Muhammad Saleem

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CITIZENSHIP

Permanent resident of United States

EDUCATION

Institution	Degree	Program	Dates
Helmholtz Centre for Environmental Research – UFZ, Leipzig University, Germany	Ph.D.	Microbial Systems Ecology	Sep. 2007/8 to Oct. 2012/13
University of Agriculture Faisalabad	M.Sc. (Hons.)	Soil & Environmental Science	Jul. 2005 to Aug. 2007
University of Agriculture Faisalabad	B.Sc. (Hons.)	Soil Science	Jun. 2001 to Jul. 2005

PROFESSIONAL AFFILIATIONS

Sigma Xi
Crop Science Society of America
Agronomy Society of America
Soil Science Society of America
American Society for Microbiology

HONORS AND AWARDS

6. HEC- Partial Support for a Ph.D. research completion project in Germany (9600$)

5. HIGRADE-UFZ, Leipzig Fellowship, September 2010 – October 2010 (1100 €)

4. Helmholtz-DAAD PhD Fellowship, September 2007 - August 2012 (50,000 €), out of 400 international applicants

3. Cultural Exchange Scholarship by IPC Pakistan in China after a national level competition (Declined)

2. Research Productivity Award, PCST (Pakistan) (37000 Rs.)

1. District education scholarship (15,000 Rs.)

PROFESSIONAL RESEARCH EXPERIENCE

College of Science, Technology, Engineering and Mathematics, Alabama State University

Assistant Professor. January 2019 to present

- Nutrient loading of aquatic ecosystems and their impacts on harmful algal blooms.
- Interactions between legume and non-legume cover crops and their impact on multiple indicators of soil health.
- Role of soil bacterial and fungal diversity in soil polysaccharide production and aggregation.
- Role of soil aggregate-size diversity in soil resilience to climate warming and pathogen invasion
- Linking hemp root and soil microbiome to hemp quality.
- Metagenomic and metatranscriptomic analysis of soil-inhabiting microbial communities under different cover plant species (mixtures and monocultures) in cover crop biodiversity experiment.
- Metagenomic and metabolomic analysis of root-associated microbial communities under different cover plant species (mixtures and monocultures) in cover crop biodiversity experiment.
- Profiling of physicochemical properties of experimental soils that include but are not limited to; soil organic C, matter, aggregation, water-extractable nutrients, CEC, pH, and polysaccharides, etc.
- Root system architectural analysis of different cover crop species using WinRHIZO, Digital imaging of root traits (DIRT), and Imag J.

Center for Root and Rhizobiome Innovation, University of Nebraska (working stations, Lincoln, Kearney, North plate, Grant, and Ogallala, Nebraska)

Joint work at University of Kentucky and University of Nebraska. January 2018 to December, 2018. Collaborative working is still going on.

- Role of soil aggregate-size diversity in corn and soybean growth, root system architecture, metabolome, and microbiome.
- Effect of beneficial soil microbes and *Fusarium spp complex* on corn and soybean growth and yield under field conditions (Field experiments at North plate, Grant and Ogallala, Nebraska).
- Effect of beneficial soil microbes and soil-borne pathogen (*Fusarium spp complex*) on root trait-specific microbiome, metabolome, soil structure (aggregate-size classes), organic carbon, organic matter, and other physicochemical properties.
- Linking soil and root microbiome and mycobiome with tree fruit yield at a local apple (red delicious and honeycrisp apples) and pear orchard in Kearney Nebraska.

- Metagenomic, metabolomic, and metatranscriptomic analysis of soil-inhabiting microbial communities under different corn and soybean plants.
- Root system architectural analysis of different cover and commodity crops using WinRHIZO, Digital imaging of root traits (DIRT), and Imag J.
- Linking root traits of cover crops with various indicators of soil health such as, aggregation, organic carbon storage, nutrient balance, microbial diversity and composition.
- Linking crop yield, crop shoot and root traits with multiple biological, chemical, and physical indicators of soil health.
- DNA extraction by robot (Kingfisher Flex, ThermoFisher) simultaneously from roots, soil, and seeds.
- Analysis of metabolomic profiles of seeds of six different cover crops (monocultures and mixtures, total 39 treatments) at various stages of germination and their impacts on soil microbiome communities.

