Dr. Ghulam Mustafa Shah

Personal information

Date of birth	Jan 04, 1985
NIC No.	33203-8813205-3
Nationality	Pakistani
Religion	Islam
Domicile	Jhang (Punjab)
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Permanent address	Hashmi house, ST. Zafar Abbas sargana wali, behind Da'ars Sheikh-ul-Islam, Stellite town, Jhang Sadar, Punjab, Pakistan
ORCID	0000-0003-1230-7029

Career objective

To accept challenging position in distinguished organization and utilize personal abilities to provide effective and efficient services to achieve intended results

Key competences

Highly motivated, Result oriented, Hands-on, ambitions to learn and pro-active attitude, Good individual or team player

Education

2018	**Postdoctrate,** China Agricultural University, Yantai, China
2013	Wageningen University, The Netherlands **PhD** (specialization in nutrient cycling in agroecosystems) Thesis Topic: Strategies to reduce losses and improve utilization of nitrogen from solid cattle manure
2008	Wageningen University, The Netherlands **Qualifying exam for PhD admission** (specialization in nutrient cycling in agro-ecosystems) Research Topic: Nitrogen mineralization and recovery by ryegrass from animal manures when applied to various soil types
2007	University of Agriculture Faisalabad, Pakistan **M.Sc. (Hons.)** agriculture (One year course work in Agronomy)
2006	University of Agriculture Faisalabad, Pakistan **B.Sc. (Hons.)** Agriculture (Specialization in Agronomy)
2002	Govt. College Jhang, Pakistan **F.Sc. Pre-medical**
2000	Govt. Higher Secondary School Hassu Balail, Jhang, Pakistan Matric, Science group

Expertise and research interests

- Nitrogen cycling in waste-soil-plant continuum
- Treatment and Reutilization of waste in agriculture
- Solid waste management and wastewater treatment
- Nanoparticle toxicity and its effects on biogeochemical N cycling
- Soil C and N dynamics, Organic agriculture
- Ammonia and greenhouse gaseous emissions
- Biosorption of metals from wastewater

Professional experience

September 2019 - Present Tenured Associate Professor, Department of Environmental Sciences, COMSATS University Islamabad, Vehari-Campus Pakistan.
August 2013 – August 2019: Assistant professor, Department of Environmental Sciences, COMSATS University Islamabad, Vehari-Campus Pakistan.
June 2018-December 2018: Postdoc researcher at Yantai Institute, China Agricultural University, Yantai, 264670, Shandong province, China
June 2019-July 2019: Visiting foreigner expert at Bio-Energy and Environment Science & Technology Laboratory, China Agriculture University, Beijing.
August 2008 - April 2013 -PhD researcher (Wageningen UR, The Netherlands).
Supervisors - Prof. Dr. Oene Oenema (Soil Quality group, Wageningen UR) Dr. Egbert A. Lantinga and Dr. Jeroen C.J. Groot (Farming Systems Ecology Group, Wageningen UR).
April 2007-August 2007: National internship program at Agricultural Extension Office Tandlianwala, Faisalabad-Pakistan
February 2006 – May 2006 – Internship researcher (Adaptive Research Farm Karor Layyah, Pakistan

Teaching Experience (average student feedback = 4.6/5)

- Solid and Hazardous Waste Management {3 (3-0)PhD-Fall-2023}
- Solid waste Management {3 (3, 0) Undergraduate- Fall-2023}
- Solid and Hazardous Waste Management {3 (3-0)PhD-Spring-2023}
- Solid waste Management {3 (3, 0) Undergraduate- Spring-2023}
- Environmental Technologies {3 (3, 0) Graduate-Fall 2022}
- Environmnetal Remediation {3 (3, 0) Undergraduate-Fall 2022}
- Soil Conservation Engineering {3 (3, 0) Undergraduate-Spring 2022}
- Solid waste Management {3 (3, 0) Undergraduate-Fall 2021}
- Environmental Technologies {3 (3, 0) Graduate-Spring 2022}
- Environmental Technologies {3 (3, 0) Graduate-Fall 2021}
- Environmental Technologies {3 (2, 1) Graduate-Spring 2020}
- Environmental Technologies {3 (2, 1) Graduate-Fall 2019}
- Environmental Technologies {3 (2, 1) Graduate-Spring 2019}
- Solid waste Management {3 (3, 0) Undergraduate-Spring 2019}
- Environmental Impact Assessment {3(3, 0) Master-Spring-2018}
- Environmental Impact Assessment {3(3, 0) Undergraduate-Fall 2017}
- Environmental Impact Assessment {3(3, 0) Graduate-Fall-2017}
- Environmental Technologies {3(2-1) Graduate-Spring, 2016}
- Environmental Technologies {3(2-1) Graduate-Fall, 2016}
- Environmental Technologies {3(2-1) Graduate-Spring, 2015}
- Environmental Technologies {3(2-1) Graduate- Fall, 2015}
- Environmental Technologies {3(2-1) Graduate-Spring, 2014}
- Solid and Hazardous Waste Management {3 (3-0)Master-Fall-2014}
- Environmental Technologies {3(2-1) Graduate- Fall, 2014}

