

# Карен Арамаисович Казарян

Биологический факультет  
Декан

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## 🎓 Образование

Учреждение	Ереванский государственный университет
Факультет	Биологический
Дата	2001 - 2004
Степень / Звание	Аспирант

Учреждение	Ереванский государственный университет
Факультет	Биологический
Дата	1999 - 2001
Степень / Звание	Магистр

Учреждение	Ереванский государственный университет
Факультет	Биологический
Дата	1995 - 1999
Степень / Звание	Бакалавр

## 🎓 Ученое звание/Ученая степень

Учреждение	Институт ботаники имени А.Л. Тахтаджяна
Дата	2022
Степень / Звание	Доктор наук
Специальность	Биологические науки
Научная тема	Оценка экологических последствий деградации почв и пути их улучшения на территориях повышенного риска Республики Армения

Учреждение	Ереванский государственный университет
Дата	2016
Степень / Звание	Доцент
Специальность	Биологические науки

Учреждение	Научный центр зоологии и гидроэкологии
Дата	2004
Степень / Звание	Кандидат наук
Специальность	Биологические науки
Научный руководитель	Григорян К.В.
Научная тема	Экологическая оценка и управление территорией бассейна озера Арпи

## Опыт работы

Учреждение	Ереванский государственный университет
Период времени	2023 до настоящего времени
Звание/степень	Декан биологического факультета
Учреждение	Ереванский государственный университет
Период времени	2022 - 2023
Звание/степень	и.о. заведующего кафедрой экологии и охраны природы
Учреждение	Ереванский государственный университет
Период времени	2021 до настоящего времени
Звание/степень	Ведущий научный сотрудник
Учреждение	Ереванский государственный университет
Период времени	2016 до настоящего времени
Звание/степень	Доцент кафедры экологии и охраны природы биологического факультета
Учреждение	Ереванский государственный университет
Период времени	2015 - 2023
Звание/степень	Заместитель декана биологического факультета
Учреждение	Ереванский государственный университет
Период времени	2008 - 2016
Звание/степень	Ассистент кафедры экологии и охраны природы биологического факультета
Учреждение	Ереванский государственный университет
Период времени	2005 - 2021
Звание/степень	Старший научный сотрудник

## Научные интересы

- Экология почвы; Мониторинг и управление водными ресурсами; Экологический менеджмент окружающей среды; Экологическая оценка окружающей среды

## Участие в международных конференциях и семинарах

22/05/2023 - 24/05/2023	2nd Meeting of the International Network of Salt-Affected Soils (INSAS), Managing salt-affected soils for sustainable future FAO Узбекистан
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**12/09/2023 - 17/09/2023** III Международной научной конференции и II Международной научной школы молодых ученых «Мониторинг, охрана и восстановление почвенных экосистем в условиях антропогенной нагрузки»  
Southern Federal University  
Российская Федерация

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**02/05/2018 - 04/05/2018** Global Symposium on Soil Pollution  
FAO  
Италия

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**24/08/2018 - 28/09/2018** Современное состояние чернозёмов  
Southern Federal University  
Российская Федерация

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**08/10/2018 - 10/10/2018** International Conference Contaminated Sites  
The Ministry of Environment of the Slovak Republic and the Slovak Environment Agency  
Словакия

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**19/04/2021 - 30/04/2021** EGU General Assembly  
European Geosciences Union  
Австрия

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**20/10/2021 - 22/10/2021** Global Symposium on Salt-affected Soils  
FAO  
Италия

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## Членство

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**Учреждение** Член специализированного совета 036 по специальности: «Зоология, паразитология и экология» (03.00.08)

**Период времени** 2023 до настоящего времени

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## Публикации

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*Статья*

**Impact of Nanofertilizers for the Mitigation of Multiple Environmental Stresses**

Abhishek Singh, Sapna Rawat, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina,

Abdel Rahman Mohammad Al Tawaha, Ashi Varshney

Nanofertilizers for Sustainable Agroecosystems 2024 431-454

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*Статья*

**Green Synthesis of Nanofertilizers and Their Application for Crop Production**

Abhishek Singh, Ragini Sharma, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina,

