Mahtab Ahmad

Department of Environmental Sciences, Faculty of Biological Sciences,
Quaid-i-Azam University, Islamabad 45320, Pakistan

Top 2% Scientist 2020, 2021, 2022, 2024

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Scopus Scholar: https://www.scopus.com/authid/detail.uri?authorId=55456464700

Research Interests

- Environmental chemistry
- Production and application of biochar from agricultural and solid waste materials
- Carbon sequestration and climate change mitigation
- Environment friendly utilization of waste resources
- Remediation of contaminated soils and waters
- Revitalization of abandoned soils
- Wastewater treatment
- Waste management

Education

Doctor of Philosophy (Ph.D) Agricultural Chemistry, 2013
CGPA: 4.50 out of 4.50
Department of Biological Environment, College of Agriculture and Life Science,
Kangwon National University, Republic of Korea
Thesis Topic: Application of Waste Resources and Biochar for the Remediation of Contaminated Soil and Water

Master of Philosophy (M.Phil) Environmental Sciences, 2008
CGPA: 3.57 out of 4.00
College of Earth and Environmental Sciences,
University of the Punjab, Lahore – Pakistan
Thesis Topic: An Integrated Treatment of Slaughterhouse Wastewater

Master of Science (M.Sc) Applied Environmental Sciences, 2001
Marks Percentage: 82.75
Post Graduate Center for Earth Sciences,
University of the Punjab, Lahore – Pakistan
Thesis Topic: Dispersion Gradient of Free Fall Dust and Heavy Elements Concentration in Dust Along a Main Road

Master of Science (M.Sc) Chemistry (Analytical), 1999
Marks Percentage: 68.25
Department of Chemistry,
Bahauddin Zakarya University, Multan – Pakistan
Thesis Topic: A Study on Estimation of Zinc in Air, Soil, Petroleum, Pigeons and Human Blood with Reference to Traffic Density

Bachelor of Science (B.Sc) 1997
Marks Percentage: 62.87
Government College of Multan,
Bahauddin Zakarya University, Multan – Pakistan

Professional Experience

Associate Professor (Aug 2022 to present)
Department of Environmental Sciences, Faculty of Biological Sciences, Quaid-i-Azam University, Islamabad, Pakistan

Assistant Professor (Feb 2017 to Aug 2022)
Department of Environmental Sciences, Faculty of Biological Sciences, Quaid-i-Azam University, Islamabad, Pakistan

Researcher (Sep 2014 to Jan 2017)
Attracting Outstanding Faculty and Researchers Program, Soil Sciences Department, College of Food and Agricultural Sciences, King Saud University, Riyadh, Saudi Arabia

Assistant Professor (Apr 2013 to March 2014)
University Institute of Biochemistry and Biotechnology, PMAS Arid Agriculture University, Rawalpindi, Pakistan

Team Leader (Material Exploration & Manufacturing) (Sep 2011 to Feb 2013)
Korea Biochar Research Centre, Kangwon National University, Republic of Korea

Research Fellow (Sep 2009 to Feb 2010)
Department of Biological Environment, College of Agriculture and Life Sciences, Kangwon National University, Republic of Korea

Senior Scientific Officer (May 2005 to June 2009)
Pakistan Council of Scientific & Industrial Research (PCSIR) Laboratories Complex, Ministry of Science and Technology, Pakistan

Senior Lab Analyst (Dec 2003 to May 2005)
Mauri Fermentation Pakistan (Pvt) Ltd. A group of companies – Australia,
Lahore – Pakistan

Analyst / Microbiologist (Sep 2003 to Dec 2003)
AZ Pharmaceuticals, Kasur – Pakistan

Analyst (Mar 2003 to May 2003)
Askari Pharmaceuticals, Kasur – Pakistan

Assistant Quality Control Incharge (Dec 1999 to Mar 2003)
Mian Brothers Labs (Pvt) Ltd, Lahore – Pakistan

Funded Projects

Role	Title	Duration	Amount	Funding agency
Principal Investigator	Soil water conservation and enhanced crop productivity under deficit irrigation system	09 months	2000 USD	Eco-Peace Leadership Center, Kangwon National University, Korea
Assistant Project Director	Establishment of University Institute of Biochemistry and Biotechnology	60 months	3.418 M USD	Higher Education Commission of Pakistan
Co-Researcher	International Research Group of conversion of bio-waste into biochar: production, application and social implication	12 months	400,000 USD	King Saud University, Saudi Arabia
Co-Researcher	International Research Group of application influence of biochar produced from different sources on dynamics of CO_2-C efflux, physical and biochemical properties of sandy calcareous soils	12 months	400,000 USD	King Saud University, Saudi Arabia