- Environmental Policies Planning and Laws {3(3-0)Master-Fall-2013}

Technical Skills

- Nutrient and heavy metal translocation through waste-soil-plant continuum
- Remediation of heavy metal contaminated soils and water
- Toxicity Assessment of metallic nanoparticle
- Fertilizer value and associated health risk assessment from wastes
- Measuring and quantifying emissions from agriculture with special focus on storage (composting) and application of farm yard manures with or without irrigation and/or additives like lava meal and zeolite.
- Quantifying fluxes of NH3, nitrous oxide (N_2O), carbon dioxide (CO_2) and methane (CH_4) throughout the whole solid cattle manure (SCM) management chain, i.e. animal housing – manure storage (composting) – manure application by using static flux chamber system (for NH3, N2O, CO2 and CH4) as well as diffusion samplers (for NH_3).
- Simulating long-term carbon and nitrogen dynamics in grassland-based dairy farming systems to evaluate mitigation strategies for nitrogen losses.
- Knowledge of micrometeorological methods used to measure gaseous fluxes and abilities to generate new ideas, inimitable concepts and scientific solutions.
- Cost/benefit analysis of abatement strategies for NH3 emissions.
- Composting of waste for better agro-environmental value, solid waste management
- Laboratory work for chemical analysis of soil, manure and plant materials.
- Computer Skills/Database: MS office, Adobe Photoshop (Illustrator), SciFinder Scholar, Scopus, Web of Science.
- Ability to work independently and interact with multidisciplinary environmentalists and external collaborators and strong problem solving skills

Skills training courses

- Techniques for writing and presenting a scientific paper
- Imaging Science: video and audio in scientific communication
- Linear models for statistical analysis
- Information literacy for PhD, including introduction to Endnote
- Career perspectives

Language and computer Skills

- Fluent in English, Urdu, Punjabi and Saraiki
- Excellent skills of using MS Word, Excel and Power Point
- Endnote program applications for research literature management
- Good in use of "NDICIA and "Farm Design" models for nutrient management
- Effecient in using statistical softwares: SPSS, Statistics and GenStat for data analysis

International Symposia, Workshops and Conferences

- 2nd International Conference on Civil and Environmental Engineering at UET, Taxilla, **Pakistan** 22-23 February 2023
- International Conference on "Recent Trends in Environmental Sustainability" February 21-23, 2022 in Vehari, **Pakistan**
- International workshop on "Air pollution and its impacts on human health" 18 April, 2017 Lahore, **Pakistan**
- International Conference on "Ecotoxicology and Environmental Health" 25-27 February 2022 in, Vehari, **Pakistan**
- International symposium on Soil and Groundwater pollution 25-27 October 2018 in Chengdu, **China**
- Great Cycle 2018: Symposium of Rural Soils and Waters Organic Pollution Control October 19-21, Beijing, **China**

- Science and Innovation Seminar on Biomass Conversion (BioCon) on 21 and 22 of June 2018 in Yantai, **China**
- Sixteenth International Waste Management and Landfill Symposium/ 2 - 6 October 2017 S. Margherita di Pula, Cagliari, Italy / © 2017 by CISA Publisher, **Italy**
- 14th RAMIRAN international conference on "Treatments and use of organic residues in agriculture: challenges and opportunities for sustainable management" held in Lisbon, **Portugal** (2010)
- International workshop on "Managing livestock manure for sustainable agriculture" held in Wageningen, The **Netherlands** (2010)
- International symposia on "Nutritional strategies to manage the challenges of today's dairy cows" held in Wageningen, The **Netherlands** (2009)
- International symposium on "Prospectus of horticultural industry in Pakistan" held in Faisalabad, **Pakistan** (2007)
- Workshop on "Scientific publishing", held in Wageningen, the Netherlands (2011)
- Mini symposium on "How to write a world class paper" held in Wageningen, the **Netherlands** (2011)
- 17th international nitrogen workshop "Innovations for sustainable use of nitrogen resources ". It will be held in Wexford, **Ireland** in June 2012
- International workshop on global assessment for organic resources and waste management: Assessment of technologies for optimal organic management processes and enlightened environmental policies held in Rhenen, **France** in June, 2012
- International Symposium on "Emissions of gas and dust from livestock" held in Saint-Malo, **France** in June 2012
- DAAD-HEC International Summer School "Food Security in Times of Climate Change" Bringing translational research from Bench to Field, held at Islamabad, **Pakistan** in November 2013

Publications (Cumulative **Impact factor = ~259.3826**)

Refereed Scientific Papers:

2023 (IF, 31.541)

1. **Shah, G.M.,** Farooq, U., Shabbir, Z., Jianbin, G, Dong, R., Bakhat, H.F., Wakeel, M., Siddique, A., Shahid, N., (2023). Impact of cadmium contamination on fertilizer value and associated health risks in different soil types following anaerobic digestate application. Toxics. (Accepted, **IF 4.6**).
2. Shahid, M., Bakhat, H.F., **Shah, G.M.,** Murtaza, B. (2023). Recent trends in environmental sustainability. Environmental Sci Pollut Res. https://doi.org/10.1007/s11356-023-29348-1 **(IF, 5.8)**
3. Wakeel M., Hayat T., Shah N.S., Iqbal J., Khan Z., **Shah G.M.,** Rasool A., (2023). Biogas Energy Resources in Pakistan Status, Potential, and Barriers. Utilities Policy 84 101643 **(IF, 4)**
4. Huang, Y., Chen, Y., Huang, H., **Shah, G.M.,** Lin, J., Yan, M., Guo, C. and Xiao, X (2023). Hyperthermophilic pretreatment composting can reduce ammonia emissions by controlling proteolytic bacterial community and the physicochemical properties. Bioresources and Bioprocessing 10, 37, https://doi.org/10.1186/s40643-023-00659-y **(IF, 4.983)**
5. Saira A., Bakhat H.F., Shahid M., **Shah G.M.,** Abbas G. (2023) Assessment of lithium bioaccumulation by quinoa (Chenopodium quinoa willd.) and its implication for human health. Environ. Geochem. Health. https://doi.org/10.1007/s10653-023-01659-9 **(IF, 4.609)**
6. Bakhat, H.F., Najma, B., Hammad, H.M., **Shah, G.M.,** Abbas, S., Rafique, H.M., Mohamed, A.K.S.H., Maqbool, M.M. (2023). Effect of Silicon Fertilization on Eggplant Growth and Insect Population Dynamics. Silicon https://doi.org/10.1007/s12633-022-02279-1. **(IF, 2.94)**
7. Abdal, N., Abbas, G., Asad, S.A., Ghfar, A.A., **Shah, G.M.,** Rizwan, M., Ali, S., Shahbaz, M. (2023). Salinity mitigates cadmium-induced phytotoxicity in quinoa (Chenopodium quinoa Willd.) by limiting the Cd uptake and improved responses to oxidative stress: implications for phytoremediation. Environ. Geochem. Health. 45, 171-185 **(IF, 4.609).**