Department of Plant and Soil Sciences, University of Kentucky, Lexington KY

Postdoctoral researcher. September 2013 to December 2017. Collaborative working is still going on.

- Metagenomic and biochemical analysis of tobacco roots and leaves to understand the role of microbiome in synthesis of carcinogenic compounds in tobacco.
- Investigated the impact of root morphological traits on root and soil microbiome under field conditions.
- Investigated the relationship of nitrate-reducing microbial communities (using *napA* and *narG* genes) with plant chemistry under field conditions.
- Using 500 microcosm experiments, studied the impact of environmentally-relevant concentrations of three commonly used herbicides, such as Royal MH-30, Flupro, and Royaltac on microbial communities of agricultural and forest soils.
- Studied the impact of same herbicides on plant associated microbes under field condition.
- Using biodiversity and ecosystem functioning approaches, we developed several probiotic mixtures containing diverse rhizobacterial species and tested their impact on sorghum root and shoot growth parameters, soil nutrient synergism and nutrient uptake by plants.

Department of Biological Sciences, University of Pittsburgh, PA, USA

Postdoctoral researcher. January 2012 to August 2013. Collaborative working is still going on.

- Investigated the impact of seed size history on root and soil microbiome of global arabidopsis accessions.

- Using forward and reverse genetics, I studied the genetic basis of seed size in global arabidopsis accessions.
- Using genome-wide association mapping, reverse and forward genetics, I studied the role of plant genetics in determining the tradeoff between agronomic and defense traits.
- Investigated the impact of beneficial and pathogenic bacteria on plant agroecological traits under insect attacks.

Department of Environmental Microbiology, Helmholtz Centre for Environmental Research-Germany

Guest Scientist. September 2007 to January 2012.

- Developed nutrient medium (Brunner-CR2) to separately and co-culture different bacterial and protistan types (*flagellates, amoeba, ciliates*). The medium has been used by other researchers in high impact publications (Nature Scientific reports, 8: 1-10, 2018; Ecology Letters, 2020 https://doi.org/10.1111/ele.13500.
- Investigated the microbial food web interactions in the oil-contaminated sites, mainly protist-bacteria-plant interactions.
- Investigated the role of common soil micropredators such as amoeba, ciliates, and flagellates on microbial communities and nutrient cycling.
- Investigated the role of microbial communities in reducing nutrient loading of aqueous ecosystems.
- Developed microbial model system approaches to study the role of soil micropredators in controlling bacterial communities or specific species (soil and water borne-pathogens).
- At Leuna Germany, worked in the industrial area to assess microbial diversity (protists) in the contaminated rhizosphere soil and water ecosystems for public concerns.
- Learned the use of mathematical models and equations to describe the biodiversity-functioning relationships and applied them in microbial ecosystem ecology.
- Learned and developed the soil protist isolation and cultivations approaches targeting ciliates, flagellates, and amoeba.

Institute of Soil & Environmental Science, University of Agriculture Faisalabad, Pakistan

Undergraduate researcher. August 2005 to May 2007.

- Surveyed agricultural soils to isolate pesticides-degrading soil bacteria and fungi.
- Investigated the pesticide degrading fungal and bacterial species under a broad range of soil and environmental conditions.
- Investigated the role of rhizobacterial in plant growth under water and salt stress conditions.

- Worked with local farmers and extension agents to create awareness about the harmful impacts of pesticides on soil ecosystems and local populations.
- Tested the significance of bioaugmentation and biostimulation in the bioremediation of contaminated soil environments under various soil physicochemical properties, such as, pH, temperature, organic C, texture, etc.
- Analysis of pesticides and metabolites using HPLC during biodegradation and bioremediation experiment.