Supervised Thesis Research

1. **PhD**; Engineered char materials derived from organic waste and their application to remediate water and soil polluted with anionic contaminants (2018 – 2023)
2. **PhD**; Engineered biochar and biowaste: synthesis, characterization and application to decontaminate soil and water (2014 – 2017)
3. **MPhil**; Uptake and effect of nano bone char on *Syngonium podophyllum* under hydroponics and soil systems (2021 – 2023)
4. **MPhil**; Production and application of nano-bonechar for immobilizing fluoride in naturally contaminated soil and it's potential towards climate smart agriculture (2021 – 2023)
5. **MPhil**; Treatment of abattoir wastewater by using an integrated approach (2021 – 2023)
6. **MPhil**; Chemically modified biochars for the removal of ibuprofen and diclofenac from water (2020 – 2022)
7. **MPhil**; Removal of tetracycline from aqueous solution by biochar derived from bagasse via co-pyrolization with polythene (2020 – 2022)
8. **MPhil**; Impact of biochar on the physicochemical properties of sandy loam soil under high temperature (2020 – 2022)
9. **MPhil**; Carbon fractionation and sequestration in soil amended with fruit waste-derived biochar (2019 – 2021)
10. **MPhil**; Comparative effect of sugarcane bagasse-derived biochar and compost on productivity of alkaline soil (2019 – 2021)
11. **MPhil**; Sorption of naphthalene and phenanthrene in water by different biochars (2019 – 2021)
12. **MPhil**; Immobilization of lead and copper in firing range soil using bone-powder and bone-char (2018 – 2020)
13. **MPhil**; Stabilization of lead and copper in the e-waste contaminated soil using sludge derived biochar (2018 – 2020)
14. **MPhil**; Revitalization of saline soil by electrokinetic remediation (2018 – 2020)
15. **MPhil**; Production of compost and biochar from water lettuce residues and their application in soil for improving plant growth (2017–2019)
16. **MPhil**; Synthesis of slow release fertilizer and its application in soil for plant productivity (2017 – 2019)
17. **MPhil**; Designing and optimization of a cost-effective pyrolyzer for biochar and bio-oil production from biowaste (2017 – 2019)
18. **MPhil**; Removal of lead (Pb) and cadmium (Cd) from water by modified biochars derived from peanut shells (2017 – 2019)
19. **MPhil**; Soil water conservation and enhanced plant productivity under deficit irrigation system (2017 – 2019)
20. **MPhil**; Effect of orange peel derived biochar on herbicides mobility in agricultural soil (2017-2019)
21. **MPhil**; Enhanced removal of chromium(VI) from tannery industry wastewater and soil remediation with biochar (2017-2019)
22. **MPhil**; Adsorption of moxifloxacin and ofloxacin from water using biochars produced from different feedstock (2016-2019)
23. **MPhil**; Carbon negative potential of biochar derived from solid waste in saline soil (2016 – 2018)
24. **MPhil**; Potential of saw dust- and rice husk-derived biochars on leaching behavior of arsenic in contaminated soil (2016 – 2018)
25. **MPhil**; Nitrates and phosphates removal from water by biochar and its application to soil as fertilizer (2016 – 2018)
26. **MPhil**; Revitalization of saline soil with acidic biochar derived from municipal solid waste (2016 – 2018)
27. **MPhil**; Quality assessment of some raw eaten vegetables through study of associated microbial pathogens (2013 – 2014)
28. **MPhil**; Biosorption of metals by *Saccharomyces cerevisiae* (2006 – 2008)
29. **MPhil**; Biosorption of metals by *Aspergillus orhizae* (2006 – 2008)
30. **MPhil**; Synthesis of activated carbon from coal by thermal activation and its application on wastewater treatment (2007 – 2008)
31. **MPhil**; Production of activated carbon from saw dust and its application on wastewater treatment (2007 – 2008)

32. **MSc**; Evaluating PAHs emission during biochar production via pyrolysis of biomass and PAHs catalytic oxidation by Pd/Al_2O_3 catalyst (2015 – 2017)
33. **MSc**; Residuals of veterinary antibiotics in animal wastes and the effect of application of biochar for their retention onto soil (2015 – 2016)
34. **MSc**; Residuals of veterinary antibiotics in animal wastes and the effect of application of biochar for their retention onto soil (2015 – 2016)
35. **MSc**; Extraction of fatty material from sludge of food industry and its characterization (2005 – 2007)

Courses Taught

1. **MPhil/PhD**; Research Planning & Scientific Writing
2. **MPhil/PhD**; Soil Remediation
3. **MPhil/PhD**; Topics in Contaminant Environmental Hydrology
4. **MPhil**; Environmental Biochemistry
5. **MSc**; Pollution Control Technologies
6. **MSc**; Waste Management
7. **BS**; Research Methods in Environmental Science
8. **BS**; Pollution Control Technologies
9. **BS**; Solid Waste Management
10. **BS**; Introduction to Earth Sciences
11. **BS**; Physical Chemistry

Publications

Cumulative Impact Factor (2023): **445.3**
Scopus *h*-index: **48**
Scopus citations: **11,860**

ISI Indexed:

1. Rehman, H., Khan, A.H.A., Butt, T.A., Toqeer, M., Bilal, M., **Ahmad, M**., Al-Naghi, A.A.A., Latifee, E.R., Algassem, O.A.S., Iqbal, M. (2024) Synergistic biochar and *Serratia marcescens* tackle toxic metal contamination: A multifaceted machine learning approach. *Journal of Environmental Management* 370:122575 (2023 Impact Factor: **8.0**)
2. Idrees, M., Batool, S., Rasheed, H., Herath, I., Bundschuh, J., Niazi, N.K., **Ahmad, M**., Xu, J., Chen, D. (2024) Adsorption-coupled Fenton type reduction of bromate in water by high-yield polymer-derived ceramic-supported nano-zerovalent iron. *Environmental Research* 258:119419 (2023 Impact Factor: **7.7**)
3. Shahid, S., Imtiaz, H., Rashid, J., Xu, M., Vithanage, M., **Ahmad, M.*** (2024) Uptake, translocation, and nutrient efficiency of nano-bonechar as a plant growth regulator in hydroponics and soil systems. *Environmental Research* 251:118695 (2023 Impact Factor: **7.7**)
4. Imtiaz, H., Naeem, S., **Ahmad, M.*** (2024) Investigating the potential of nanobonechar towards climate-smart agriculture. *Environmental Geochemistry and Health* 46:128 (2023 Impact Factor: **3.2**)
5. Imtiaz, H., Khan, M., Khan, B.A., Shahid, S., Rajapaksha, A.U., **Ahmad, M.*** (2024) Uncovering nano-bonechar for attenuating fluoride in naturally contaminated soil. *Chemosphere* 353:141490 (2023 Impact Factor: **8.1**)
6. Khan, B.A., **Ahmad, M.***, Bolan, N., Farooqi, A., Iqbal, S., Mickan, B., Solaiman, Z.M., Siddique, K.H.M. (2024) A mechanistic approach to arsenic adsorption and immobilization in aqueous solution, groundwater, and contaminated paddy soil using pine-cone magnetic biochar. *Environmental Research* 245:117922 (2023 Impact Factor: **7.7**)
7. Rehman, H., Rehman, W., Qu, Z., **Ahmad, M**., Yousaf, S., Iqbal, M. (2024) Electromagnetic biochar: a novel material for cadmium adsorption from industrial wastewater. *International Journal of Environmental Science and Technology* 21:747-756 (2023 Impact Factor: **3.0**)
8. Ekanayake, A., Rajapaksha, A.U., **Ahmad, M**., Vithanage, M. (2023) Enhanced adsorption of hexavalent chromium from aqueous solution by citric acid-modified biochar from invasive plant biomass. *Water, Air and Soil Pollution* 234:461 (2023 Impact Factor: **3.8**)
9. Khan, B.A., **Ahmad, M.***, Iqbal, S., Ullah, F., Bolan, N., Solaiman, Z.M., Shafique, M.A., Siddique, K.H.M. (2023) Adsorption and immobilization performance of pine-cone pristine and engineered biochars for antimony in aqueous solution and military shooting range soil: An integrated novel approach. *Environmental Pollution* 317:120723 (2023 Impact Factor: **7.6**)
10. Bolan, N., Sarmah, A.K., Bordoloi, S., Bolan, S., Padhye, L., Zweiten, L.V., Sooriyakumar, P., Khan, B.A., **Ahmad, M**., Solaiman, Z., Rinklebe, J., Wang, H., Singh, B.P., Siddique, K.H.M.

(2023) Soil acidification and the liming potential of biochar. *Environmental Pollution* 317:120632 (2023 Impact Factor: **7.6**)

11. Abbas, H., **Ahmad, M.***, Iqbal, S., Rajapaksha, A.U. (2023) Exploitation of bio-waste by a conventionally designed pyrolyzer to produce bio-oil and bio-char. *International Journal of Environmental Science and Technology* 20:8963-8974 (2023 Impact Factor: **3.0**)
12. Khan, B.A., **Ahmad, M.***, Iqbal, S., Bolan, N., Zubair, S., Shafique, M.A., Shah, A. (2022). Effectiveness of the engineered pinecone-derived biochar for the removal of fluoride from water. *Environmental Research* 212:113540 (2023 Impact Factor: **7.7**)
13. Zhang, M., Lin, K., Zhong, Y., Zhang, D., **Ahmad, M**., Yu, J., Fu, H., Xu, L., Wu, S., Huang, L. (2022) Functionalizing biochar by co-pyrolysis shaddock peel with red mud for removing acid orange 7 from water. *Environmental Pollution* 299:118893 (2023 Impact Factor: **7.6**)
14. Saleem, H., **Ahmad, M.***, Rashid, J., Ahmad, M., Al-Wabel, M.I., Amin, M. (2022) Carbon potential of different biochars derived from solid-waste in saline soil. *Pedosphere* 32:283-293 (2023 Impact Factor: **5.7**)
15. Rajapaksha, A.U., Selvasembian, R., Ashiq, A., Gunarathne, V., Ekanayake, A., Perera, V.O., Wijesekera, H., Mia, S., **Ahmad, M**., Vithanage, M., Ok, Y.S. (2022). A systematic review on adsorptive removal of hexavalent chromium from aqueous solutions: Recent advances. *Science of the Total Environment* 809:152055 (2023 Impact Factor: **8.2**)
16. Murad, H.A., **Ahmad, M.***, Bundschuh, J., Hashimoto, Y., Zhang, M., Sarkar, B., Ok, Y.S. (2022). A remediation approach to chromium contaminated water and soil using engineered biochar derived from peanut shell. *Environmental Research* 204:112125 (2023 Impact Factor: **7.7**)
17. Akhtar, L., **Ahmad, M.***, Iqbal, S., Abdelhafez, A.A., Mehran, M.T. (2021) Biochars' adsorption performance towards moxifloxacin and ofloxacin in aqueous solution: Role of pyrolysis temperature and biomass type. *Environmental Technology & Innovation* 24:101912 (2023 Impact Factor: **6.7**)
18. Idrees, M., Batool, S., Javed, M.S., **Ahmad, M.***, Khan, Q.U., Imran, M., Rasaki, S.A., Mwizerwa, J.P., Chen, Z. (2021) Adsorption and electrochemical facet of polymer precursor to yield mesoporous carbon ceramic. *Separation and Purification Technology* 275:119199 (2023 Impact Factor: **8.1**)
19. Atugoda, T., Gunawardane, C., **Ahmad, M**., Vithanage, M. (2021) Mechanistic interaction of ciprofloxacin on zeolite modified seaweed (*Sargassum crassifolium*) derived biochar: Kinetics, isotherm and thermodynamics. *Chemosphere* 281:130676 (2023 Impact Factor: **8.1**)
20. Abdelhafez, A.A., Zhang, X., Zhou, L., Cai, M., Cui, N., Chen, G., Zou, G., Abbas, M.H.H., Kinawy, M.H.M., **Ahmad, M**., Al-Harthy, S.S., Hamed, M.H. (2021) Eco-friendly production of biochar via conventional pyrolysis: application of biochar and liquefied smoke for plant productivity and seed germination. *Environmental Technology & Innovation* 22:101540 (2023 Impact Factor: **6.7**)
21. Fatima, I., **Ahmad M.***, Vithanage, M., Iqbal, S. (2021) Abstraction of nitrates and phosphates from water by sawdust- and rice husk-derived biochars: their potential as N- and P-loaded fertilizer for plant productivity in nutrient deficient soil. *Journal of Analytical and Applied Pyrolysis* 155:105073 (2023 Impact Factor: **5.8**)
22. Amin, M., **Ahmad, M.***, Farooqi, A., Hussain, Q., Ahmad, M., Al-Wabel, M. I., Saleem, H. (2020) Arsenic release in contaminated soil amended with unmodified and modified biochars derived from sawdust and rice husk. *Journal of Soils and Sediments* 20:3358-3367 (2023 Impact Factor: **2.8**)
23. Batool, S., Idrees, M., Ahmad, M., Hussain, Q., **Ahmad, M.***, Iqbal, A., Kong, J. (2020) Design and characterization of biomass template/tin oxide nanocomposite for enhanced adsorption of 2,4-dichlorophenol. *Environmental Research* 181:108955 (2023 Impact Factor: **7.7**)
24. Rashid, J., Azam, R., Kumar, R., **Ahmad, M**., Rehman, A., Barakat, M. A. (2019) Sulfonated polyether sulfone reinforced multiwall carbon nanotubes composite for the removal of lead in wastewater. *Applied Nanoscience* 9:1695-1705
25. Ahmad, M., **Ahmad, M**., Usman, A.R.A., Al-Faraj, A.S., Abduljabbar, A., Ok, Y.S., Al-Wabel, M.I. (2019) Date palm waste-derived biochar composites with silica and zeolite: synthesis, characterization and implication for carbon stability and recalcitrant potential. *Environmental Geochemistry and Health* 41:1687-1704 (2023 Impact Factor: **3.2**)
26. El-Naggar, A., Lee, S.S., Rinklebe, J., Farooq M., Song, H., Sarmah, A.K., Zimmerman, A.R., **Ahmad, M**., Shaheen, S.M., Ok, Y.S. (2019) Biochar application to low fertility soils: A review of current status, and future prospects. *Geoderma* 337:536-554 (2023 Impact Factor: **5.6**)

