Eliza Blicharska, Karen Ghazaryan, Hasmik Movsesyan, Natalia Barsova

Environmental Geochemistry and Health 2020 147-158

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*Article*

**Comparative hydrochemical assessment of groundwater quality from different aquifers for irrigation purposes using IWQI: a case-study from Masis province in Armenia**

Karen Ghazaryan, Hasmik Movsesyan, Aram Gevorgyan, Tatiana Minkina, Svetlana Sushkova,

Vishnu Rajput, Saglara Mandzhieva

Groundwater for Sustainable Development 2020 1-21,100459

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*Article*

**Soil salinization in the agricultural areas of Armenian semi-arid regions: case study of Masis region**

Ghazaryan K.A., Gevorgyan G. A., Movsesyan H.S., Khachatryan H.E.

Proceedings of the YSU B: Chemical and Biological Sciences 2020 159-167

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*Article*

**Հողի ֆերմենտային ակտիվության ցուցանիշների կիրառական ասպեկտները**  
Խաչատրյան Հ.Է., Ղազարյան Կ.Ա., Մովսեսյան Հ.Ս.

Հայաստանի կենսաբանական հանդես 2020 65-71

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*Article*

**SOIL MICROBIAL BIOMASS AND ENZYME ACTIVITIES RESPONSE TO COPPER AND MOLYBDENUM POLLUTION IN THE VICINITY OF ZANGEZUR COPPER AND MOLYBDENUM COMBINE, ARMENIA**

Ghazaryan K.A., Movsesyan H.S.

Proceedings of the YSU B: Chemical and Biological Sciences 2020 235-245

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*Article*

**Study of copper, lead, and zinc speciation in the Haplic Chernozem surrounding coal-fired power plant**

Marina Burachevskaya, Tatiana Minkina, Victor Chaplygin, Tatiana Bauer, Victor Chaplygin,

Inna Zamulina, Svetlana Sushkova, Alexey Fedorenko, Karen Ghazaryan, Hasmik Movsesyan,

Denis Makhinya

Applied Geochemistry 2019 102-108

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*Article*

**Copper phytoremediation potential of wild plant species growing in the mine polluted areas of Armenia**

Ghazaryan Karen, Movsesyan Hasmik, Ghazaryan Naira, Watts Beatriz Amanda

Environmental Pollution 2019 491-501

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*Article*

**The role of biochar-microbe interaction in alleviating heavy metal toxicity in *Hordeum vulgare* L. grown in highly polluted soils**

Gorovtsov Andrey, Vishnu Rajput, Minkina Tatiana, Mandzhieva Saglara, Sushkova Svetlana,

Kornienko Igor, Tatiana V. Grigoryeva, Chokheli Vasily, Aleshukina Iraida, Zinchenko Vladislav,

Fedorenko Elena, Movsesyan Hasmik

Applied Geochemistry 2019 93-101

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*Article*

**Copper phytoextraction and phytostabilization potential of wild plant species growing in the mine polluted areas of Armenia**

Karen A. Ghazaryan, Hasmik S. Movsesyan, Hrant E. Khachatryan, Naira P. Ghazaryan,

Tatiana M. Minkina, Svetlana N. Sushkova, Saglara S. Mandzhieva, Vishnu D. Rajput

Geochemistry: Exploration, Environment, Analysis 2019 155-163

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*Article*

**THE IMPACT OF ZANGEZUR COPPER AND MOLYBDENUM COMBINE ACTIVITIES ON THE POLLUTION OF AGRICULTURAL LANDS AND CROPS BY TOXIC ELEMENTS**

*Article*

**Ֆիտոռեմեդիացիան որպես ծանր մետաղներով հողերի աղտոտվածության նվազեցման կենսատեխնոլոգիա**

Խաչատրյան Հ.Է., Ղազարյան Կ.Ա., Մովսեսյան Հ.Ս.

Հայաստանի կենսաբանական հանդես 2019 39-47

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*Article*

**Hydrochemical analysis and evaluation of groundwater quality for irrigation in Masis Region, Armenia**

Ghazaryan K.A., Movsesyan H.S., Khachatryan H.E., Yezekyan A.S.

Proceedings of the YSU B: Chemical and Biological Sciences 2019 193-199

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*Article*

**Effects of zinc-oxide nanoparticles on soil, plants, animals and soil organisms: A review**

Ghazaryan K.A., Movsesyan H.S., Rajput V.D., Minkina T.M., Behal A., Sushkova S.N., Mandzhieva S.,

Singh R., Gorovtsov A., Tsitsuashvili V.S., Purvis W.O.

Environmental Nanotechnology, Monitoring and Management 2018 76-84

<https://www.journals.elsevier.com/environmental-nanotechnology-monitoring-and-m...>

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*Article*

**Geochemistry of Potentially Toxic Trace Elements in Soils of Mining Area: A Case Study from Zangezour Copper and Molybdenum Combine, Armenia**

Karen A. Ghazaryan, Hasmik S. Movsesyan, Hrant E. Khachatryan, Naira P. Ghazaryan

Bulletin of Environmental Contamination and Toxicology 2018 1-6

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*Article*

**Environmental risk assessment of soil pollution by some trace elements around open mine and tailing dump of Akhtala Mining and Processing Enterprise**

Ghazaryan K., Movsesyan H., Gevorgyan G., Khachatryan H., Antonyan S., Avetisyan R.

