



جامعة أسيوط – كلية الزراعة

Faculty of Agriculture-Assiut University



Curriculum Vitae

Professor Dr. Adel Rabie Ahmed Usman

Professor of Soil Chemistry and Environmental Remediation
Head of the Department of Soils and Water, Faculty of Agriculture
Assiut University, Egypt

A Member of Permanent Scientific Committees for Promotions at the Supreme Council of Universities, in its 14th and 15th rounds

Contact Information

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- **University Profile:** <https://b.aun.edu.eg/agriculture/departement/staff/212?nid=212>

Academic Qualification

Degree	Field	Institution	Year
Ph.D.	Soil Chemistry & Environmental Remediation	University of Hohenheim, Germany	2005
M.Sc.	Soil Chemistry & Reclamation	Assiut University, Egypt	1998
B.Sc.	Soil and Water Sciences	Assiut University, Egypt	1993

Research Interests

- Wastewater treatment and reuse in agriculture
- Soil and water pollution assessment
- Biochar production and application
- Heavy metal remediation and phytoremediation
- Environmental remediation and nanocomposites
- Soil fertility, salinity, and nutrient dynamics

Academic Metrics

Metric	Value
Scopus H-index	53
Citations (Scopus)	8,101
Google Scholar H-index	56
i10-index	97
Citations (Google Scholar)	10,711
Publications	More than 90 peer-reviewed articles

Rankings & Recognition

- Ranked as the World's Top 2% most- cited scientists by Stanford University
- Ranked #1 at Assiut University by H-index
- International collaborator with institutions in Saudi Arabia, South Korea, and Germany



Editorial & Professional Roles

- **Editor-in-Chief** (Assiut Journal of Agricultural Sciences)
- **Associate Editor** (Journal of the Saudi Society of Agricultural Sciences)
- **Guest Editor:** 1) Special Issue in Sustainability: Advanced Developments and Research on Sustainable Management of Industrial and Mining Contaminated Soils; 2) Special Issue in Sustainability: Emerging Topics in Soil Pollution and Ecological Agriculture
- **Peer reviewer** for journals including Chemosphere, Geoderma, Environmental Geochemistry and Health, Scientific Reports.

Projects:

1. Project to define technical standards for guided irrigation in cooperation with relevant authorities (Saudi Arabia, 2024)
2. Utilization of phosphate fertilizer industry residues to preserve the balanced environment and reduce greenhouse gases emissions on Kingdom of Saudi Arabia
3. Biochar and activated carbon as a means for reducing levels of pesticide residues in contaminated soils to preserve water and plant resources
4. Monitoring and risk assessment of veterinary antibiotics residuals in manure, compost, and soil of livestock industry in Al-Kharj, Saudi Arabia

Patents:

Mohammad I Al-Wabel, Jamal Elfaki, Adel Usman: Encapsulated Sustained Release Urea Fertilizer. Year: 07/2018

Publication Highlights

Book Chapters

- Hend A. Hamed, Marwa T. El-Mahdy, Mona F.A. Dawood, Marwa Hindawy, Adel R.A. Usman, Chapter 7 - The ecological footprint of agricultural waste: Pollution and greenhouse gas. Waste to Resources, Academic Press, 2026, Pages 101-120, ISBN 9780443302466, <https://doi.org/10.1016/B978-0-443-30246-6.00007-1>.
- Avanthi Deshani Igalavithana, Yong Sik Ok, Adel R.A. Usman, Mohammad I. Al-Wabel, Patryk Oleszczuk, Sang Soo Lee: *The Effects of Biochar Amendment on Soil Fertility*. Agricultural and Environmental Applications of Biochar: Advances and Barriers, SSSA Special Publication 63 11/2015; Soil Science Society of America, Inc., ISBN: 978-0-89118-967-1, DOI:10.2136/sssaspecpub63.2014.0040
- Adel Usman, Yakov Kuzyakov, Karl Stahr: *Einfluss von Tonmineralen und Fe-Oxiden auf die Mobilität von Schwermetallen und deren Aufnahme durch Weizen*. Wurzelinduzierte Bodenvorgänge, 01/2004: pages 123-128; , DOI:10.1007/978-3-322-80084-8_19
- Abdel R. A. Usman, Yakov Kuzyakov, Karl Stahr: *Einfluss des Pflanzenwachstums und der organischen Substanz auf C- und N- Umsatz im Boden*. Prozessregulation in der Rhizosphäre, 01/2003: pages 125-128; , DOI:10.1007/978-3-663-07809-8_17



Journal Publications (more than 90 ISI indexed articles)