27. Batool, S., Idrees, M., Al-Wabel, M.I., **Ahmad, M**., Hina, K., Ullah, H., Cui, L., Hussain, Q. (2019) Sorption of Cr(III) from aqueous media via naturally functionalized microporous biochar: Mechanistic study. *Microchemical Journal* 144:242-253 (2023 Impact Factor: **4.9**)
28. Al-Wabel, M.I., Rafique, M.I., **Ahmad, M**., Ahmad, M., Usman, A.R.A. (2019) Pyrolytic and hydrothermal carbonization of date palm leaflets: Characteristics and ecotoxicological effects on seed germination of lettuce. *Saudi Journal of Biological Sciences* 26:665-672
29. Idrees, M., Batool, S., Ullah, H., Hussain, Q., Al-Wabel, M.I., **Ahmad, M**., Hussain, A., Riaz, M., Ok, Y.S., Kong, J. (2018) Adsorption and thermodynamic mechanisms of manganese removal from aqueous media by biowaste-derived biochars. *Journal of Molecular Liquids* 266:373-380 (2023 Impact Factor: **5.3**)
30. Vithanage, M., Bandara, T., Al-Wabel, M.I., Abduljabbar, A., Usman, A.R.A., **Ahmad, M**., Ok, Y.S. (2018) Soil enzyme activities in waste biochar amended multi-metal contaminated soil: Effect of different pyrolysis temperatures and application rates. *Communications in Soil Science and Plant Analysis* 49:635-643
31. Kumarathilaka, P., **Ahmad, M**., Herath, I., Mahatantila, K., Athapattu, B.C.L., Rinklebe, J., Ok, Y.S., Usman, A., Al-Wabel, M.I., Abduljabbar, A., Vithanage, M. (2018) Influence of bioenergy waste biochar on proton- and ligand-promoted release of Pb and Cu in a shooting range soil. *Science of the Total Environment* 625:547-554 (2023 Impact Factor: **8.2**)
32. Ahmad, M., **Ahmad, M**., Usman, A.R.A., Al-Faraj, A.S., Ok, Y.S., Hussain, Q., Abduljabbar, A., Al-Wabel, M.I. (2018) An efficient phosphorus scavenging from aqueous solution using magnesiothermally modified bio-calcite. *Environmental Technology* 39:1638-1649 (2023 Impact Factor: **2.8**)
33. Ahmad, M., Usman, A.R.A., Al-Faraj, 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 (2023 Impact Factor: **8.1**)
34. Al-Wabel, M., Hussain, Q., Usman, A.R.A., **Ahmad, M**., Abduljabbar, A., Abdulazeem, S., Ok, Y.S. (2018) Impact of biochar properties on soil conditions and agricultural sustainability: A review. *Land Degradation & Development* 29:2124-2161 (2023 Impact Factor: **3.6**)
35. Ahmad, M., **Ahmad, M**., Usman, A.R.A., Al-Faraj, A.S., Abduljabbar, A.S., Al-Wabel, M.I. (2018) Biochar composites with nano zerovalent iron and eggshell powder for nitrate removal from aqueous solution with coexisting chloride ions. *Environmental Science and Pollution Research* 25:25757-25771 (2023 Impact Factor: **5.8**)
36. Ahmad, M., **Ahmad, M**., El-Naggar, A.H., Usman, A.R.A., Abduljabbar, A., Vithanage, M., Elfaki, J., Al-Faraj, A. and Al-Wabel, M.I. (2018) Aging effect of organic and inorganic fertilizers on phosphorus fractionation in a calcareous sandy loam soil. *Pedosphere* 28:873-883 (2023 Impact Factor: **5.7**)
37. Karunanithi, R., Ok, Y.S., Dharmarajan, R., **Ahmad, M**., Seshadri, B., Bolan, N., Naidu, R. (2017). Sorption, kinetics and thermodynamics of phosphate sorption onto soybean stover derived biochar. *Environmental Technology & Innovation* 8:113-125 (2023 Impact Factor: **6.7**)
38. Hussain, A., Al-Barakah, F.N., Al-Sewailem, M., El-Saeid, M.H., Waqar, M., **Ahmad, M**. (2017) Oxidative photodegradation of pyrene and fluoranthene by Fe-based and Zn-based Fenton reagents. *Sustainability* 2017, 9, 870; DOI:10.3390/su9050870 (2023 Impact Factor: **3.3**)
39. Vithanage, M., Seneviratne, M., **Ahmad, M**., Sarkar, B., Ok, Y.S. (2017) Contrasting effects of engineered carbon nanotubes on plants: a review. *Environmental Geochemistry and Health* 39:1421-1439 (2023 Impact Factor: **3.2**)
40. Al-Wabel, M.I., Sallam, A.E.S., Usman, A.R.A., **Ahmad, M**., El-Naggar, A.H., El-Saeid, M.H., Al-Faraj, A., El-Enazi, K., Al-Romian, F.A. (2017) Trace metal levels, sources, and ecological risk assessment in a densely agricultural area from Saudi Arabia. *Environmental Monitoring and Assessment* 189:252-272 (2023 Impact Factor: **2.9**)
41. **Ahmad, M**., Lee S.S., Lee, S.E., Al-Wabel, M.I., Tsang, D.C.W., Ok, Y.S. (2017) Biochar-induced changes in soil properties affected immobilization/mobilization of metals/metalloids in contaminated soils. *Journal of Soils and Sediments* 17:717-730 (2023 Impact Factor: **2.8**)
42. Herath, I., Iqbal, M.C.M., Al-Wabel, M.I., Abduljabbar, A., **Ahmad, M**., Usman, A.R.A., Ok, Y.S. and Vithanage, M. (2017) Bioenergy-derived waste biochar for reducing mobility, bioavailability, and phytotoxicity of chromium in anthropized tannery soil. *Journal of Soils and Sediments* 17:731-740 (2023 Impact Factor: **2.8**)
43. Usman, A., Sallam, A., Zhang, M., Vithanage, M., **Ahmad, M**., Al-Faraj, A., Ok, Y.S.,