Ayub Agricultural Research Institute, Punjab Government, Faisalabad, Pakistan

Undergraduate researcher. January 2005 to June 2005.

- Worked with extension faculty to conduct field trials of major commodity crops such as wheat, corn, and other vegetables.
- Learned technical analysis of soil physicochemical properties during stay at soil fertility lab.
- Plantation, manure application, and sampling of soil and crop samples from experimental sites, mainly worked in wheat and some vegetable fields.

PROFESSIONAL TEACHING EXPERIENCE

1. Teaching Affiliations

(i). Courses taught at the Alabama State University

Graduate level courses:

Microbial Physiology and Diversity (BIO 730)
Advanced Microbiology (530)
Applied Microbiology (710)

Undergraduate-level courses:

Environmental Microbiology (Bio 427)
Ecology (Bio 310)

(ii). Courses taught at the University of Nebraska

Graduate level courses:

Sustainable Agriculture (Bio 830) (*brand new developed*)

Undergraduate-level courses:

Introductory Agronomy (BIO 380) (*brand new developed*)
Introductory Biology (two lab sections, BIOSC0191)
Fundamentals of Soil Science (Lecture BIOL 301, Lab, 02) (*brand new developed, but not offered due to low enrolment*)

(iii). University of Kentucky

Graduate level courses:
Microbial Structure and Function (BIO 720-001)
Soil Microbiology (PLS 566)
Advanced Soil Biology (PLS 660)

Undergraduate-level courses:
Ecosystem Ecology (BIO 120)
Introduction to Sustainable Agriculture (SAG 101)

(iv). University of Agriculture Faisalabad
Graduate level courses:
Soil & Environmental Microbiology (SES 704)

Undergraduate-level courses:
Instrumental Analysis and Analytical Techniques (SES 702)
2. Teaching-Assessment Service
AP reader scoring the AP Research exam at College Board AP reading. Educational Testing Service.

SCHOLARLY ACTIVITIES

Citation indices; Citations ~2125**; h-index** 20**; i10-index** 27**; Source: Google Scholar; Date** 07/04/2020

PEER-REVIEWED PUBLICATIONS

***** *denotes undergraduate student contribution under my supervision*
† denotes graduate student contribution under my supervision
× denotes postdoctoral scholar or senior researcher contribution under my supervision

Submitted:

55. **Saleem M**, Lindenberger, J. H*****, Contreras, J*****. Hupp BM*****., Pervaiz, Z.H×, Chen, D., Zhang Q×., Javed Iqbal, and Daniel P. Schachtman. 2020. Soil-borne fungal pathogen and beneficial rhizobacteria alter soybean nodule microbiome and metabolome under field conditions (*Submitted*). *Corresponding author*

54. Chen D., Wu Y., **Saleem M**., Wang B., Hu S., Bai Y. 2020. Differential responses of dominant and rare soil microbial phylotypes to vegetation loss across nitrogen-enrichment levels. (*Submitted*). Preprint online available at: https://europepmc.org/article/ppr/ppr127450

53. **Saleem, M**., Law A., Amache, D*****., Traw, MB., & Moe, LA. (2020). Seed size-number trade-off determines the structure and diversity of root and rhizosphere microbiome (*Submitted*). *Corresponding author*

52. **Saleem M**., J. H†., Reighard, S., Lariviere, A†., & Traw, M.B. (2020). Genetic architecture of seed traits reveals a strong genetic link of seed size with plant defense and root system (*Submitted*). (Rejected after peer review from "*PNAS"* and will be submitted to the *Plant Journal*).

51. Liu W., Hao, J†., Yanhui, P., Mazarei M., Lin J., Millwood R.J., Shao Y., **Saleem M**., Marie-Theres, H., Laurel, R.B., Henry, E.A., Traw, M.B., & CN Stewart Jr. (2020). The *Arabidopsis thaliana MYB* transcription factor ETC2 confers higher yield and seed size in transgenic soybean (*Glycine max*). (Rejected after peer review from "*Science"* and will be submitted to the *Nature Biotechnology*).