2022 (IF, 38.188)

8. **Shah, G.M.,** Amin, M., Shahid, M., Ahmad, I., Khalid, S., Abbas, G., Imran, M., Naeem, M.A., Shahid, N., (2022). Toxicity of ZnO and Fe_2O_3 Nano-agro-chemicals to soil microbial activities, nitrogen utilization, and associated human health risks. Environmental Science Europe 34, 106 **(IF. 5.481).**
9. **Shah, G.M.,** Imran, M., Umme, A., Iqbal, M.M., Akram, M., Javeed, H.M.R., Waqar, A., Rabbani, F. (2022). Efficient sequestration of lead from aqueous systems by peanut shells and compost: evidence from fixed bed column and batch scale studies. PeerJ Physical Chemistry. 4. e21. 10.7717/peerj-pchem.21. **(IF, 3.061)**
10. Nagra, M.A., Natasha, N., Bibi, I. Tariq, T.Z., Naz, R., Ansar, S., Shahid, M., Murtaza, B., Imran, M., Khalid, M.S., Masood, N., **Shah, G.M.,** Niazi, N.K., Dumat, C. (2022) Biowaste-based sorbents for arsenic removal from aqueous medium and risk assessment. Environ Geochem Health. https://doi.org/10.1007/s10653-022-01402-w. **(IF, 4.898)**
11. Ahmad I., Farwa U., Khan Z.U.H.,, Imran M., Khalid M.S., Zhu B., Rasool A., **Shah G.M.,** Tahir M., Ahmed M., Rezapour S., Bulgariu L. (2022). Biosorption and health risk assessment of arsenic contaminated water through cotton stalk biochar. Surfaces and Interfaces 29 (2022) 101806 **(IF. 4.83)**
12. Naeem, M.A., Abdullah, M., Imran, M., Shahid M., Abbas, G., Amjad M., Natasha., **Shah, G.M.,** Khan, W., Alamri, S., Al-Amri, A, A. (2022). Iron oxide nanoparticles doped biochar ameliorates trace elements induced phytotoxicity in tomato by modulation of physiological and biochemical responses: Implications for human health risk. Chemosphere 289, 133203 **(IF, 7.086)**
13. **Shah G.M.,** Ali H.,Ahmad I., Kamran M., Hammad M., Shah G.A., Bakhat, H.F., Waqar A., Guo J., Dong R., Rashid M.I. (2022). Nano agrochemical zinc oxide influences microbial activity, carbon, and nitrogen cycling of applied manures in the soil-plant system. Environmental Pollution 293, 118559, **(IF, 8.96)**
14. Xiao, L., Yuan, G., Feng, L., **Shah, G.M.,** Weid, J. (2022). Biochar to reduce fertilizer use and soil salinity for crop production in the Yellow River Delta. Journal of Soil Science and Plant Nutrition **(IF, 3.872)**

2021 (IF, 13.9266)

15. Hussain S., Mubeen M., Ahmad A., Fahad S., Nasim W., Hammad, H.M., **Shah G.M.,** · Murtaza B., Tahir M., Parveen S., Using space–time scan statistic for studying the effects of COVID-19 in Punjab, Pakistan: a guideline for policy measures in regional agriculture. Environmental Pollution Research **(IF, 4.223)**
16. Iqbal, M.M., Imran, M., Hussain, T., Naeem, M.A., Al-Kahtani, A.A., **Shah, G.M.,** Ahmad, S., Farooq, A., Rizwan, M., Majeed, A., Khan, A.R., Ali, S (2021). Effective sequestration of Congo red dye with ZnO/cotton stalks biochar nanocomposite: MODELING, reusability and stability. Journal of Saudi Chemical Society 25(2), 101176 **(IF, 3.517).**
17. Bakhat, H.F., Arshad, S., Abbas, S., **Shah, G.M.,** Fahad, S., Hammad, H.M., Sajjad, M., Ashfaq, M., Shahid, M. (2021). Genotypic Differences Among the Rice Genotypes to Arsenic Stress Cultivated Under Two Water Regimes: With an Inference to Human Health. Journal Plant Growth Regulation 1-11 **(IF, 2.672).**
18. Saeed, M.F., Jamal, A.,Muhammad, D., **Shah, G.M.,** Bakhat, H.F., Ahmad, I., Ali; S.,Ihsan; F., Wang, J. (2021). Optimizing phosphorus levels in wheat grown in a calcareous soil with the use of adsorption isotherm models. Journal of soil science and plant nutrition https://doi.org/10.1007/s42729-020-00344-5 (**IF 2.0156).**
19. Bakhat, H.F., Bibi, N., Fahad, S., Hammad, H.M., Abbas, S., **Shah, G.M.,** Zakir, A., Murtaza, M., Ashraf, M.R. (2021). Rice Husk Bio-Char Improves Brinjal Growth, Decreases Insect Infestation by Enhancing Silicon Uptake. Silicon, 1-10 **(IF, 1.499)**