Abduljabbar, A., Al-Wabel, M. (2016) Sorption process of date palm biochar for aqueous Cd (II) removal: efficiency and mechanisms. *Water Air and Soil Pollution* 227:449-464 (2023 Impact Factor: **3.8**)

44. Idrees, M., Batool, S., Hussain, Q., Ullah, H., Al-Wabel, M.I., **Ahmad, M**., Kong, J. (2016) High efficiency remediation of cadmium (Cd^{2+}) from aqueous solution using poultry manure- and farmyard manure-derived biochars. *Separation Science and Technology* 51:2307-2317(2023 Impact Factor: **2.8**)
45. Al-Wabel, M.I., El-Saeid, M.H., Usman, A.R.A., Al-Turki, A.M., **Ahmad, M**., Hassanin, A.S., El-Naggar, A.H., Al-Enazi, K.K.H. (2016) Identification, quantification and toxicity of PCDDs and PCDFs in soils from industrial areas in the central and eastern regions of Saudi Arabia. *Bulletin of Environmental Contamination and Toxicology* 96:622-669 (2023 Impact Factor: **2.7**)
46. Herath, I., Kumarathilaka, P., Al-Wabel, M.I., Abduljabbar, A., **Ahmad, M**., Usman, A.R.A. and Vithanage, M. (2016) Mechanistic modelling of glyphosate interaction with rice husk derived engineered biochar. *Microporous & Mesoporous Materials* 225:280-288 (2023 Impact Factor: **4.8**)
47. El-Naggar, A.H., Alzhrani, A.K.R., **Ahmad, M**., Usman, A.R.A., Mohan, D., Ok, Y.S. and Al-Wabel, M.I. (2016) Preparation of activated and non-activated carbon from conocarpus pruning waste as low cost adsorbent for heavy metal ions removal from aqueous solution. *BioResources* 11:1092-1107 (2023 Impact Factor: **1.7**)
48. **Ahmad, M**., Ok, Y.S., Kim, B.Y., Ahn, J.H., Lee, Y.H., Zhang, M., Moon, D.H., Al-Wabel, M.I., Lee, S.S. (2016) Impact of soybean stover- and pine needles-derived biochars on Pb and As mobility, microbial community, and carbon stability in a contaminated agricultural soil. *Journal of Environmental Management* 166:131-139 (2023 Impact Factor: **8.0**)
49. **Ahmad, M**., Ok, Y.S., Rajapaksha, A.U., Lim, J.E., Kim, B.Y., Lee, Y.H., Al-Wabel, M.I., Lee, S.E., Lee, S.S. (2016). Lead and copper immobilization in a shooting range soil using soybean stover- and pineneedle-derived biochars: chemical, microbial and spectroscopic assessments. *Journal of Hazardous Materials* 301:179-186 (2023 Impact Factor: **12.2**)
50. Mayakaduwa, S.S., Kumarathilaka, P., Herath, I., **Ahmad, M**., Al-Wabel, M.I., Ok, Y.S., Vithanage, M. (2016). Equilibrium and kinetic mechanisms of woody biochar on aqueous glyphosate removal. *Chemosphere* 144:2516-2521 (2023 Impact Factor: **8.1**)
51. Usman, A.R.A., Al-Wabel, M.I., Ok, Y.S., Al-Harbi, A., Wahb-Allah, M.A., El-Naggar, A.H., **Ahmad, M**. and Al-Omran, A. (2016). Conocarpus biochar induced changes in soil nutrients availability and tomato growth under saline irrigation system. *Pedosphere* 26:27-38 (2023 Impact Factor: **5.7**)
52. Usman, A.R.A., **Ahmad, M**., El-Mahrouky, M., Al-Omran, A., Ok, Y.S., Sallam, A.S., El-Naggar, A.H., Al-Wabel, M.I. (2015). Chemically modified biochar produced from Conocarpus waste increases NO_3 removal from aqueous solutions. *Environmental Geochemistry and Health* 38:511-521 (2023 Impact Factor: **3.2**)
53. Usman, A.R.A., Abduljabbar, A., Vithanage, M., Ok, Y.S., **Ahmad, M**., Ahmad, M., Elfaki, J., Abdulazeem, S.S., Al-Wabel, M.I. (2015). Biochar production from date palm waste: Charring temperature induced changes in carbon stability and surface chemistry. *Journal of Analytical and Applied Pyrolysis* 115:392-400 (2023 Impact Factor: **5.8**)
54. Zhang, M., **Ahmad, M**., Al-Wabel, M.I., Vithanage, M., Rajapaksha, A.U., Kim, H.S., Lee, S.S. and Ok, Y.S. (2015) Adsorptive removal of trichloroethylene in water by crop residue biochars pyrolyzed at contrasting temperatures: Continuous fixed-bed experiments. *Journal of Chemistry* Article ID 647072 (2023 Impact Factor: **2.8**)
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75. Almaroai, Y.A., Usman, A.R.A., **Ahmad, M**., Kim, K.R., Vithanage, M. and Ok, Y.S. (2013) Role of chelating agents on release kinetics of metals and their uptake by maize from chromated