***Revision requested, accepted, and published*:**

50. Ziqiang Liu, Hui Wei, Jiaen Zhang, **Saleem M**, Yanan He, Jiawen Zhong, Rui Ma. 2020. Higher sensitivity of the network co-occurrences of microbial taxa than the microbial community structure under acid rain. *Frontiers in Microbiology*. (*Revision requested*). *IF=4.3*.

49. Caixia Wang Cuicui Sun, Yan Huang, Sen Lian, **Saleem M**, Baohua Li. 2020. Improving the biocontrol efficacy of Meyerozyma guilliermondii Y-1 with melatonin against postharvest gray mold in apple fruit. *Postharvest Biology and Technology*. (*Revision requested*). *IF=4.3.*

48. **Saleem M**, Lindenberger, J. H, Contreras, J. Hupp BM., Pervaiz, Z.H, Chen, D., Zhang Q., Javed Iqbal, Daniel P. Schachtman, and P. Twigg. 2020. Root architectural traits link cover plant diversity with soil organic carbon and belowground physicochemical properties. *Plant and Soil* (*Revision requested*). *IF=3.3. Corresponding author*

47. **Saleem M**, Zahida H. Pervaiz×, Janet Contreras*****, Brody M. Hupp*****, Josh H. Lindenberge*****, Dima Chen, Qingming Zhang×, Caixia Wang, Paul Twigg. Root architectural traits and chemistry determine the composition of rhizosphere and root microbiome of young peach trees. *Rhizosphere.* (*Revision requested*). *IF=2.6. Corresponding author*

46. **Saleem M**, Z.H Pervaiz, Q. Zhang, D. Chen, H. Wei, and Iqbal J. 2020. Continuous-cropping alters multiple biotic and abiotic indicators of soil health. *Biology and Fertility of Soils*. (*Revision requested*). *IF=4.9. Corresponding author*

45. He Y., Zhong J., Li D., Zhang Y., **Saleem M**., Liu Z., Wei H., Ma R., Liu, Y. 2020. Idiosyncratic responses of microbial communities and carbon utilization to acid rain frequency in the agricultural and forest soil ecosystems. *Applied Soil Ecology* (*Revision requested*). *IF=3.45*

44. **Saleem, M**. Law, A., & Moe L. A. 2020. Microbial community dynamics in the nicotiana phyllosphere and curing leaves: discerning the role of microbiome and nitrate reducing genes (*narA*, *napG*) in the synthesis of tobacco-specific nitrosamines in the tobacco leaves. *Applied & Environmental Microbiology* (*Revision requested)*. *IF=4.07*

43. **Saleem M**, Lindenberger JH, Hupp BM, Pandit R, Srikanth K, Contreras J, Pervaiz ZH and Twigg P. 2020. Impact of beneficial and pathogenic microbes on soybean growth, root chemical and architectural traits under field conditions. *Agronomy* (*Revision requested)*. *IF=2.25*. *Invited. Special Issue "Drivers of Microbial Diversity and Roles in Agroecosystems" edited by Dr. Luke Moe, Department of Soil and Plant Sciences, University of Kentucky Lexington KY*. *Corresponding author.*

42. Sun T, Yang Y, **Saleem M**, Zhang H, Zhang Q. 2020. Bacterial immobilization and compatibility with biochar improved tebuconazole degradation, soil microbiome composition and functioning. *Journal of Hazardous Materials,* 122941. *IF=9.5*

41. Li M, Ma X, **Saleem M**, Wang X, Sun L, Yang Y, Zhang Q. 2020. Biochemical responses, histopathological changes and DNA damage caused by sulfentrazone on soil earthworm (*Eisenia fetida*). *Ecological Indicators* 115, 106465.. *IF=4. 5*