2020 (IF, 34.437)

20. Latif, J., Akhtar J., Ahmad, I., Rehman, M.M., Zaman Q., Javaid, T., Farooqi R., ***Shah, G.M.,** Shakar M (2020). Unraveling the effects of cadmium on growth, physiology and associated health risks of leafy vegetables. Brazilian Journal of Botany https://doi.org/10.1007/s40415-020-00653-0 (*Corresponding author) **(IF 0.930).**
21. Saeed, M.F., Jamal, A., Ahmad, I., Ali, S, **Shah, G.M.,** Husnain, S.K.; Farooq, A.; Wang, J. (2020). Storage Conditions Deteriorate Cotton and Wheat Seeds Quality: An Assessment of Farmers' Awareness in Pakistan. Agronomy, 10, 1246. **(IF, 2.603).**
22. Kamran, M., Ali, H., Saeed, M.F., Bakhat, H.F., Hassan, Z., Tahir, M., Abbas, G., Naeem, M.A., Rashid, M.I., ***Shah, G.M.,** (2020). Unraveling the toxic effects of iron oxide nanoparticles on nitrogen cycling through manure-soil-plant continuum, Ecotoxicology

and Environmental Safety, 205, 111099 **(IF, 4.872)**. https://doi.org/10.1016/j.ecoenv.2020.111099 (*Corresponding author)

23. Sardar, A., Shahid, M., Natasha, Khalid, S., Anwar, H., Tahir, M., **Shah, G.M.,** Mubeen, M (2020) Risk assessment of heavy metal(loid)s via Spinacia oleracea ingestion after sewage water irrigation practices in Vehari District. Environ Sci Pollut Res **(IF, 3.056)**. https://doi.org/10.1007/s11356-020-09917-4
24. Zhu, N., Jin, H., Kong, X., Zhu, Y., Ye, X., Xi, Y., Du, J., Li, B., Lou, M., **Shah, G.M.** (2020). Improving the fermentable sugar yields of wheat straw by high-temperature pre-hydrolysis with thermophilic enzymes of Malbranchea cinnamomea. Microbial Cell Factories 19:149 (**IF, 4.187**) https://doi.org/10.1186/s12934-020-01408-y
25. Zhu, N., Jin, H., Ye, X., Liu, W., Li, D., **Shah, G.M.,** Zhu, Y. (2020). Fate and driving factors of antibiotic resistance genes in an integrated swine wastewater treatment system: From wastewater to soil. Sci. Total Environ. 721, 137654 **(IF, 6.551)** https://doi.org/10.1016/j.scitotenv.2020.137654
26. Hammad, H,M., Nauman, H.M.F., Abbas, F., Ahmad, A., Bakhat, H.F., Saeed, S., **Shah, G.M.,** Ahmad, A., Cerdà, A. (2020). Carbon sequestration potential and soil characteristics of various land use systems in arid region. Journal of Environmental Management, 264, 110254, **(IF, 5.647)** (https://doi.org/10.1016/j.jenvman.2020.110254)
27. Shah, A.H., Shahid, M., Khalid, S., Shabbir, Z., Bakhat, H.F., Murtaza, B., Farooq, A., Akram, M., **Shah, G.M.,** Nasim, W., Niazi, N.K. (2020). Assessment of inorganic arsenic exposure via drinking groundwater and associated carcinogenic risk in peri-urban areas of Vehari, Pakistan. Environmental Geochemistry and Health 42(1), 121-133 **(IF, 3.472)**.
28. Zaman, G., Murtaza, B., Imran, M., Shahid, M., **Shah, G.M.*,** Amjad, M., Naeem, M.A., Mubeen, M., Murtaza, G. (2020). Utilization of Bio-Municipal Solid Waste Improves Saline-Sodic Soils and Crop Productivity in Rice-Wheat, Compost Science & Utilization, 1-12 **(IF, 0.969).**
29. Hammad M.H., Khaliq, A., Abbas F., Fahad, S., Bakhat, H.F., Farhad W., Nasim, W., **Shah G.M.,** Mubeen, M., and Rind, A. (2020). Comparative effects of organic and inorganic fertilizers on soil organic carbon and wheat productivity under arid region. Communication in Soil Science and Plant Analysis 51:10, 1406-1422 (**IF, 0.767)**
30. Ashraf, M.R., Bakhat, H.F., **Shah, G.M.,** Arshad, H. M., Mahmood, Q., Shahid, N. (2020). Role of Hydrophobicity in Bio-Accessibility of Environmental Pollutants Among Different Organisms. Polish Journal of Environmental Studies 29(5), 1-8. **(IF, 1.383)**

2019 (IF, 72.132)