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1. Tariq, M., **Ahmad, M**., Siddique, S., Waheed, A., Shafiq, T., Khan, M.H. (2012) Optimization of coagulation process for the treatment of the characterized slaughterhouse wastewater. *Pakistan Journal of Scientific and Industrial Research*. 55:43-48.
2. Lee, S.E., **Ahmad, M**., Usman, A.R.A., Awad, Y.M., Min, S.H., Yang, J.E., Lee, S.S. and Ok, Y.S. (2011) Effects of biochar on soil quality and heavy metal availability in a military shooting range soil in Korea. *Korean Journal of Soil Science and Fertilizer*. 44(1):67-77.
3. Awad, Y.M., Abdelhafez, A.A., **Ahmad, M**., Lee, S.S., Kim, R.Y., Sung, J.K., Ok, Y.S. (2010) Synthesis of nanoscale zerovalent iron particle and its application to Cr(VI) removal from aqueous solutions. *Korean Journal of Environmental Agriculture*. 29:402-407.
4. Khan, A.W., Shafiq, T., **Ahmad, M**. (2008) Physical and biochemical changes in commonly grown grapes (*Vitis vinifera*) in Pakistan at different maturity levels. *Pakistan Journal of Science*. 60:94-99.

Books/Book Chapters

1. Vithanage, M., Rajapaksha, A.U., **Ahamd, M**., Shinogi, Y., Kim, K.H., Kim, G. and Ok, Y.S. (2016) Biochar for waste management and environmental sustainability. In: *Sustainable Solid Waste Management*. American Society of Civil Engineer. http://dx.doi.org/10.1061/9780784414101.ch10
2. **Ahmad, M**., Lee, S.S., Moon, D.H., Yang, J.E. and Ok, Y.S. (2012) A review of environmental contamination and remediation strategies for heavy metals at shooting range soils. In: *Environmental Protection Strategies for Sustainable Development*. Springer. ISBN 978-94-007-1590-5.
3. Khokhar, I., **Ahmad, M**. and Tariq, M. (2011) Biosorption of chromium by Baker's yeast: Freundlich and Langmuir adsorption models. Lap Lambert Academic Publishing. ISBN 9783847328568.