Proceedings of the YSU B: Chemical and Biological Sciences 2018 198-203

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*Article*

**POTENTIALLY TOXIC ELEMENTS CONTENT IN SOILS IN THE VICINITY OF SHAMLUGH COPPER MINING AREA (ARMENIA): ECOLOGICAL, AGRICULTURAL AND HEALTH RISK ASSESSMENT**

K. A. GHAZARYAN, H. S. MOVSESYAN, G. A. GEVORGYAN

Biological Journal of Armenia 2018 6-11

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*Article*

**Human health risk assessment of heavy metal pollution in soils around Kapan mining area, Armenia**

Gevorgyan G. A., Ghazaryan K. A., Movsesyan H. S., Zhamharyan H. G.

Electronic Journal of Natural Sciences of NAS RA 2017 29-33

<http://ejns.sci.am>

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*Article*

**Copper absorption status of agricultural plant species and their phytoremediation potential**

K.A. Ghazaryan, H.S. Movsesyan, H.E. Khachatryan, T.M. Minkina, S.N. Sushkova

*Article*

**Assessment of ecological and agricultural risks of heavy metal pollution of soils in the vicinity of Kapan city, Armenia**

Ghazaryan K.A., Movsesyan H. S., Gevorgyan G. A.

Proceedings of the YSU B: Chemical and Biological Sciences 2017 193-197

<http://www.y-su.am/science/en/1511853083>

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*Article*

**Heavy metals in the soils of the mining regions of Kajaran, Armenia: A preliminary definition of contaminated areas**

Ghazaryan Karen A., Movsesyan Hasmik S., Ghazaryan Naira P.

Academic Journal of Science 2017 421-429

<http://www.universitypublications.net/ajs/0703/index.html>

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*Article*

**Assessment of heavy metal contamination of soils around Agarak (RA) copper-molybdenum mine complex**

Ghazaryan K. A., Movsesyan H. S., Ghazaryan N. P., Shalunts Sh. V.

Proceedings of the YSU B: Chemical and Biological Sciences 2016 34-42

<http://www.y-su.am/science/hy/journals>

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*Article*

**Application of various methods for evaluation of heavy metal pollution in soils around Agarak copper-molybdenum mine complex, Armenia**

K.A. Ghazaryan, H.S. Movsesyan, N.P. Ghazaryan

World Academy of Science, Engineering and Technology. International Journal of Environmental, Chemical, Ecological, Geological and Geophysical Engineering  
2016 809-814

<http://waset.org/Publications/?path=Publications>

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*Article*

**Ագարակի պղնձամոլիբդենային կոմբինատի շրջակա հողերի միկրոտարրերով աղտոտվածության հետ կապված էկոլոգիական ռիսկերի գնահատումը**

Կ.Ա. Ղազարյան, Հ.Ս. Մովսեսյան, Հ.Գ. Ժամհարյան, Ն.Փ. Ղազարյան

Հայաստանի կենսաբանական հանդես 2016 66-75

<http://www.flib.sci.am/eng/Biology/>

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*Article*

**Environmental risks of heavy metal pollution of the soils around Kajaran town, Armenia**

Gevorgyan G. A., Movsesyan H. S., Grigoryan K. V., Ghazaryan K. A.

Proceedings of the YSU B: Chemical and Biological Sciences 2015 50-55

<http://www.y-su.am/science/hy/journals>

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*Conference*

**Rapid evaluation of heavy metals impact on biochemical activity and microbial size in soils around Zangezur Combine, Armenia**

Flavio Fornasier, Karen Ghazaryan, Hasmik Movsesyan, Naira Ghazaryan

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Conference

**Geochemistry of potentially toxic trace elements in soils of mining area: a case study from Zangezur Copper and Molybdenum Combine, Armenia**

Ghazaryan K.A., Movsesyan H.S., Khachatryan H.E., Ghazaryan N.P.

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Conference

**Effect of PBO nanoparticle on plant growth**

Rajput V.D., Chaplign V.A., Minkina T.M., Sushkova S.N., Mandzhieva S.S., Tsitsuashvili V.S.,

Ղազարյան Կ.Ա., Մոսեսյան Հ.Ս.

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Conference

**Copper phytoremediation potential of native plant species growing in the mine polluted areas of south Armenia**

Ghazaryan K., Antonyan S., Movsesyan H.

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Conference

**Copper phytoremediation potential of wild plant species growing in the mine polluted areas of Armenia**

Ghazaryan Karen, Movsesyan Hasmik, Khachatryan Hrant, Antonyan Susanna, Ruzan Avetisyan

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Conference

**Strength of zinc fixation in soils in the conditions of aerosol contamination**

Burachevskaya M., Ghazaryan K., Minkina T., Movsesyan H., Mandzhieva S., Bauer T., Sushkova S.

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Conference

**The lead compounds in the soil in conditions of air pollution**

Burachevskaya M., Minkina T., Zamulina I., Lobzenko I., Movsesyan A, Ghazaryan K.

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Conference

**Фракционное распределение цинка в чернозёмах зоны аэротехногенного загрязнения**

Бурачевская М.В., Манджиева С.С., Минкина Т.М., Казарян К.А., Мовсесян А.С., Сушкова С.Н.

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Conference

**Pahs bioaccumulation in soil-plant system in artificial contaminated model experience**

Sushkova, S., Minkina, T., Deryabkina Turina, I., Antonenko, E., Movsesyan, H.

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Conference

**Mechanism of hyperaccumulation of heavy metals by of *Verbascum thapsus* from soil**

Chernikova Natalia, Chaplygin Victor, Nevidomskaya Dina, Ghazaryan Karen, Mandzhieva Saglara,

Minkina Tatiana, Movsesyan Hasmik, Glinushkin Alexey, Kalinichenko Valery, Beschetsnikov Vladimir,

Sazonov Ilia

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Conference

**Study of soil salinization process in the semi-arid agricultural areas of Masis region, Armenia**

Ghazaryan Karen, Movsesyan Hasmik, Khachatryan Hrant

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