31. Sobhi, M., Guo, J., Cui, X., Sun, H., Li, B., Aboagye, D., **Shah, G.M.,** Dong, R. (2019). A promising strategy for nutrient recovery using heterotrophic indigenous microflora from liquid biogas digestate. Science of the Total Environment 690 492–501 (**IF, 6.551**).
32. Imran, M., Islam, A.U., Tariq, M.A., Siddique, M.H., Shah, N.S., Khan,Z.U.H. Amjad, M., Din, S.U., **Shah, G.M.,** Naeem, M.A., Nadeem, M., Nawaz, M., Rizwan, M. (2019) Synthesis of Magnetite Based Nanocomposites for Effective Removal of Brilliant Green Dye from Wastewater. Environmental Science and Pollution Research 26 (24), 24489-24502 (**IF, 3.056).**
33. **Shah, G.M.,** Aiman, U., Imran M., Bakhata, H.F., Hammad, H.M., Ahmad, I., Rabbani, F., Khan, Z (2019). Kinetics and equilibrium study of lead bio-sorption from contaminated water by compost and biogas residues. International Journal of Environmental Science and Technology. 16, 3839-3850 (**IF, 2.540**).
34. Imran, M., Suddique, M., **Shah G.M.,** Ahmad, I., Ahmad, S., Murtaza, B., Shah, N.S., Schotting, R.J. (2019). Kinetics and equalibrium studies for cadmium biosorption from contaminated water using Cassia Fistula biomass. International Journal of Science and Technology. 16 (7), 3099-3108 (**IF, 2.540**).
35. Gao, X., Tian, R., Liu, X., Zhu, H., Tang, Y., Xu., C., **Shah, G.M.,** Li, H., Specific Ion Effects of Cu2+, Ca2+ and Mg2+ on Montmorillonite Aggregation (2019). Applied Clay Science 179, 105154 **(IF, 4.605)**.
36. Huang, Y., Li, D., **Shah, G.M.,** Chen, W., Wang, W., Xu, Y., Huang, H. (2019). Hyperthermophilic pretreatment composting significantly accelerates humic substances formation by regulating precursors production and microbial communities. Waste Management 92, 89-96 (**IF, 5.448**).
37. Tahir, M., Shahid, M., **Shah, G.M.,** Farooq, A.B., Akram, M., Tabassum, S.A., Naeem, M.A., Khalid, U., Ahmad, A., Zakir, A. (2019). Regulation of antioxidant production, ion

uptake and productivity in potato (Solanum tuberosum L.) plant inoculated with growth promoting salt tolerant Bacillus strains. Ecotoxicology and Environmental Safety 178, 33-42 (**IF, 4.872**).

38. Bakhat, H.F., Rasul, K., Farooq, A.B.U., Zia, Z., Natasha., Fahad, S., Abbas, S., **Shah, G.M.,** Rabbani, F., Hammad, H.M. (2019). Growth and physiological response of spinach to various lithium concentrations in soil. Environmnetal Science and Pollution Research. https://doi.org/10.1007/s11356-019-06877-2 (**IF, 3.056**).
39. Shahzad, H., Ullah, S., Iqbal, M., Bilal, H.M., **Shah, G.M*.,** Ahmad, S., Zakir, A., Ditta, A., Farooqi, M.A., Ahmad, I (2019). Salinity types and level-based effects on the growth, physiology and nutrient contents of maize (Zea mays). Italin Journal of Agronomy 14, 199-207 (*Corresponding Author) (**IF, 1.500**).
40. Murtaza, B., Zaman, G., Imran, M., **Shah, G.M.,** Amjad, M., Ahmad, N., Naeem, M.A., Zakir, A., Farooq, A., Ahmad, S., Murtaz, G. (2019). Municipal solid waste compost improves crop productivity in saline-sodic soil: a multivariate analysis of soil chemical properties and yield response. Communications in Soil Science and Plant Analysis 50 (8) 1013-1029 (**IF 0.767**).
41. Sun, H., Cui, X., Stinner, W., **Shah, G.M.,** Cheng, H., Shan, S., Guo, J., Dong, R. (2019). Synergetic effect of combined ensiling of freshly harvested and excessively wilted maize stover for efficient biogas production. Bioresource Technology 285, 121338 (**IF, 7.539**).
42. Ali, B., Shah G.A., Traore, B., Shah, A.A.S., Shah, S.S., Al-Solaimanid, S.G.M., Hussain, Q., Ali N., Shahzad, K., Shahzad, T., Ahmad, A., Muhammad, S., **Shah, G.M.,** Arshad, M., Hussain, R.A., Shah, J.A., Anwar, A., Amjid, M.W., Rashid, M.I. (2019). Manure storage operations mitigate nutrient losses and their products can sustain soil fertility and enhance wheat productivity. Journal of Environmental Management 241, 468-478 (**IF, 5.647**).
43. Imran, M., Anwar K., Akram, M., **Shah, G.M.,** Ahmad, I., Shah, N.S., Khan, Z.H., Rashid, M.I., Akhtar, M.N., Ahmad, S., Nawaz, M., Schotting, R.J. (2019). Biosorption of Pb (II) from contaminated water onto Moringa Oleifera biomass: Kinetics and equilibrium studies. International Journal of Phytoremediation 21 (8) 777-789 (**IF, 2.528**).
44. **Shah, G.M.,** Tufail, N., Bakhat, H.F., Ahmed, I., Shahid, M., Hammad, H.H., Nasim, W., Waqar, W., Rizwan, M., Dong, R. (2019). Composting of municipal solid waste with different methods improves its fertilizer value and reduces health risks of Pb and Cd. Environmental Science and Pollution Research 26 (6), 5463-5474 (**IF, 3.056).**
45. Mohamed, I., Eid, K.E., Abbas, M.H.H., Salem, A.A., Ahmed, N., Ali, M., **Shah, G.M.,** Fang, C. (2019). Use of plant growth promoting Rhizobacteria (PGPR) and mycorrhizae to improve the growth and nutrient utilization of common bean in a soil infected with white rot fungi. Ecotoxicology and Environmental Safety 171, 539-548 (**IF, 4.872**).
46. Rabbani, F., Shaikh, A. J., Khan, J., Ajaz, H., Rafique, M., Khan, Z, U, H., Ali, Z., Hussain, H., Gillani, M, M., Aslam, K., **Shah, G. M.** (2019). Removal of organic colorants using nano copper antimony oxychloride synthesized by non-solvated system. Journal of Inorganic and Organometallic Polymers and Materials 29 (3), 893-900 (**IF, 1.941**).
47. Khalid, S., Naseer, A., Shahid, M., **Shah, G.M.,** Ullah, M.I., Waqar, A., Abbas, T., Rehman, F., Imran, M. (2019). Assessment of nutritional loss with food waste and factors governing this waste at household level. Journal of Cleaner Production 206, 1015-1024 (**IF, 7.246**).
48. Waqar, A*., **Shah G.M*.,** Bakhat, H.F., Aslam, M., Ashraf, M.R., Shahid, M., Hafeez, R., Murtaza, B., Rashid, M.I*. (2019). The Earthworm species Pheretima hawayana influences organic wastes decomposition, nitrogen mineralization and maize N recovery. European Journal of Soil Biology 90, 1-8 (**IF, 2.285,** *equal contribution).
49. Wang, X., Mohamed, I., Ali, M., **Shah, G.M.,** Chen, F. (2019). Potassium distribution in root and non-root zones of two cotton genotypes and its accumulation in their organs as