Conference Proceedings

1. Carbon fractionation and sequestration in soil amended with fruit waste-derived biochar
   Iflah Nadeem and **Mahtab Ahmad**
   1st International Conference on Climate Change and Environment, Quaid-i-Azam University, Islamabad, Pakistan (February 2 – 3, 2022)
2. Biochar induced changes in soil properties affected immobilization/mobilization of metals/metalloids in contaminated soils
   Mahtab Ahmad
   1st International Conference on "Soil and Crop Health in Changing Climate". MNS-University of Agriculture, Multan – Pakistan (November 28 – 29, 2018)
3. Soil Water Conservation and Enhanced Plant Productivity under Deficit Irrigation System
   Mahtab Ahmad
   Asia-Pacific Environment Forum 2018, Chuncheon, Korea (October 15 – 18, 2018)
4. Environmental Issues of Pakistan
   Mahtab Ahmad
   Asia-Pacific Environment Forum 2018, Chuncheon, Korea (October 15 – 18, 2018)
5. Impact of Biochar Properties on Metal Mobility and Microbial Community in Contaminated Soil
   Mahtab Ahmad, Sang Soo Lee1, Byung-Yong Kim, Young Han Lee, Yong Sik Ok
   CLEAR 2014, 2nd International Conference on Contaminated Land, Ecological Assessment and Remediation, Chuncheon, Korea(October 5-8, 2014)
6. Pyrolysis Condition Affected Sulfamethazine Sorption by Tea Waste Biochars
   Anushka Upamali Rajapaksha, Meththika Vithanage, Ming Zhang, **Mahtab Ahmad**, Dinesh Mohan, Scott X. Chang, Yong Sik Ok
   CLEAR 2014, 2nd International Conference on Contaminated Land, Ecological Assessment and Remediation, Chuncheon, Korea(October 5-8, 2014)
7. Effects of Biochar, Cow Bone and Eggshell on Pb Availability to Maize in Contaminated Soil Irrigated with Saline Water
   Yaser A. Almaroai, Adel R. A. Usman, **Mahtab Ahmad**, Deok Hyun Moon, Young Kyoo Joo, Sang Soo Lee, Yong Sik Ok
   CLEAR 2014, 2nd International Conference on Contaminated Land, Ecological Assessment and Remediation, Chuncheon, Korea(October 5-8, 2014)
8. Lead immobilization and phytoavailability in small arms range soil by mussel shell, cow bone and biochar: X-ray absorption fine structure spectroscopy study
   Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok
   1st International Conference on Contaminated Land, Ecological Assessment and Remediation. Hangzhou, China (Nov 4 – 8, 2012)
9. Effects of oyster shell and eggshell on immobilization of Cd and Pb in agricultural soil: Long-term incubation study
   Jung Eun Lim, **Mahtab Ahmad**, Sang Soo Lee and Yong Sik Ok
   1st International Conference on Contaminated Land, Ecological Assessment and Remediation. Hangzhou, China (Nov 4 – 8, 2012)
10. Lead immobilization and soil quality improvement in contaminated and acid soils by biochar
    Deok Hyun Moon, Yoon-Yong Chang, Sang Soo Lee, **Mahtab Ahmad**, Yong Sik Ok, Mahmoud Wazne and Hoon Roh
    1st International Conference on Contaminated Land, Ecological Assessment and Remediation. Hangzhou, China (Nov 4 – 8, 2012)
11. Removal of antibiotics in water using biochars derived from various biomass

Se Hee Jeong, Hae Won Kim, **Mahtab Ahmad**, Jung Eun Lim, Sang Soo Lee and Yong Sik Ok
1st International Conference on Contaminated Land, Ecological Assessment and Remediation. Hangzhou, China (Nov 4 – 8, 2012)

12. Biochar amendment decreased soil Pb availability and phytotoxicity in military shooting range in Korea
Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok
The 4th IBI Biochar Congress in Beijing, China (Sep 16 – 20, 2012)
13. Effects of soybean stover and peanut shell-derived biochar properties on TCE adsorption in water
Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok
The 4th IBI Biochar Congress in Beijing, China (Sep 16 – 20, 2012)
14. Biochar derived from poultry manure immobilized Pb and improved soil quality in contaminated agricultural soil
Jung Eun Lim, Byeong Gu Gi, **Mahtab Ahmad** and Yong Sik Ok
The 4th IBI Biochar Congress in Beijing, China (Sep 16 – 20, 2012)
15. Efficacy of soybean stover-derived biochar forantimony removal from water
Anushka Upamali Rajapaksha, Meththika Vithanage, **Mahtab Ahmad** and Yong Sik Ok
The 4th IBI Biochar Congress in Beijing, China (Sep 16 – 20, 2012)
16. Potential of biochar derived from invasive plant (burcucumber) for the removal of veterinary antibiotics from carcass disposal sites in Korea
Se Hee Jeong, Hae Won Kim, **Mahtab Ahmad**, Yong Sik Ok
The 4th IBI Biochar Congress in Beijing, China (Sep 16 – 20, 2012)
17. Phytoremediation – A reliable approach to clean-up metal contaminated soils
Yong Sik Ok, Yaser A. Almaroi, **Mahtab Ahmad**, Sang Soo Lee and Jae E. Yang
2012 International Forum on Green Technology and Phytoremediation for Contaminated Sites at Taipei, Taiwan (Jun 25, 2012)
18. Effects of pyrolysis temperature on Soybean Stover and peanut shells derived biochar properties and TCE adsorption in water
Mahtab Ahmad, Sang Soo Lee, Xiaomin Dou and Yong Sik Ok
2011 International Symposium on Biochar for Climate Change Mitigation & Soil and Environmental Management at Kangwon National University, Republic of Korea (Dec 8 – 9, 2011)
19. Modeling antimony sorption onto soybean biochar
Meththika Vithanage, Anushka Rajapaksha, Kushani Mahatantila, **Mahtab Ahmad** and Yong Sik Ok
2011 International Symposium on Biochar for Climate Change Mitigation & Soil and Environmental Management at Kangwon National University, Republic of Korea (Dec 8 – 9, 2011)
20. Efficacy of soybean-stover derived biochar for the removal of arsenic and antimony from aqueous solutions
Anushka Upamali Rajapaksha, Meththika Vithanage, Hasintha Wijesekera, **Mahtab Ahmad** and Yong Sik Ok
2011 International Symposium on Biochar for Climate Change Mitigation & Soil and Environmental Management at Kangwon National University, Republic of Korea (Dec 8 – 9, 2011)
21. Pb immobilization in an army firing range soil using soybean stover biochar
Deok Hyun Moon, Yong Sik Ok, **Mahtab Ahmad**, Yoon Young Chang
2011 International Symposium on Biochar for Climate Change Mitigation & Soil and Environmental Management at Kangwon National University, Republic of Korea (Dec 8 – 9, 2011)
22. Effects of pyrolysis temperature on Soybean Stover and peanut shells derived biochar properties and TCE adsorption in water
Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok
2011 International Symposium & Annual Meeting of the KSABC at Jeju, Republic of Korea (Oct 20 – 22, 2011)
23. Characterization and TCE adsorption capacities of biochars derived from a variety of feedstocks
Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok

