

Hasmik Sedrak Movsesyan

Faculty of Biology

Chair of Ecology and Nature Conservation

Associate professor

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Education

Institution	Yerevan State University
Faculty	Biology
Date	1982 - 1985
Degree name	PhD student

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

Scientific Rank/degree

Institution	Yerevan State University
Date	2008
Degree name	Associate professor
Specialty	Biological sciences

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

Language skills

Հայերեն Русский English

Work experience

Institution	Yerevan State University
Period of time	2023 - 2024

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

12/09/2023 - 17/09/2023	III International Scientific Conference "Current state of chernozems" Southern Federal University Russian Federation (the)
08/07/2012 - 12/07/2012	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

Publications

Article

Adaptation and resilience: plants and microorganism responding to biogenic nanomaterial

Morishwala Mohammad Farhan, Shreni Agrawal, Indrani Bhattacharya, Abhishek Singh, Anna Harutyunyan, Hasmik Movsesyan, Rupesh Kumar Singh, Francisco Roberto Quiroz-Figueroa, Joaõ Ricardo Sousa, Henrique Trindade, Mohamed S. Elshikh, Arunava Pradhan, Karen Ghazaryan
Biogenic Nanoparticles Interplay with Climate Change and Implications for Human Health 2025 227-255

Article

Nano-enabled solutions for sustainable agriculture by managing abiotic stress: Critical evaluation on unraveling the pros and cons with ecological impacts

Vishnu D. Rajput, Abhishek Singh, Aishwarya Sharma, Gang Wang, Hasmik S. Movsesyan, Tatiana Minkina, Priyadarshani Rajput, Rupesh Kumar Singh, Joaõ Ricardo Sousa, Mohamed S. Elshikh, Shen-Ming Chena, Athanasios Alexiou, Karen Ghazaryan
Plant Stress 2025 1-26

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

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

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

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

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

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

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

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

Article

Soil Pollution: An Agricultural and Environmental Problem with Nanotechnological Remediation Opportunities and Challenges

Karen Ghazaryan, Shreni Agrawal, Gohar Margaryan, Anna Harutyunyan, Priyadarshani Rajput, Hasmik Movsesyan, Vishnu D. Rajput, Rupesh Kumar Singh, Tatiana Minkina, Mohamed S. Elshikh, Mona S. Alwahibi, Athanasios Alexiou, Marios Papadakis, João Ricardo Sousa, Abhishek Singh
Discover Sustainability 2024 1-33

Article

Nanotechnology and biotechnology: Transforming agriculture for food security and sustainability

Vishnu D Rajput, Abhishek Singh, Karen Ghazaryan, Hasmik S Movsesyan, Tatiana M. Minkina, Abdel Rahman Mohammad Al-Tawaha, Athanasios T. Alexiou, Priyadarshani Rajput
Sustainable Agriculture: Nanotechnology, Biotechnology, Management and Food Security 2024 213-232

Article

Environmental implications of nanomaterial-plant interactions: Navigating the benefits and concerns

Abhishek Singh, Vishnu D. Rajput, Aishwarya Sharma, Karen Ghazaryan, Hasmik S. Movsesyan, Tatiana M. Minkina, Abdel Rahman Mohammad Al-Tawaha, Athanasios T. Alexiou, Priyadarshani Rajput
Sustainable Agriculture: Nanotechnology, Biotechnology, Management and Food Security 2024 511-534

Article

Harvesting nanotech: Responsible policies for integrating nanotechnology in agriculture and health

Sapna Rawat, Abhishek Singh, Vishnu D Rajput, Karen Ghazaryan, Hasmik S Movsesyan, Tatiana M. Minkina, Abdel Rahman Mohammad Al-Tawaha, Athanasios T. Alexiou, Priyadarshani Rajput
Sustainable Agriculture: Nanotechnology, Biotechnology, Management and Food Security 2024 495-509

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

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)

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

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

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.
Applied Ecology and Environmental Research 2023 4853-4882

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

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

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

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

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

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

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

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

Article

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

Հայաստանի կենսաբանական հանդես 2020 65-71

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

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

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

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

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

Article

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

K.A. Ghazaryan, H.S. Movsesyan, H.E. Khachatryan, T.G. Leah, H.G. Zhamharyan

Proceedings of the YSU B: Chemical and Biological Sciences 2019 119-125

Article

Ֆիտոռեմեդիացիան որպես ծանր մետաղներով հողերի աղտոտվածության նվազեցման

ԿԵՆՍԱՍՏԵԽՆՈՂՈՂԻՎ

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

Հայաստանի կենսաբանական հանդես 2019 39-47

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

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...>

Article

Geochemistry of Potentially Toxic Trace Elements in Soils of Mining Area: A Case Study from Zangezur 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

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

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

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>

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

Proceedings of the YSU B: Chemical and Biological Sciences 2017 106-112

<http://www.ysu.am/science/hy/journals>

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://ysu.am/science/en/1511853083>

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>

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.ysu.am/science/hy/journals>

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>

Article

Ազարակի պղնձամոլիբդենային կոմբինատի շոջակա 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/>

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.ysu.am/science/hy/journals>

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

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.

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.

Conference

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

Ghazaryan K., Antonyan S., Movsesyan H.

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

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.

Conference

The lead compounds in the soil in conditions of air pollution

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

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.

Conference

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

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

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, Beschetenkov Vladimir,

Sazonov Ilia

Conference

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

Ghazaryan Karen, Movsesyan Hasmik, Khachatryan Hrant