Abdel Rahman Mohammad Al Tawaha, Ashi Varshney

Nanofertilizers for Sustainable Agroecosystems 2024 205-231

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Статья

**Impact of Salinity Stress and Zinc Oxide Nanoparticles on Macro and Micronutrient**

**Assimilation: Unraveling the Link between Environmental Factors and Nutrient Uptake**

Abhishek Singh, Rakesh Singh Sengar, Vishnu D. Rajput, Uday Pratap Shahi, Abdul Latief Al-Ghzawi,

Karen Ghazaryan, Tatiana Minkina, Abdel Rahman Mohammad Al Tawaha, Omar Mahmoud Al Zoubi,

Talaat Habeeb

Journal of Ecological Engineering 2024 1-9

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Статья

**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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Статья

**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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Статья

**Zinc Oxide Nanoparticles Influence on Plant Tolerance to Salinity Stress: Insights into Physiological, Biochemical, and Molecular Responses**

Abhishek Singh, Vishnu D. Rajput, Shivani Lalotra, Shreni Agrawal, Karen Ghazaryan, Jagpreet Singh,

Tatiana Minkina, Priyadarshani Rajput, Saglara Mandzhieva, Athanasios Alexiou

Environmental Geochemistry and Health 2024 148

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Статья

**Nanotechnology applications for enhanced crop growth and yield. Chapter 4**

Sapna Rawat, Abhishek Singh, Vishnu D. Rajput, Karen Ghazaryan, Tatiana M. Minkina,

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

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

53-68

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Статья

**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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Статья

**Impact of nano-enzyme and nanomics for sustainable agriculture: Current status and future prospective**

Shivangi Singh, Omkar Singh, Sakshi Singh, Abhishek Singh, Vishnu D. Rajput, Karen Ghazaryan,

Vaishali Singh, Athanasios Alexiou, Abdel Rahman Mohammad Said Al-Tawaha, Aleksandr Yesayan,

Armine David Chakhmakhchyan, Hassan El-Ramady

Статья

**Nano-omics-based abiotic and biotic stresses management**

Priyanka Upadhyay, Sonia Navvuru, Praveen Kumar Yadav, Shivani Lalotra, Abhishek Singh, Vishnu D. Rajput, Tatiana Minkina, Karen Ghazaryan

Harnessing NanoOmics and Nanozymes for Sustainable Agriculture 2024 348-371

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Статья

**Detoxification of Biomedical Waste**

Abhishek Singh, Neha Chakrawarti, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina, Abdel Rahman Mohammad Said Al-Tawaha, Abdel Razzaq Al-Tawaha, Marwa Adel Qotb, Arun Karnwal  
Microbial Applications for Environmental Sustainability 2024 137-149

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Статья

**Microbial Enzymes for Eco-Friendly Recycling of Wastepaper by Deinking**

Sapna Rawat, Abhishek Singh, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina, Abdel Rahman Mohammad Said Al-Tawaha, Abdel Razzaq Al-Tawaha, Marwa Adel Qotb, Arun Karnwal  
Microbial Applications for Environmental Sustainability 2024 165-176

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Статья

**Microbial Manganese Peroxidase: Ligninolytic Enzymes for Bioremediation**

Abhishek Singh, Ragini Sharma, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina, Abdel Rahman Mohammad Said Al-Tawaha, Shreni Agrawal, Ashi Varshney, Abdel Razzaq Al-Tawaha, Arun Karnwal  
Microbial Applications for Environmental Sustainability 2024 189-199

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Статья

**Effects of environmental metal and metalloid pollutants 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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Статья

**Nanoparticles in revolutionizing crop production and agriculture to address salinity stress challenges for a sustainable future**

Abhishek Singh, Shreni Agrawal, Vishnu D. Rajput, Karen Ghazaryan, Aleksandr Yesayan, Tatiana Minkina, Yufei Zhao, Dimitrios Petropoulos, Athanasios Kriemadis, Marios Papadakis, Athanasios Alexiou  
Discover Applied Sciences 2024 317

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Статья

**Carbon Nanodot-Microbe-Plant Nexus in Agroecosystem and Antimicrobial Applications**

Prokisch József, Duyen H. H. Nguyen, Arjun Muthu, Aya Ferroudj, Abhishek Singh, Shreni Agrawal, Vishnu D. Rajput, Karen Ghazaryan, Hassan El-Ramady, Mahendra Rai  
Nanomaterials 2024 1-37

