

Abdullah S. F. Al-Farraj

Professor of Soil Mineralogy and Chemistry
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Summary

Abdullah S. F. Al-Farraj is a professor in Soil Department at King Saud University. He is a specialist with more than 20 years of teaching, research and experience in pollution. For the past 15 years, his research has focused on urban soil contaminated. He is author and co-author of 42 articles; a book chapter In Global Climate Change and Pedogenic Carbonates, edited by: Rattan Lal; et al., which was published by Lewis publishers. USA. 2000; and translation "Contaminated Urban Soils" and "Sampling and analysis of environmental chemical pollutants". Al-Farraj, supervised on three PhD and many of Master students. Al-Farraj had Ph. D. from Colorado State University, USA (2002). He is a member of the Scientific Council of King Saud University since 2013-2017. He is a member of the Scientific Committee of International Conferences on Environment.

Education

B.S.: Soil Sciences, King Saud University (1990).
M.S.: Soil Sciences (Mineralogy), King Saud University (1994).
Ph.D.: Soil Sciences (Mineralogy and Chemistry), Colorado State University, USA (2002).

Positions Held

Department of Soil Sciences, King Saud University, "2013", Professor.
Department of Soil Sciences, KSU, "2008- 2013", Associate Professor.
Department of Soil Sciences, KSU, "2002– 2008", Assistant Professor.
Department of Soil Sciences, KSU, "1995-2002". Lecturer.
Department of Soil Sciences, KSU, "1990-1995". Teaching Assistant.

Fields of Interest

- Urban Soil Contamination (Heavy metals).
- Pollution related with mining.
- Soil Mineralogy and Chemistry (Carbonate and clay minerals).
- Wastewater treatment (using natural deposits).

Research Projects

PI of "Human health risk assessment for heavy metals in Mahad AD'Dahab city, Saudi Arabia".
CO-I of "Determination of fate and transport of engineered nanoparticles in porous media".
PI of "Olive Mill Wastewater Treatment Using Simple Low-Cost Natural Materials".
(Submitted)

Scientific societies and councils

- A member of the Scientific Committee of the Conference on Environment and Mining (2015), Peru.
- A member of the Scientific Council of King Saud University (1434 - 1438).
- A member of the Faculty of Science of Food and Agriculture (1434 - 1438).
- A member of the Department of Soil Science (1423 - present).

- Member of the Scientific Committee of the Conference of environmental technologies (2014), Riyadh, King Abdulaziz City for Science and Technology.
- A member of the Scientific Committee of the Conference on Environment and Mining (2013), Chile.
- Member of the Scientific Committee of the Conference of environmental technologies (2012), Riyadh, King Abdulaziz City for Science and Technology.

Books

- Al-Wabel, M.I.; **Al-Farraj, Abdullah S.**; Usman, A.R.; Najar, A.H. (2020). Sampling and analysis of environmental chemical pollutants: a complete guide. Elsevier. Author, Popek, E. P. King Saud University Press. (Translation)
- Al-Farraj, Abdullah S.**; Al-Wabel, M.I.; Usman, A.R.; Saeed, M.H. (2018). Contaminated Urban Soils. Author, Meuser, H. King Saud University Press. (Translation)
- Heakal, M.S., S.A. El-Raies, **A.S. Al-Farraj**, and A.S. Mashhady. Coprecipitation of Ca and Mg from a Carbonic System under Atmospheric Conditions. Pp: 97104. In Global Climate Change and Pedogenic Carbonates. Edited by: Rattan Lal; et al. Lewis publishers. N. Y. USA. 2000.