40. Sahib, M.R†, Pervaiz ZH, Williams MA, **Saleem M**, Debolt S. 2020. Seed-inoculated probiotics: rhizobacterial species richness improves sorghum growth and soil nutrient synergism in a nutrient-poor greenhouse soil. *Nature Scientific Reports*. *In Press*. *IF=4.01*. *Corresponding and Equally contributing author.*

39. Liu Z., Dengfeng L, **Saleem, M**., Zhang, Y., Rui M., Yanan H., Jiayue Y., Huimin X., Wei, H. 2020. Effect of simulated acid rain on soil CO_2, CH_4 and N_2O emissions and microbial communities in an agricultural soil. *Geoderma*, 366, 114222. *IF=4.3* Citations: 1.

38. Wu Y., Wu J., **Saleem M**., Wang B., Hu S., Bai Y., Pan Q., and Chen D. 2020. Ecological clusters based on responses of soil microbial phylotypes to precipitation explain ecosystem functions. *Soil Biology and Biochemistry*, 142: 107717. *IF=5.29*. Citation: 1

37. Wei H., Rui Ma, Jiaen Zhang, **Saleem M**., Ziqiang Liu, Xiaoran Shan, Jiayue Yang, Huimin Xiang. 2020. Crop-litter type determines the structure and function of litter-decomposing microbial communities under acid rain conditions. *The Science of the Total Environment*. *713:*136600. *IF=5.7*. *Citation: 2*

36. Sun T., Li M. , **Saleem M**., Xinyu Z. , Dejuan Z., Zhang Q.2020. The fungicide "fluopyram" promotes pepper growth by increasing the abundance of P-solubilizing and N-fixing (*nifH*) bacteria. *Ecotoxicology and Environmental Safety*. 188: 109947. *IF=4.52*. Citations: 1

35. Zhang Q., Liu H., **Saleem M**., Wang C. 2019. Biodegradation of chlorothalonil by strain *Stenotrophomonas acidaminiphila* BJ1 isolated from farmland soil. *Royal Society Open Science*. *Accepted. IF=2.50.* Citations: 0

34. **Saleem, M**., , Hu, J., & Jousset, A. 2019. More than the sum of its parts: higher microbiome biodiversity as a driver of soil health and plant growth. *Annual Review of Ecology, Evolution, and Systematics.* Volume 50. *IF=10.8. Citations. 10. (Microbiome meta-analysis and review study). Corresponding author*

33. Chen, D., **Saleem, M**., Wang, B., Wu. Y., Mi, J., Cheng, J., Chu, P., Tuvshintogtokh, I., Hu, S., and Bai, Y. (2019). Effects of aridity on soil microbial communities and functions across soil depths on the Mongolian Plateau. *Functional Ecology*. *2019;00:1–11.. IF=5.63.* Citations: 4

32. Meng, L., Sun, T., Li, **M., Saleem**, M., Zhang, Q., & Wang, C. (2019). Soil-applied biochar increases microbial diversity and wheat plant performance under herbicide fomesafen stress. *Ecotoxicology and Environmental Safety*, 171, 75-83. *IF=~4.5* Citations: 13

31. Chen, D., Xing W., Lan, Z., **Saleem, M**., Hu, S., and Bai, Y. (2019). Direct and indirect effects of nitrogen enrichment on soil organisms and carbon and nitrogen mineralization in a semi-arid grassland. *Functional Ecology*, *33:175–187. IF=5.63.* Citations: 20

30. Zhang, Q., **Saleem, M**., & Wang, C. (2019). Effects of biochar application on the earthworms (*Eisenia foetida*) in soil contaminated with and/or without pesticide mesotrione. *The Science of the total environment* 671 (2019): 52-58. . *IF=5.7*. Citations: 6

29. Chunlei Yu, Ting Li, Xiangpeng Shi**, Saleem, M**., Baohua Li, Wenxing Liang, Caixia Wang. 2018. Deletion of endo-β-1, 4-xylanase VmXyl1 impacts the virulence of *Valsa mali* in apple tree. *Frontiers in plant science*, *9*. *IF=4.2*. Citations: 4