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Статья

**Prominent Effects of Zinc Oxide Nanoparticles on Roots of Rice (*Oryza sativa* L.) Grown under Salinity Stress**

Abhishek Singh, Rakesh Singh Sengar, Uday Pratap Shahi, Vishnu D. Rajput, Tatiana Minkina,

Karen A. Ghazaryan  
Stresses 2023 33-46

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Статья

**Potential of *Suaeda nudiflora* and *Suaeda fruticosa* to adapt to high salinity conditions**

Abhishek Joshi, Vishnu D. Rajput, Krishan K. Verma, Tatiana Minkina, Karen Ghazaryan, Jaya Arora

Horticulturae MDPI 2023 1-18

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Статья

**ԷՋՄԻԱԾՆԻ ՏԱՐԱԾԱՇՐՋԱՆԻ ԳՐՈՒՆՏԱՅԻՆ ՑՐԵՐԻ ՈՌՈԳԵԼԻ ՀԱՏԿՈՒԹՅՈՒՆՆԵՐԻ ԳՆԱՀԱՏՈՒՄԸ ԸՍՏ ՈՐՈՇ ՀԻՂՈՔԻՄԻԱԿԱՆ ՑՈՒՑԱՆԻՇՆԵՐԻ**

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

Հայաստանի կենսաբանական հանդես 2023 13-21

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Статья

**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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Статья

**Salinity stress and nanoparticles: Insights into antioxidative enzymatic resistance, signaling, and defense mechanisms**

Abhishek Singh, Vishnu D. Rajput, Ragini Sharma, Karen Ghazaryan, Tatiana Minkina

Environmental Research 2023 116585

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Статья

**Nano Zinc-enabled strategies in Crops for Combatting Zinc Malnutrition in Human Health**

Abhishek Singh, Vishnu D. Rajput, Divya Pandey, Ragini Sharma, Karen Ghazaryan, Tatiana Minkina

Frontiers in Bioscience-Landmark 2023 158

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Статья

**A Review on Crop Responses to Nanofertilizers for Mitigation of Multiple Environmental Stresses**

Abhishek Singh, Vishnu D. Rajput, Abdel Rahman Mohammad Al Tawaha, Omar Mahmoud Al Zoubi,

Talaat Habeeb, Sapna Rawat, Karen Ghazaryan, Tatiana Minkina

Ecological Engineering and Environmental Technology 2023 280-296

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Статья

**Nanoparticle-Based Priming-Enhanced Agricultural Practices: Promoting Sustainable Plant Growth and Development**

Abhishek Singh, Sapna Rawat, Vishnu D. Rajput, Karen Ghazaryan, Tatiana Minkina,

Abdel Rahman Mohammad Al Tawaha, Athanasios T. Alexiou, Karansher Singh Sandhu

Nanoprimer Approach to Sustainable Agriculture 2023 142-157

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Статья

**Seed Nanoprimer: 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  
Nanoprimer Approach to Sustainable Agriculture 2023 290-313

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*Статья*

### **Nano-Enabled Approaches for Biofortification Strategies to Enhance Crop Production with Micronutrient Enrichment**

Abhishek Singh, Vishnu D. Rajput, Neha Chakrawarti, Karen Ghazaryan, Tatiana Minkina, Sakshi Singh  
Nano-Biofortification for Human and Environmental Health 2023 1-14

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*Статья*

### **ZnO-NP-Based Biofortification to Enhance Crop Production with Micronutrient Enrichment to Combat Malnutrition**

Abhishek Singh, Vishnu D. Rajput, Neha Chakrawarti, Karen Ghazaryan, Tatiana Minkina, Sakshi Singh  
Nano-Biofortification for Human and Environmental Health 2023 99-108

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*Статья*

### **Impact of Zinc Oxide Nanoparticles on Seed Germination Characteristics in Rice (Oryza Sativa L.) Under Salinity Stress**

Abhishek Singh, Rakesh Singh Sengar, Vishnu D. Rajput, Shreni Agrawal, Karen Ghazaryan, Tatiana Minkina, Abdel Rahman Al Tawaha, Omar Mahmoud Al Zoubi, Talaat Habeeb  
Journal of Ecological Engineering 2023 142-156