Publications

1. Almasoud, F. I., **Al-Farraj, A. S.**, Al-Wabel, M. I., Usman, A. R., Alanazi, Y. J., & Ababneh, Z. Q. (2020). The Potential Use of Zeolite, Montmorillonite, and Biochar for the Removal of Radium-226 from Aqueous Solutions and Contaminated Groundwater. Processes, 8(12), 1537.
2. Ibrahim, H. M., Awad, M., **Al-Farraj, A. S.**, & Al-Turki, A. M. (2020). Stability and Dynamic Aggregation of Bare and Stabilized Zero-Valent Iron Nanoparticles under Variable Solution Chemistry. Nanomaterials, 10(2), 192.
3. Sulieman, M. M., Sallam, A. S., **Al-farraj, A. S.**, & Brevik, E. C. (2020). Dataset on the existence of andisols under aridic-hyperthermic environments in the harrats region of the Arabian Shield. Data in brief, 28.
4. Ahmad, M., Usman, A. R., Hussain, Q., **Al-Farraj, A. S.**, Tsang, Y. F., Bundschuh, J., & Al-Wabel, M. I. (2020). Fabrication and evaluation of silica embedded and zerovalent iron composited biochars for arsenate removal from water. Environmental Pollution, 266, 115256.
5. Sulieman, M. M., Sallam, A. S., Brevik, E. C., & **Al-Farraj, A. S.** (2020). Investigation of the clay minerals composition of soils derived from basalt parent materials in the Early Miocene to Early Pleistocene on the Arabian Shield using multiple techniques: implications for paleoclimatic conditions. Environmental Earth Sciences, 79(12), 1-18.
6. Sulieman, M. M., Sallam, A. S., **Al-farraj, A. S.**, & Brevik, E. C. (2020). First evidence for the presence of Andisols in the dry-hot environment of the Arabian Shield. Geoderma, 361.
7. Ibrahim, H. M., Awad, M., **Al-Farraj, A. S.**, & Al-Turki, A. M. (2019). Effect of Flow Rate and Particle Concentration on the Transport and Deposition of Bare and Stabilized Zero-Valent Iron Nanoparticles in Sandy Soil. Sustainability, 11(23).
8. Ahmad, M., Usman, A. R., **Al-Farraj, A. S.**, Ahmad, M., Sallam, A., & Al-Wabel, M. I. (2018). Phosphorus-loaded biochar changes soil heavy metals availability and uptake potential of maize (*Zea mays* L.) plants. Chemosphere, 194, 327-339.
9. Anwar A. Aly, Khalid N. S. Alashgar, **Abdullah S. Al-Farraj**, Hesham, M. Ibrahim (2018). Contaminants and salinity removal of olive mill wastewater using zeolite nanoparticles, Separation Science and Technology, 53, 1638-1653. DOI: 10.1080/01496395.2018.1425301
10. Alsaleh, K. A., Meuser, H., Usman, A. R., Al-Wabel, M. I., **Al-Farraj, A. S.** (2018). A comparison of two digestion methods for assessing heavy metals level in urban