KSEA's 30th Anniversary International Symposium on Environment and Food Safety for the Future Generation at Jeju, Republic of Korea (Jul 7 – 9, 2011)

24. Immobilization of lead in a Korean military shooting range soil using eggshell waste: X-ray absorption fine structure spectroscopy investigation
    Mahtab Ahmad and Yong Sik Ok
    2011Annual Meeting of the Korean Society of Soil Science and Fertilizer at Moju, Republic of Korea (May 19 – 20, 2011)
25. Immobilization of heavy metals in shooting range soil using lime based waste materials
    Mahtab Ahmad, Ahmed Azizeldein Abdelhafez and Yong Sik Ok
    2010 SETAC Asia/Pacific Meeting at Guangzhou, China (Jun 4 – 7, 2010)
26. Lead immobilization in military shooting range soil using eggshell waste
    Mahtab Ahmad, Sang Soo Lee and Yong Sik Ok
    7th International AFAS Joint Symposium between Korea and Japan. Current Status and Perspectives of Agriculture, Forestry, and Animal Sciences in 2010 at Chuncheon, Republic of Korea (Nov 11, 2010).
27. Lime-based heavy metals immobilization in outdoor shooting range soils in South Korea
    Mahtab Ahmad, Deok Hyun Moon, Sang Soo Lee, Dennis G. Grubb and Yong Sik Ok
    2010 Annual Meeting of the Korean Society of Soil Science and Fertilizer at Hongcheon, Republic of Korea (May 6 – 7, 2010)
28. Effects of natural and calcined oyster shell on Cd and Pb immobilization in the contaminated soil
    Mahtab Ahmad, Jung Eun Lim, Jae E. Yang and Yong Sik Ok
    The 9th International Conference of the East and Southeast Asia Federation of Soil Science Societies at Seoul, Republic of Korea (Oct 27, 2009)
29. Dispersion gradient of free fall dust and heavy metal elements concentration in dust along main road
    Mahtab Ahmad, Muhammad Usman, Nasir Ahmad and Tahira Shafiq
    6th International and 16th National Conference of Chemistry at Bahuddin Zakariya University, Multan, Pakistan (Apr 4 – 6, 2006)

Trainings / Workshops

1. Member of the organizing committee of International Conference on Waste Business and Management held on Sep 12 – 13, 2023 at Quaid-i-Azam University
2. Member of the organizing committee of 1st International Conference on Climate Change & Environment held on Feb 2 – 3, 2022 at Quaid-i-Azam University
3. Webinar on Publishing Open Access in 2024 held on 11 Jan 2024 by LetPub Learning Nexus
4. Training Session on ASTM COMPASS Training-2 held on 28 Nov 2023 by Higher Education Commission Pakistan
5. Training Session on Assessing Wiley Journals and Publication Tips for Authors and Researchers held on 15 Nov 2023 by Higher Education Commission Pakistan
6. Training Session on ASTM COMPASS Training-1 held on 14 Nov 2023 by Higher Education Commission Pakistan
7. Webinar on Navigating the pathways of publishing in High-quality journals by using Scopus held on 10 Oct 2023 at Pakistan State Universities
8. Webinar on Navigating the pathways of publishing in High-quality journals held on 26 Sep 2023 at Pakistan State Universities
9. Training Session on Wolters Kluwer OVID Database held on 21 Sep 2023 by Higher Education Commission of Pakistan
10. Training Session on Incorporating IEEE Xplore resources into your teaching: A dedicated session for lecturers held on 11 May 2023 by Higher Education Commission Pakistan
11. Webinar on Navigating the pathways of publishing in High-quality journals by using Scopus held on 15 Nov 2022 at Higher Education Commission Pakistan
12. Training Session on IEEE Standards: What, Why, and How? Organized by IEEE held on June 22, 2022.

13. Webinar on "Improving Research Planning skills using Elsevier Tools-Scopus and Science Direct" at Quaid-i-Azam University, on 25 January, 2021
14. Three days' "Curriculum Orientation Workshop on Environmental Science" organized by Learning Innovation Division, Higher Education Commission, Islamabad – Pakistan from 08 – 10 October, 2018.
15. Five days' workshop on "Risk Management of Foodborne Pathogens" organized by Asian Productivity Organization held at Islamabad, Pakistan from 20 – 24 January 2014.
16. Two days training on "X-Ray Absorption Fine Structure Spectroscopy (XAFS)" at 2011 XAFS School, Jeonbuk National University, Jeonju, Republic of Korea from 7 – 8 Jan 2011.
17. One-day training course on "Environmental Impact Assessment (EIA)" by Environment Protection Department (EPD), Punjab in collaboration with National College of Business Administration and Economics at Lahore – Pakistan.
18. Four-days training program on "Olive Oil Quality" at PCSIR Laboratories Complex, Lahore – Pakistan.
19. One-day training on "PC-I Preparation" by PCSIR Labs, Lahore.
20. Received one-day training course on "Traceability Measurement" organized by Pakistan National Accreditation Council (PNAC) on 6th Aug 2007, at Lahore – Pakistan.
21. Trainings on ISO 17025 management system at PCSIR Labs, Lahore – Pakistan.
22. Three days training course on "Climate Change through Better Air Quality Management: organized by IUCN and Pak-EPA at Pearl Continental Hotel Lahore – Pakistan from 21 – 24th Oct 2008.

Awards

1. Best Performance Award 2022-23 as Best Cited Scientist by the Quaid-i-Azam University

References

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