Selected ISI indexed articles

- Barakat, Abdallah M., Adel R. A. Usman, Abu El-Eyuoon Abu Zied Amin, and Nadia M. K. Roshdy. (2025). Effect of incorporating bone char with sulfur or humic acid on phosphorus availability and spinach growth in calcareous sandy soil. *Sci Rep* 15, 44670 (2025). <https://doi.org/10.1038/s41598-025-29041-y>.
- Hussein, A. S., Abeed, A. H. A., Usman, A. R. A., & Abou-Zaid, E. A. A. (2024). Conventional vs. nano-micronutrients as foliar fertilization for enhancing the quality and nutritional status of pomegranate fruits. *Journal of the Saudi Society of Agricultural Sciences*, 23, 112–122.
- Al-Swadi, H. A., Al-Farraj, A. S., Al-Wabel, M. I., Ahmad, M., Usman, A. R. A., Ahmad, J., Mousa, M. A., & Rafique, M. I. (2024). Impacts of kaolinite enrichment on biochar and hydrochar characterization, stability, toxicity, and maize germination and growth. *Scientific Reports*, 14, 1259
- Gomaa, F., Amin, A. E. A. Z., El-Desoky, M. A., Roshdy, N. M. K., & Usman, A. R. A. (2024). Assessment of ecological and health risks of potentially toxic elements in soil and plant under long-term sewage wastewater irrigation. *Bulletin of Environmental Contamination and Toxicology*, 113, Article 52
- Kotby, R. A., Mohamed, H. M., Gomah, H. H., & Usman, A. R. A. (2023). Combined effects of microbial inoculation and activated carbon/biochar on the accumulation and transfer of nutrients and potentially toxic metals in maize plants grown on a contaminated soil. *Soil and Sediment Contamination: An International Journal*, 32(6), 567–584.
- Alhawas, M. S., Rafique, M. I., Ahmad, M., Al-Wabel, M. I., Usman, A. R. A., Al-Swadi, H. A., & Al-Farraj, A. S. (2023). Ball mill, humic acid, and rock phosphate-modified *Conocarpus* biochar for efficient removal of heavy metals from contaminated water. *Sustainability*, 15(14), 11474
- Alazzaz, A., Rafique, M. I., Al-Swadi, H., Ahmad, M., Alsewaileh, A. S., Usman, A. R. A., Al-Wabel, M. I., & Al-Farraj, A. S. F. (2023). Date palm-magnetized biochar for in-situ stabilization of toxic metals in mining-polluted soil: Evaluation using single-step extraction methods and phytoavailability. *International Journal of Phytoremediation*, 25(12), 1687–1698
- Al-Swadi, H.A., Usman, A.R.A., Al-Farraj, A.S., Al-Wabel, M.I., Ahmad, M., Al-Faraj, A. Sources, toxicity potential, and human health risk assessment of heavy metals-laden soil and dust of urban and suburban areas as affected by industrial and mining activities (2022) *Scientific Reports*, 12 (1): 8972
- El-Saeid, M.H., Usman, A.R.A. Influence of Organic Amendments and Moisture Regime on Soil CO₂-C Efflux and Polycyclic Aromatic Hydrocarbons (PAHs) Degradation (2022) *Sustainability (Switzerland)*, 14 (7): 4116
- Aijaz, M.O., Ahmad, M., Al-Wabel, M.I., Karim, M.R., Usman, A.R.A., Assaifan, A.K. Carbon Nanodots-Embedded Pullulan Nanofibers for Sulfathiazole Removal from Wastewater Streams (2022) *Membranes*, 12: , 228.
- Vithanage, M., Mayakaduwege, S.S., Gunarathne, V., Rajapaksha, A.U., Ahmad, M., Abduljabbar, A., Usman, A., Al-Wabel, M.I., Ippolito, J.A., Ok, Y.S. Animal carcass burial management: implications for sustainable biochar use (2021) *Applied Biological Chemistry*, 64 (1):91.
- Al-Wabel, M.I., Ahmad, M., Al-Swadi, H.A., Ahmad, J., Abdin, Y., Usman, A.R.A., Al-Farraj, A.S.F. Sorption–desorption behavior of doxycycline in soil–manure systems amended with mesquite wood waste biochar (2021) *Plants*, 10 (12):
- Jahangir Ahmad, Munir Ahmad, Adel R.A. Usman, Mohammad I. Al-Wabel. (2021) Prevalence of human pathogenic viruses in wastewater: A potential transmission risk as well as an effective tool



- for early outbreak detection for COVID-19. Journal of Environmental Management. Volume 298, 113486.
- Mohammad I. Al-Wabel , Munir Ahmad, Jahangir Ahmad, Nahir M.A. Lubis, Adel R.A. Usman, Abdullah S.F. Al-Farraj. (2021). Assessing the prevalence of veterinary antibiotics and associated potential ecological risk in dryland soil, manure, and compost: A case study from Saudi Arabia. Journal of King Saud University – Science 33 (2021) 101558.
- Al-Wabel, M.I.; Ahmad, M.; Rafique, M.I.; Akanji, M.A.; Usman, A.R.A.; Al-Farraj, A.S.F. Sulfamethoxazole Leaching from Manure-Amended Sandy Loam Soil as Affected by the Application of Jujube Wood Waste-Derived Biochar. *Molecules* 2021, 26, 4674. <https://doi.org/10.3390/molecules26154674>
- Al-Wabel, M.I., M. Ahmad, Adel R.A. Usman et al. (2021) Designing chitosan based magnetic beads with conocarpus waste-derived biochar for efficient sulfathiazole removal from contaminated water, Saudi Saudi Journal of Biological Sciences Volume 28, Issue 11, November 2021, Pages 6218-6229, <https://doi.org/10.1016/j.sjbs.2021.06.072>.