- soils influenced by mining and industrial activities. *Journal of Environmental Management*, 206, 731-739.
11. Sallam, A. E. A., Al-Zahrani, M. S., Al-Wabel, M. I., **Al-Farraj, A. S.**, Usman, A. R. (2017). Removal of Cr (VI) and Toxic Ions from Aqueous Solutions and Tannery Wastewater Using Polymer-Clay Composites. *Sustainability*, 9(11), 1993.
 12. Al-Wabel, M. I., Usman, A. R. A., **Al-Farraj, A. S.**, Ok, Y. S., Abduljabbar, A., Al-Faraj, A. I., Sallam, A. S. (2017). Date palm waste biochars alter a soil respiration, microbial biomass carbon, and heavy metal mobility in contaminated mined soil. *Environmental Geochemistry and Health*, 1-18.
 13. Ahmad, Munir, Ahmad, Mahtab; Usman, A.R.A.; **Al-Farraj, Abdullah S.**; Abduljabbar, Adel S.; Al-Wabel, M.I. (2017). Biochar composites with nano zerovalent iron and eggshell powder for nitrate removal from aqueous solution with coexisting chloride ions. *Environ. Sci. Pollut. Res.* 1-15.
 14. Munir Ahmad, Mahtab Ahmad, Adel R. A. Usman, **Abdullah S. Al-Farraj**, Yong Sik Ok, Qaiser Hussain, Adel S. Abduljabbar & Mohammad I. Al-Wabel. (2017). An efficient phosphorus scavenging from aqueous solution using magnesiothermally modified bio-calcite. *Environmental Technology*. 39:1638-1649.
 15. Adel R. A. Usman, Abdulelah Abdullah Almutairi, Salem Elmaghraby; **Abdullah S. Al-Farraj**. (2017). Levels, solid-phase fractions and sources of heavy metals at site received industrial effluents: a case study, *Chemical Speciation & Bioavailability*, 29: 1, 78-88.
 16. Adel Usman, Abdulazeem Sallam, Ming Zhang, Meththika Vithanage, Mahtab Ahmad, **Abdullah Al-Farraj**, Yong Sik Ok, Adel Abduljabbar, Mohammad Al-Wabel. (2016). Sorption Process of Date Palm Biochar for Aqueous Cd (II) Removal: Efficiency and Mechanisms. *Water, Air, & Soil Pollution*. 227: 449.
 17. Hesham Ibrahim, Ali Al-Turki, **Abdullah Al-Farraj**. (2016). Effect of ionic strength and pH on the size and dynamic aggregation of TiO₂ nanoparticle dispersions. *EGU General Assembly Conference Abstracts*. Vol. 18, p. 9944.
 18. Fahad I. Almasoud, Adel R. Usman, **Abdullah S. Al-Farraj**. (2015). Heavy metals in the soils of the Arabian Gulf coast affected by industrial activities: analysis and assessment using enrichment factor and multivariate analysis. *Arabian Journal of Geosciences*. 8:1691-1703.
 19. Anwar A. Aly; Yousef N.Y. Hasan; **Abdullah S. Al-Farraj**. (2014). Olive mill wastewater treatment using a simple zeolite-based low-cost method. *Journal of Environmental Management*. 145:341-348.
 20. A.M. Ghoneim; SS Al-Zahrani; SE El-Maghraby; **A. S. Al-Farraj**. (2014). Heavy Metals Accumulation in *Rhazya stricta* L. Plant Growing on Industrial Wastewater of Riyadh City, Saudi Arabia. *Journal of Applied Sciences*. 14(17): 2007-2010.
 21. Mansour Alhawas, Mohamed Alwabel, Adel Ghoneim, **Abdullah S. Al-Farraj**, Abdelazeem Sallam. (2013). Removal of nickel from aqueous solution by low-cost clay adsorbents. *Proceedings of the International Academy of Ecology and Environmental Sciences*. 3(2):160-169.
 22. **Al-Farraj, Abdullah S.**; Al-Sewailam, Mohammad; Aly, Anwar; Al-Wabel, Mohamed; El-Maghraby, Sallem. (2013). Assessment and heavy metal behaviors of industrial waste water: A case study of Riyadh city, Saudi Arabia. 3(3):266-277.
 23. **Abdullah S. Al-Farraj**, Mohammad I. Al-Wabel, Mohamed Hamza El-Saeid, Ahmed H. El-Naggar, and Zaheer Ahmed. Evaluation of Groundwater for Arsenic Contamination Using Hydrogeochemical Properties and Multivariate Statistical Methods in Saudi Arabia. *Journal of Chemistry*. <http://www.hindawi.com/journals/jchem/2013/812365/>