affected by drought and potassium stress conditions. Journal of Plant Nutrition and Soil Science. 182, 72-81 (**IF, 2.083**).

50. Bakhat H. F., Zia, Z., Abbas, S., Hammad, H.M., **Shah, G.M.,** Khalid S., Shahid, N, Sajjad, M., Fahad, S. (2019). Factors controlling arsenic contamination and potential remediation measures in soil-plant systems. Groundwater for Sustainable Development. https://doi.org/10.1016/j.gsd.2019.100263 (IF, 1).

2018 (IF, 27.148)

51. **Shah, G.M.,** Nasir, M., Imran, M., Bakhat, H.F., Rabbani, F., Sajjad, M., Farooq, A.B.U., Ahmad, S., Song, L. (2018). Biosorption potential of natural, pyrolysed and acid-assisted pyrolysed sugarcane bagasse for the removal of lead from contaminated water. Peer J 5:e3433 **(https://doi.org/10.7717/peerj.3433 , IF, 2.379)**
52. Wang, S., Pana, S., **Shah, G.M.,** Zhang, Z., Yanga, L., Yang, S. (2018). Enhancement in arsenic remediation by maize (zea mays) using EDTA in combination with *Arbuscular Mycorrhizal* fungi. Applied Ecology and Environmental Research 16 (5)5987-59-99 **(IF, 0.712).**
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Conference proceedings:

- **Shah G.M.,** Tufail N, Bakhat H.F.S., Ahmed I., Rashid M.I., Lantinga E. 2017. Assessment of fertilizer value and associated health risks from putrescible solid waste as affected by the composting techniques. Proceedings Sardinia 2017 / Sixteenth International Waste Management and Landfill Symposium/ 2-6 October 2017 S. Margherita di Pula, Cagliari, Italy / © 2017 by CISA Publisher, Italy.
- **Shah G. M.,** Shah G.A. and Lantinga E.A. 2010. Management strategies to reduce nitrogen losses from solid cattle manure. In: Cordovil C., Ferreira L. (Eds.) Proceedings of the 14th Ramiran International Conference, 13-15 Sept. 2010, Lisboa, Portugal, pp. 204-207.
- **Shah G. M.** and Lantinga E.A. 2012. Effects of storage method on N disappearance and herbage N recovery from solid cattle manure. In: Richards K.G., Fenton O., Watson C.J. (Eds) Proceedings of the 17th Nitrogen Workshop-Innovations for sustainable use of nitrogen resources. 26-29 June 2012, Wexford, Ireland, pp. 92-93.
- **Shah G. M.** and Lantinga E.A. 2012. First-year's and residual herbage N recovery from fresh and composted solid cattle manures. In: Richards K.G., Fenton O., Watson C.J. (Eds) Proceedings of the 17th Nitrogen Workshop-Innovations for sustainable use of nitrogen resources. 26-29 June 2012, Wexford, Ireland, pp. 110-111.
- Shah G.A., **Shah G. M.,** Groot J.C.J. and Lantinga. E.A. 2012. Effects of bedding additives on N losses during storage of cattle straw manure and maize N recovery after field application. In: Proceedings of the international conference on global assessment for organic resources and waste management. 12-15 June 2012, Rennes, France.
- Shah, G. A., **Shah, G. M.,** Rashid, M. I., Groot, J. C. J., and Lantinga. E. A. (2012). Effects of bedding additives on N losses during storage of cattle straw manure and maize N recovery after field application. In: Proceedings of international symposium on emissions of gas and dust from livestock. 10-13 June 2012, St-Malo, France.
- **Shah, G. M.,** Shah, G. A., Groot, J. C. J., Raza, A. S., Hussain, A., Nadeem, M., Nasir, M., Shahid, M., and Lantinga. E. A. (2013). Losses and crop utilization of nitrogen from solid cattle manure when subjected to various storage conditions. Abstract published in DAAD-HEC International Summer School "food security in times of climate change, bringing translational research from bench to field". 2-5 November 2013, COMSATS Institute of Information Technology, Islamabad, Pakistan.
- **Shah G. M.,** Shah G.A., Groot J.C.J., Oenema O. and Lantinga E.A. Magnitude and routes of nitrogen and carbon losses from solid cattle manure subjected to various storage conditions. In: Proceedings of 2nd National Conference on Advancements in Sciences & Research (ASR-2014). 17 March 2014, COMSATS Institute of Information Technology, Vehari, PAKISTAN.