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*Статья*

### **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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*Статья*

### **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

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*Статья*

### **Small Tech, Big Impact: Agri-nanotechnology Journey to Optimize Crop Protection and Production for Sustainable Agriculture**

Արհիշեկ Սինխ, Vishnu D Rajput, Ashi Varshney, Կարեն Ղազարյան, Tatiana Minkina  
Plant Stress 2023 1-26

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*Статья*

### **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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Статья

**Green Nanofertilizers: the Need for Modern Agriculture, Intelligent, and Environmentally-Friendly Approaches**

Abdel Rahman Mohammad Al Tawaha, Abhishek Singh, Vishnu D. Rajput, Ashi Varshney, Shreni Agrawal, Karen Ghazaryan, Tatiana Minkina, Omar Mahmoud Al Zoubi, Talaat Habeeb, Lysenko Dionis, Hanan Aref Hasan, Samar Shawaqfeh

Ecological Engineering and Environmental Technology 2023 1-21

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Статья

**ԷԶՍԻԱՅԵՆԻ ՏԱՐԱԾԱԾՐԶԱՆԻ ԳՅՈՒՂԱՏՆՏԵՍԱԿԱՆ ՆՇԱՆԱԿՈՒԹՅԱՆ ՀՈՂԱՏԱՐԱԾՔՆԵՐԻ ԱՂԱԿԱԼՎԱԾՈՒԹՅԱՆ ԱՍՏԻՃԱՆԻ ԳՆԱՀԱՏՈՒՄԸ**

Գ.Հ. Մարգարյան, Հ.Է. Խաչատրյան, Կ.Ա. Ղազարյան

Հայաստանի կենսաբանական հանդես 2023 32-43

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Статья

**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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Статья

**Chapter 2. Updated analysis of the exposure of plants to the nanomaterials**

Arpna Kumari, Sneha Rajput, Vishnu D. Rajput, Dina Nevidomskaya, Saglara S. Mandzhieva,

Svetlana Sushkova, Poonam Kumari, Karen Ghazaryan

Toxicity of Nanoparticles in Plants 2022 25-45

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Статья

**Особенности распределения мощности эквивалентной дозы гамма-излучения и концентрации радионуклидов в почвах на территории г. Новочеркаска Ростовской области**

Бураева Е., Горбунов А., Дергачева А., Маломыжева Н., Невидомская Д., Минкина Т., Литвинов Ю.,

Казарян К.

ЭКОЛОГИЯ И ПРОМЫШЛЕННОСТЬ РОССИИ 2022 48-53

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Статья

**Comparative Case Study of Atmospheric Parameters over India and China during Covid 19 Lockdown**

Abhishek Singh, Sapna Rawat, Anil Kumar Singh, Karen Ghazaryan, Omkar Singh, Ragini Sharma,

Neha Chakrawarti, Sakshi Singh, Omkar Singh

Biogeosystem Technique 2022 77-88

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Статья

**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

Статья

**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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Статья

**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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Статья

**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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Статья

**Suitability assessment of groundwater for irrigation purpose at high-risk sites of the Ararat plain**

Ghazaryan K.A.  
Proceedings of the YSU B: Chemical and Biological Sciences 2020 75-82

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Статья

**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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Статья

**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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Статья

**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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Статья

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

*Статья*

**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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*Статья*

**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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*Статья*

**Molecular characterization of Zn in Technosols using X-ray absorption spectroscopy**

Tatiana Minkina, Dina Nevidomskaya, Victoria Shuvaeva, Tatiana Bauer, Alexander Soldatov, Saglara Mandzhieva, Alexander Trigu, Yan Zubavichus, Karen Ghazaryan  
Applied Geochemistry 2019 168-175

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*Статья*

**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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**ՊՂԸՈՎ ԵՎ ՄՈՒԲԴԵՆՈՎ ԱՐՏՈՏՎԱԾ ՀՈՂԵՐՈՒՄ ԱՃՈՂ ARTEMISIA VULGARIS ԵՎ MEDICAGO COERULEA ԲՈՒՄԱՏԵՍԱԿՆԵՐԻ ՖԻՏՈՒՔՍՏՐԱԿՑԻԱՅԻ ՆԵՐՈՒԹԻ ԲԱՅԱՀԱՅՏՈՒՄԸ**

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

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## **Effect of PBO nanoparticle on plant growth**

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

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