28. **Saleem, M**[¥], Law, A., Sahib, M.R†., Pervaiz Z.H[×]., & Zhang, Q[×]. (2018). Impact of root system architecture on rhizosphere and root microbiome. *Rhizosphere*, 47–51. *IF=1.5*. Citations: 50. *Corresponding author. Top most cited manuscript from Rhizosphere journal: https://www.journals.elsevier.com/rhizosphere. Also among top cited "root microbiome" papers on google.scholar.com since 2016.*

27. Chen, J., **Saleem, M**., Wang C., Liang W., & Zhang, Q. (2018). Individual and combined effects of tribenuron-methyl and tebuconazole on a soil earthworm *Eisenia fetida*. *Nature Scientific Reports* 8: 2967. *IF=4.25*. Citations: 10

26. **Saleem, M**[¥]. Hao, J†., Amirullah, A*****., & Traw, M.B. (2017). *Pseudomonas syringae pv. tomato DC3000* growth in multiple gene knockouts predicts interactions among hormonal, biotic and abiotic stress responses. *European Journal of Plant Pathology*, *1-8*. IF=*1.43*. Citations: 10. *Corresponding author*

25. **Saleem, M**[¥]. Pervaiz, Z.H., Meckes, N*****., & Traw, M.B. (2017). Microbial interactions in the phyllosphere increase plant performance under herbivore biotic stress. *Frontiers in Microbiology* **8**:41. *IF=4.01*. Citations: 35. *Corresponding author*

24. Zhang, Q., **Saleem, M**., & Wang, C. (2017). Probiotic strain *Stenotrophomonas acidaminiphila* BJ1 degrades and reduces chlorothalonil toxicity to soil enzymes, microbial communities and plant roots. *AMB Express 7:227. IF=1.85*. Citations: 18

23. **Saleem, M**., Fetzer, I., Harms, H., & Chatzinotas, A. (2016). Trophic complexity in aqueous systems: bacterial species richness and protistan predation regulate dissolved organic carbon and dissolved total nitrogen removal. *Proceedings of the Royal Society B: Biological Sciences* 283: 20152724. *IF=4.98*. Citations: 24

22. **Saleem, M**., Law A., & Moe L. A. (2016). Nicotiana roots recruit rare rhizosphere taxa as major root-inhabiting microbes. *Microbial Ecology* 1-4. *IF=3.63*. Citations: 33

21. **M. Saleem**. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Springer link (New York, USA). [**BOOK, plz. see below**]. (Best-selling book, with a sale of over 2000 copies from February 2015 to May 2015). The book is available at libraries of almost all big universities in USA, Europe, Australia, Africa and Asia. **Only from springer.com the book has been purchased/downloaded >8000 times (10 downloads per day since 2015).** Citations: 21

20. **Saleem, M**[¥]. and Moe L. A. (2014). Multitrophic microbial interactions for eco- and agro-biotechnological processes: theory and practice. *Trends in Biotechnology* 32, 529–537. *Mentioned by Faculty of 1000 Biology*. *IF=11.12*. Citations: 53. *Corresponding author*

19. **Saleem, M**., Fetzer, I., Harms, H., & Chatzinotas, A. (2013). Diversity of protists and bacteria determines predation performance and stability. *The ISME Journal* 7, 1912-1921. *Selected for 'Faculty of 1000 Biology; http://f1000.com/prime/718020229. The manuscript talks about the mechanisms by which protists control bacterial communities. This research could be extended to develop biological control of plant pathogens by micropredators. IF=9.66*. Citations: 50

18. **Saleem, M**., Fetzer, I., Dormann, C. F., Harms, H., & Chatzinotas, A. (2012). Predator richness increases the effect of prey diversity on prey yield. *Nature Communications* 3, 1305. *The manuscript talks about the role of micropredator protists in broadening the bacterial and this research could be extended to engineer or manipulate bacterial communities for plant growth. IF=12.12*. Citations: 70

17. **Saleem, M.** (2012). Bacteria-protist interactions in the context of biodiversity and ecosystem functioning research (*Doctoral dissertation*).