24. **Al-Farraj, A.S.**, Al-Wabel, M.I., El-Saeid, M.H., and Zaheer Ahmed. (2013). Organochlorine and organophosphorous pesticides identification in arid low organic carbon agricultural soils. Research Journal of Chemistry and Environment.
25. El-Saeid M. H., Al-Wabel M. I., **Al-Farraj A. S.**, El-Naggar A. H. and Zaheer Ahmed. (2013). Monitoring of organic and contaminants in Soil by MAE and EIGC-MS. Research Journal of Chemistry and Environment. 17: 27-33.
26. Al-Shammari N. I.; **A.S. Al-Farraj**; S.E. El –Maghraby. (2012). A Base Line Study For Heavy Metals Concentration In The Soils Around Phosphate Mine At Hazm Al Galamed - Saudi Arabia.
27. **Al-Farraj A.S.**; Adel R. A. Usmana; Saad H. M. Al Otaibia. (2012). Assessment of heavy metals contamination in soils surrounding a gold mine: comparison of two digestion methods. Chemistry and Ecology.
28. **Al-Farraj A.S.**; Al-Wabel MI; El-Saeid, M H; El-Naggar, AH; Zaheer, A. (2012). Evaluation of Groundwater for Arsenic Contamination Using Hydrogeochemical Properties and Multivariate Statistical Methods in Saudi Arabia. Journal of Chemistry.
29. **Al-Farraj, A.S.**; S.E. El – Maghraby; A.Sh. Sallam; M.I. Al-Wabel. (2012). Characteristics of phosphorous sorption by some natural sediments of Saudi Arabi. Bull. Fac. Agric., Cairo Univ.
30. **Al-Farraj, A.S.** (2011). Mineralogical Composition of Limestone Rock and Soil from Jubaila Formation. Asian Journal of Earth Sciences. 4(4):203-213.
31. **Al-Farraj, A.S.**; A. Sh. Sallam; A.M. Al-Turki; A.S. Al-Malik; G. Abdel-Nasser. (2012). Land Evaluation for sustainable productivity in the southern Tohama Plains, Saudi Arabia. Bull. Fac. Agric., Cairo Univ.
32. Al-Wabel, M. I, **Al-Farraj, A. S.** (2011). Greywater Impact on Soil and Landscape Plants. Egyptian Journal of Soil Science.
33. M.I. Al-Wabel; W.S. Al Yehya; **A.S. AL-Farraj**; S.E. El-Maghraby. (2011). Characteristics of landfill leachates and bio-solids of municipal solid waste (MSW) in Riyadh City. Journal of the Saudi Society of Agricultural Sciences. 10(20):65-70.
34. A.Sh. Sallam; M.S. Al-Sewailem; **A.S. Al-Farraj**. (2010). Sorption of Mercury by Palygorskite Clay Mineral. Egypt. J. Soil Sci. 50(2):287-299.
35. **Al-Farraj, A.S.**; M.I. Al-Wable; T.S. Al-Shahrani; M. Salim; M.S. Al-Sewailem. (2010). Soil and Plant Contamination with Heavy Metals at Mahad AD Dahab as Effected by the Distance from the Mine Area. Waste Management and the Environment V. 325-336.
36. **Al-Farraj, A.S.**; T.G. Al-Otabi; and M.I. Al-Wabel. (2009). Accumulation Coefficient and Translocation Factor of Heavy Metals Through *Ochradenus baccatus* Plant Grown on Mining Area at Mahad AD'Dahab, Saudi Arabia. Ecosystems and Sustainable Development VII. 459-468.
37. Al-Otabi, T.G. and **A.S. Al-Farraj**. (2009). Heavy Metals Accumulation by *Ochradenus baccatus* Plant Grown on Mining Area at Mahad AD'Dahab, Saudi Arabi. Jouranl of the Saudi Society of Agricultural Sciences. Ecosystems and Sustainable Development. (7):459-468.
38. **Al-Farraj, A.S.** (2008). The mineralogy of clay fractions in the soils of the southern region of Jazan, Saudi Arabia. Journal of Agronomy. Pakistan. 7 (2)115-126.
39. **Al-Farraj, A.S.** (2007). Forms of Cd, Cu, Pb and Zn in Soil of Mining Area at Mahad AD'Dahab, Saudi Arabia. Egyptian Journal of Applied Sciences. 22: 310-319.
40. **Al-Farraj, A.S.** and M.I. Al-Wabel. (2007). Evaluation of soil pollution around Mahad AD'Dahab Mine. Journal of the Saudi Society of Agricultural Sciences. 6 (2):89-106.

41. **Al-Farraj, A.S.** and M.I. Al-Wabel. (2007). Heavy metals accumulation of some plant species grown on mining area at Mahad AD'Dahab, Saudi Arabia. *Journal of Applied Sciences*. 7 (8): 1170-1175.
42. **Al-Farraj, A.S.** (2006). Soil Characteristics, amorphous aluminosilicates and free iron oxides as affected by different soil parent materials in south-western region, Saudi Arabia. *Mansoura University Journal of Agricultural Sciences*. 31(9):6065-6078.

Conference (Some of them)

- ✓ EGU General Assembly Conference, Vienna, Austria, 2016.
- ✓ 3rd Water Research Conference, Shenzhen, China, 2015.
- ✓ XIV Latin American Seminar of Analysis by X-Ray Techniques, Carlos Paz, Argentina, 2014.
- ✓ The Fifth Asian Conference on Sustainability, Energy and the Environment, Osaka, Japan, 2014.
- ✓ WaterMine Solutions, Lima, Peru, 2013.
- ✓ The International Conference on Pollution and Treatment Technology, Sayna, China, 2013.
- ✓ WaterMininn 3rd, Santiago, Chile, 2012.
- ✓ International of Mining History, Johannesburg, South Africa, 2012.
- ✓ CleanMining 9th, Santiago, Chile, 2011.
- ✓ Fifth International of Clay, Budapest, Hungary, 2010.
- ✓ Environment and waste Management, Tallinn, Estonia, 2010.

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