

Dr. Tarek Alshaal

Senior Research Fellow (Associate professor)

Contact information

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Languages: Arabic (Native);

English (Advanced: ITP (490));

Hungarian (Elementary)



Current position

Széchenyi István Egyetem, Albert Kázmér Mosonmagyaróvári Kar – Senior Research Fellow, Department of Food Biotechnology

9200 Mosonmagyaróvár, Lucsony utca 15–17.

Education and academic degrees

- **1998–2002:** B.Sc., Tanta University, Kafrelsheikh, Egypt – Agricultural engineer
- **2009:** M.Sc. (Thesis: „*Soil quality indicators as affected by different cultivated crops*”), Kafrelsheikh University, Kafrelsheikh, Egypt
- **2014:** Ph.D. (Thesis: „*Remediation and restoring marginal lands with biotechnologically propagated giant reed (Arundo donax L.)*”, *summa cum laude*), University of Debrecen, Debrecen, Hungary

Professional experience

- **2003–2006:** Demonstrator – Soil Science Department, Tanta University, Egypt
- **2006–2009:** Demonstrator – Soil Science Department, Kafrelsheikh University, Egypt
- **2009–2014:** Teaching Assistant – Soil Science Department, Kafrelsheikh University, Egypt
- **2014–2019:** Assistant professor – Soil Science Department, Kafrelsheikh University, Egypt
- **2019–2022:** Associate professor of soil fertility and plant nutrition – Soil Science Department, Kafrelsheikh University, Egypt
- **2018.09.01–:** Senior research fellow – Institute of Applied Plant Biology, University of Debrecen, Hungary
- **2025.09.02.–:** Senior research fellow – Department of Food Biotechnology, Széchenyi István Egyetem, Mosonmagyaróvár, Hungary

Managerial skills

- Quality Manager of Laboratory of Geochemistry of Trace and Toxic Elements, Soil and Water Department, Kafrelsheikh University, Egypt (2016-2018)

Positions and professional public engagement

- Member of European Society for Soil Conservation (ESSC) (2013-)
- Member of Egyptian Soil Science Society (ESSS) (2014-)
- Member of The Scientific Society of Environmental Protection (2016-)

Awards and recognitions

- Award of Faculty of Agriculture, Kafrelsheikh University for the Scientific Excellence (2017)
- Award of Kafrelsheikh University for Encouragement Award in Agricultural Sciences (2019)
- Award of Kafrelsheikh University for the international scientific publication (2013, 2014, 2015, 2017, 2018, 2019, 2020, 2021)
- Postdoctoral scholarships – University of Debrecen (2013, 2014, 2015, 2017, 2018, 2019)
- PhD scholarship – University of Debrecen (2010-2013)

Educational and research activities

Kafrelsheikh University, Egypt (2003-2019) Successfully taught and coordinated the practical components (seminars) for undergraduate courses, including Soil Microbiology, Soil Reclamation, Fundamentals of Soil Science, Soil Organic Matter, Soil Fertility and Plant Nutrition, Soil Management and Conservation, Biogeochemistry of Trace Elements, Soil Chemistry, Soil Physics, and Geology.

- Conducted impactful research on the effects of organic, bioorganic, and inorganic fertilizers on soil health parameters and the productivity of various crops, contributing to advancements in sustainable agriculture and soil management.

- Led courses on soil management, fertility, biogeochemistry of trace elements, and soil pollution remediation.

- Conducted extensive research in soil reclamation and management, bioremediation, and soil health improvement strategies.

- Guided students in theoretical and practical aspects of soil fertility, organic matter management, and sustainable agricultural practices.

University of Debrecen, Hungary (2018-2025) - Specializing in sustainable soil and plant nutrition management for improved crop production.

- Pioneering research on selenium biofortification and soil microbiology for enhancing soil health and crop productivity under abiotic stress.

- Advanced research on bioenergy crops (Giant Reed) for restoring marginal lands, integrating soil health and biofuel production.

- Lead projects in the development of biostimulants and biofertilizers (PGPR) enhancing soil fertility.

- Innovated green biorefinery approaches, including leaf protein isolation from biomass crops and agro-waste, addressing soil and plant health management.

Topic management and talent management (summary until 2025):

- 5 students graduated with MSc degrees
- Currently co-supervising 1 international PhD student
- Preparing 1 student for the TUDOK2025 (1st place) and ICYS2025 (3rd place)

Grant and project activities

- Co-Investigator in the 2020-1.1.2-PIACI-KFI-2021-00197.
- Co-Investigator in the GINOP_PLUSZ-2.1.1-21-2022-00241.
- Co-Investigator in the Vegetable Growing Test-Box System (Vegbox), Debreceni Egyetem, Hungary