Research Projects

- ✓ **Principal Investigator:** "Mineralization and maize crop recovery of nitrogen from animal manures when applied to soil alone and/or in combination with inorganic fertilizers" Duration, 12 months; Funding agency, HEC-Pakistan; Amount, Rs. 0.5 Million **(completed)**
- ✓ **Principal Investigator: "**Unravelling the effects of nanoparticle toxicity on soil carbon and nitrogen dynamics from organic wastes" Duration 36 months; Funding agency, Higher education commission of Pakistan, Amount, Rs. 2.56 million PKR (**0n-going**)
- ✓ **Co-Principal Investigator**: "Assessing the impact of climate change on wheat & cotton grown under different types of soils in various agro-environmental conditions of southern

punjab-pakistan using crop simulation models" Project Duration, 3 years; Funding agency, HEC-Pakistan; Amount, Rs. 2.4 Millions (**completed**)

- ✓ **Co-Principal Investigator:** "Influence of wastewater irrigation in soil, vegetables and human health issues with respect to heavy metal bioaccumulation in District Vehari"" Project Duration, 36 months; Funding agency, HEC-Pakistan; Amount, Rs. 2.8 Millions (**on-going**)
- ✓ **Co-Principal Investigator**: "Simulating Maize yield from organic and synthetic nitrogenous fertilizer under agro-environmental conditions of Vehari-Pakistan" Project Duration, 12 months; Funding agency, CIIT; Amount, Rs. 0.2 Million **(completed)**
- ✓ **Co-Principal Investigator:** "High-resolution mapping for yellow and black rust resistance genes in Pakistani wheat germplasm" Project Duration, 12 months; Funding agency, HEC; Amount, Rs. 0.5 Millions **(completed)**
- ✓ **Co-Principal Investigator:**" Assessing immobilization of cadmium and lead in contaminated soil with compost and biogas residues" Project Duration, 12 months; Funding agency, HEC; Amount, Rs. 0.5 Millions **(completed)**
- ✓ **Co-Principal Investigator**: "Amelioration of saline-sodic soils to improve crop productivity using municipal solid waste" Project Duration, 12 months; Funding agency, CIIT; Amount, Rs. 0.2 Million **(completed)**
- ✓ **Co-Principal Investigator**: "Agro-economic assessment of cotton gin waste compost in cotton-wheat cropping system of South Punjab-Pakistan" Project Duration, 3 years; Funding agency, HEC-Pakistan; Amount, Rs. 1.96 Millions (**on-going**)

Awards and achievements

- HEC-NUFFIC overseas fellowship for pursuing MS leading to PhD at Wageningen University, the Netherlands (2-1/PD-OSS-II/HRD/HEC/07/506).
- Research Productivity award by COMSATS University Islamabad during 2014, 2015, 2016, and 2017
- Honorarium for excellent academic and administrative performance during 2016 by COMSATS University Islamabad, Vehari Campus (CIIT-Vhr/DR/CRC-16/3090)
- Travel Grant by HEC to present research paper at Sardinia 2017: 16th International waste management and landfill symposium held from 2 to 6 October 2017 in Cagliari, Italy (273.170/TG/R&D/HEC/2017/22292)
- Awarded Talented Young Scientist Program (TYSP), China for joint research work for 6 months at Yantai Institute, China Agriculture University.
- Invited Visit as Foreign Expert for 2 weeks at Circular Agriculture Centre, Jiangsu Academy of Agricultural Sciences, Nanjing, China (November 15-Novembr 21, 2018)
- Invited Visiting foreign Expert for 2 months at Bio-Energy and Environment Science & Technology Laboratory, China Agriculture University, Beijing (June-July 2019)
- Faculty Appreciation award for extraordinary service and dedication to the profession during year 2018-2019 by COMSATS University Islamabad, Vehari Campus.
- Faculty Appreciation award for extraordinary service and dedication to the profession during year 2019-2020 by COMSATS University Islamabad, Vehari Campus.
- Certificate of recognition for significant contribution in successful conduction of the convocation held in 2022 at CUI Vehari Campus.

Research work Supervised

1. **Rashaid Hafeez:** Analysis and re-design of municipal solid waste management operations in district vehari (MS Thesis reserach)
2. **Attika Waqar:** Effect of earthworms on nitrogen miniralization and carbondioxide emission from organic wates when applied to soil (MS Thesis reserach)
3. **Nadia Tufail:** Improving agro-environmental value of muncipal solid waste through composting: assessments of its fertilizer value and associated health risks
4. **Hafiz Muhammad Shahbaz:** Assessing immobilization of cadmium and lead in contaminated soil with compost and biogas residues (MS Thesis reserach)
5. **Ume-aiman:** Biosorption Potential of Organic Wastes for Removal of Lead from

Contaminated Water (MS Thesis reserach)

6. **Muhammad Nasir:** Biosorption Potential of natural and modified sugarcanebaggasse for Removal of Lead from Contaminated Water (MS Thesis reserach)
7. **Hifsa Ali**: Effect of nano-particle toxicity on soil C and N dynamics from organic wastes (MS Thesis reserach)
8. **Muhammad Kamran:** Effect of Zinc oxide nanoparticles toxicity on soil C and N dynamics from organic wastes (BS Thesis reserach)
9. **Muhammad Abid Qamar:** Mineralization and Maize Crop Recovery of Nitrogen from Animal Manures when Applied to Soil Alone and/or in Combination with Inorganic Fertilizers (MS Thesis reserach)
10. **Umar Farooq:** Assessment of Fertilizer Value and associated Health risks from anaerobic digestate applied to cadmium contaminated soils differencing in texture (MS Thesis reserach)
11. **Mubashra Amin:** Toxicological Effects of Zinc and Iron Oxide Nanoparticles on Fertilizer Value and Associated Health Risks after Soil Addition of Organic Wastes (MS Thesis reserach)
12. **Zunaira Shabbir:** Toxicity of Metallic Nanoparticles To Microbial Activities After Manure Application To Various Soil Types (MS Thesis reserach)
13. **Anam Khalil:** Effect of Zinc Oxide Nanoparticles on Fertilizer Value and Associated Health Risks from Organic Waste Applied to Different Types of Soil (MS Thesis reserach)
14. **Mazhar Hussain:** Enhancement Of Biogas Production From Farmyard Manure And Food Waste Through Inoculation And Accelerants (MS Thesis reserach)
15. **Nimra Naeem:** Potential of Natural and Modified Cotton Husk for Cadmium Removal from Contaminated Water (MS Thesis reserach)
16. >50 other MS Students as co-supervisor