- Co-Investigator in the ÚNKP-20-3 New National Excellence Program of the Ministry for Innovation and Technology from the source of the National Research, Development and Innovation Fund
- Co-Investigator in the GINOP-2.2.1-15-2017-00051 project which is co-financed by the European Union and the European Regional Development Fund.
- Co-Investigator in TKP2020-IKA-04 program which provided by the National Research, Development and Innovation Fund of Hungary under the 2020-4.1.1-TKP2020 funding scheme.
- Pi – Investigator in research project of “Improving Microbial Communities of Giant Reed (*Arundo donax* L.) for Bioenergy Production and Restoring Soil Ecosystems on Marginal Lands in Northern Delta of Egypt”, Reintegration cycle 2016. Funded by Science and Technology Development Fund (STDF), Ministry of Higher Education and Scientific Research, Egypt. (After acceptance, I had to stop it due to my traveling to Hungary)
- Co-Investigator in research project of “Nicotine contaminations in plants derived foods and commodities: Elucidation of their origin and elaboration of general approaches for improvement by investigating exemplarily certain spice and medicinal plants”, GERF II (MBMF/DLR project, ID 5310) in collaboration with Prof. Dirk Selmar (TU Braunschweig Uni. Germany), from 1 April 2015 to 1 April 2017. Funded by Science and Technology Development Fund (STDF), Ministry of Higher Education and Scientific Research, Egypt.
- Co-Investigator in research project (Contamination of Water Resources, Drinking and Irrigation, and Agricultural Soils in Kafrelsheikh Governorate by Some Organic and Inorganic Pollutants with Remediation Approaches) Kafrelsheikh University Egypt, December, 2009 – 2012. The PI of project is Dr. Sabry Shaheen, Faculty of Agriculture, Kafrelsheikh University. Funded from Kafrelsheikh University, sector of postgraduate and research affairs, university researches fund (Project No. KFUR03).

Publications, citations, and patents

Publication data (MTMT, until 14 September 2026; identifier: 10086947):

- Scientific journal articles: 89
- Conference papers (Hungarian + foreign language): 4 (1+3)
- Abstracts: 22
- Books: 1 (in English), 2 (in Arabic)
- Book excerpts: 29
- Total publications: 141
- Total citations: 2791

Certificates and courses

- May 6, 2017: Internal audit
- March 25-26, 2017: Uncertainty in testing labs
- February 4-6, 2017: Internal quality control
- November 20, 2016: ISO / IEC 17025: General requirements for the efficiency of the test factor for accreditation
- November 15, 2016: Applications of nanotechnology on tobacco plants using plant tissue culture
- November 14, 2016: Contamination of plant foods
- March 2014: Exams and students evaluation systems
- March 2014: Effective communication skills
- March 2014: International scientific publishing
- December 2010: Internal audit according to the international standard ISO/IEC 17025:2005
- July 2010: Preparing a university teacher
- November 2010: Terminologies, quality control charts and proficiency testing according to the international standard ISO/IEC 17025:2005

- September 2010: Awareness of the international standard ISO/IEC 17025:2005 requirements & accreditation process
- May 2009: Principles of DNA analysis
- November 2007: The 5th Workshop in the field of Electronic Microscope
- October 2007: Estimation of uncertainty budget & method validation according to the international standard ISO/IEC 17025:2005
- June 2006: Thinking Skills
- August 2005: Effective teaching
- June 2005: Ethics and morals of the teaching career
- June 2005: Management of scientific research
- December 2005: Environmental Management of Laboratories Hazardous Wastes (Chemical and Biological)

International professional activities

- Academic Editor – Indoor Air (2024-)
- Academic Editor – International Journal of Molecular Science (2025-)
- Academic Editor – BMC Plant Biology (Springer; 2026-)
- Academic Editor – Revista Ibero-Americana de Ciências Ambientais (2026-)
- Associate Editor and co-founder – Environment, Biodiversity and Soil Security Journal (EBSS) as an Associate Editor and founder (2017 - 2019)
- Academic Editor – Journal of Egyptian Soil Science Society (ESSS) (2015-2019)
- Academic Editor – Journal of Sustainable Agricultural Sciences (JSAS) (2017-2019)
- Editor – DRC Sustainable Future: Journal of Environment, Agriculture, and Energy ISSN 2732-2483 (2020-2024)
- Guest editor:
 - 1- International Journal of Molecular Sciences (mdpi)
 - 2- Plants (mdpi)
 - 3- Frontiers in Nanotechnology.
 - 4- Phytion-International Journal of Experimental Botany (Springer)
 - 5- Discover Chemical Engineering (Springer)

Conferences

- Bioactive Compounds and Functional Foods: Key Drivers in Health Promotion, Disease Prevention and Management – 34th International Conference of FFC - 22nd International Symposium of ASFFBC during September 24-26, 2025 at Madrid, Spain. Oral presentation entitled: "Unlocking the Antioxidant Potential of Diverse Plant Families: A Comparative Analysis of Polyphenol-Rich Substances, Assessments of Correlation of Diverse Assays, and Estimation of Their Health Benefit Potential"
- 40th ÓVÁR SCIENTIFIC DAY INTERNATIONAL CONFERENCE – Albert Kázmér Faculty of Agricultural and Food Sciences Széchenyi István University Győr-Mosonmagyaróvár during November 12, 2025. Oral presentation entitled: "Harnessing Plant-Based Antioxidants for Human Health: A Comparative Study of Polyphenol-Rich Foods"
- "11th Edition of Innovations in Food Science and Human Nutrition (IFHN-2026)" during July 01-02, 2026, at Rome, Italy. Oral presentation entitled: "Integrated hydrolysis of legume proteins with plant proteases generates oligopeptide-rich functional ingredients with superior bioactivity"