International Peer Review

- Environmnetal Pollution
- Rice Science
- Journal of Soil Science and Plant Nutrition
- Archives of Agronomy and Soil Science
- Journal of Integrative Agriculture
- Nutrient cyclings in Agroecosystems
- Internationl Journal of Phytoremediation
- Environmnetal Science and Pollution Research
- Pakistan Journal of Agriculture Sciences
- Cogent Journal of Environmental Sciences
- Discover Nano
- International Journal of Vegetable Production
- Waste Management Journal

Administrative services

1. In-charge, Office of Student Affairs (Fall 2021 to till date)
2. Member, Campus Academic Regulatory Committee (Fall 2021 to till date)
3. Convener, Campus Anti-Tobacco and Drugs Committee (Fall 2021 to till date)
4. Member/Secretary, Campus Disciplinary Committee (Fall 2021 to till date)
5. Convener, Campus Standing Accessibility Committee (Fall 23 to till date)
6. Convener, Student affairs Coordination Committees (Fall 2021 to till date)
7. Member, Board of Studies, Department of Environmental Sciences, COMSATS University Islamabad, Vehari Campus (2022 till Date)
8. Departmental Graduate Program Coordinator (Spring, 2014 to Spring 2023)
9. Convener, Departmental graduate program committee (Fall, 2015 to Spring 2023)
10. Convener, Departmental program accreditation committee (Fall, 2015 to till date)
11. Convener, Departmental Admission Committee (Fall 22 to till date)
12. Member, Department Academic Regulatory Committee (Fall, 2015 to till date)
13. Member, Departmental Advisory Committee (Fall, 2015 to till date)

14. Batch Advisor, MS Environmental Sciences and BS Environmental Sciences
15. Area Moderator/Mentor of Undergraduate Environmental Sciences Programs
16. Convener, Campus tendering and hiring committee (Spring, 2016 to till Fall 2017)
17. Convener, Facilitation and accommodation committee for convocations (Fall-17 to till date)
18. Caretaker, Faculty Hostel (Fall, 2015 to till Fall 2017)
19. Member Organizing Committee, Environmental Science Conference (ESCON):
20. Convener, International Conference on Sustainable Environmental Technologies organized on 5 December 2019 by Department of Environmental Sciences CUI, Vehari
21. Secretary, ESCON 22: International Conference on "Recent Trends in Environmental Sustainability" February 21-23, 2022
22. Member, Internal Audit Committee ISO9001:2008, COMSATS University Islamabad Vehari Campus (January 2015 to 2017)
23. Member Organizing team of the Stakeholders Seminar on "Agriculture and Food Security" August 16, 2023 at CUI-Vehari
24. Organizer (Secretary) of the ESCON, 2022: International Conference on "Recent Trends in Environmental Sustainability" February 21-23, 2022.
25. Principal Organizer (Convener) "International Conference on Sustainable Environmental Technologies", December 05, 2019 at CUI-Vehari
26. Member Organizing Committee: International Environmental Science (ESCON) conference: 1st International Conference on "Environmental Toxicology and Health" February 25-27, 2019 at CUI-Vehari
27. Member Organizing Committee: Second National Conference "Advancement in Sciences & Research (ASR-2014)" March 17, 2014 at COMSATS Vehari-Pakistan.
28. Participation HEC-British Council Research Capacity Building program for Reviewer by Coventry University UK, (August 8-11, 2022 Marriot Islamabad)
29. HEC Master Trainer, 21st Master Trainer-Faculty Professional Development Program (October 29 to December 27, 2013)

Social Services

30. Member, District Municipal Solid Waste Management Committee in collaboration with District government Vehari
31. Volunteer for Raising Awareness of local Environmental Issues at Vehari together with District office Pakistan Environmental Protection Agency (PEPA) and Plan International NGO.
32. Founder, Ecofreaks club for raining awareness of environmental Issues and tree plantation in Vehari
33. Invited speaker on "World Environment day 2015" organized by the local District government
34. HEC project reviewer under National research grant Program
35. Resource person on "Environmental pollution and climate change" and "Waste management" for training agriculture officers and crop protection officers at RADEAC
36. Resource person on "Climate Change Implications and Adaptations" for training agriculture officers and crop protection officers at RADEAC November 8-10, 2022
37. Resource person on "Impact of Climate Change on Agriculture " for training agriculture officers and crop protection officers at RADEAC March 9, 2023
38. Resource person on "Project Preparation Monitoring and Evaluation" for training agriculture officers and crop protection officers at RADEAC February 10, 2021
39. Resource person on "Organic and Inorganic Fertilizer" for officials of agriculture department at RADEAC January 9, 2020
40. Resource person on "Transformation of weeds and crop residues into compost" for officials of agriculture department at RADEAC October 2, 2019
41. Resource person on "Climate Change Implications and Adaptations" for officials of agriculture department at RADEAC October 22, 2021

Extra-curricular activities

- Networking
- Games (Badminton and Cricket)

Scientific media profiles

Faculty Profile: http://ww2.comsats.edu.pk/faculty/FacultyDetails.aspx?Uid=18780
ORCID: 0000-0003-1230-7029
GoogleScholar: https://scholar.google.com/citations?user=neQHARcAAAAJ&hl=en
Research Gate: https://www.researchgate.net/profile/Ghulam-Shah

References

Available on request