16. Hussain, S., Siddique, T., Arshad, M., & **Saleem, M**[¥]. (2009). Bioremediation and phytoremediation of pesticides: recent advances. *Critical Reviews in Environmental Science and Technology*, 39(10), 843-907. IF=*5.79*. Citations: 115. *Corresponding author*

15. Hussain, S., Siddique, T., **Saleem, M**., Arshad, M., & Khalid, A. (2009). Impact of pesticides on soil microbial diversity, enzymes, and biochemical reactions. *Advances in Agronomy*, 102, 159-200. *IF=5.27*. Citations: 230

14. Hussain, S., Arshad, M., Shaharoona, B., **Saleem, M**[¥]., & Khalid, A. (2009). Concentration dependent growth/non-growth linked kinetics of endosulfan biodegradation by *Pseudomonas aeruginosa*. *World Journal of Microbiology and Biotechnology*, 25(5), 853-858. *IF=165*. Citations: 25. *Corresponding author*

13. **Saleem, M**[¥]., Brim, H., Hussain, S., Arshad, M., & Leigh, M. B. (2008). Perspectives on microbial cell surface display in bioremediation. *Biotechnology Advances*, 26(2), 151-161. *IF=10.60*. Citations: 58. *Corresponding author*

12. Arshad, M., Hussain, S., & **Saleem, M**. (2008). Optimization of environmental parameters for biodegradation of alpha and beta endosulfan in soil slurry by *Pseudomonas aeruginosa*. *Journal of Applied Microbiology*, 104(2), 364-370. IF=*2.09*. Citations: 73

11. Hussain, S., Arshad, M., **Saleem, M**., & Khalid, A. (2007). Biodegradation of α-and β-endosulfan by soil bacteria. *Biodegradation*, 18(6), 731-740. *IF=2.01*. Citations: 135

10. **Saleem, M**., Arshad, M., Hussain, S., & Bhatti, A. S. (2007). Perspective of plant growth promoting rhizobacteria (PGPR) containing ACC deaminase in stress agriculture. *Journal of Industrial Microbiology & Biotechnology*, 34(10), 635-648. *IF=2.73*. Citations: 555. *Corresponding author*

9. Arshad, M., **Saleem, M**., & Hussain, S. (2007). Perspectives of bacterial ACC deaminase in phytoremediation. *Trends in Biotechnology*, 25(8), 356-362. *IF=11.12*. Citations: 295. *Corresponding author*

8. Hussain, S., Arshad, M., **Saleem, M**., & Zahir, Z. A. (2007). Screening of soil fungi for in vitro degradation of endosulfan. *World Journal of Microbiology and Biotechnology*, 23(7), 939-945. *IF=165*. Citations: 56

Book Chapters

7. McNees, C. R., Greenhut, I. V., Law, A. D., **Saleem, M**., & Moe, L. A. (2019). Life within the Leaf: Ecology and Applications of Foliar Bacterial Endophytes. Endophytes for a Growing World, 208. (Cambridge, United Kingdom). Citations: 2

6. **Saleem, M.** 2015. Chapter 6. Global microbiome for agroecology, industry and human well-being: opportunities and challenges in climate change. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 1

5. **Saleem, M**. 2015. Chapter 5. Microbiome mediated multitrophic interactions in an age of microbial extinction. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 2

4. **Saleem, M**. 2015. Chapter 4. Loss of microbiome ecological niches and diversity by global change and trophic downgrading. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 4

3. **Saleem, M**. 2015. Chapter 3. Eco-evolutionary processes regulating microbiome community assembly in a changing global ecosystem. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 4

2. **Saleem, M**, ZH Pervaiz, MB Traw. 2015. Chapter 2. Theories, mechanisms and patterns of microbiome species coexistence in an era of climate change. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 12

1. **Saleem, M**. 2015. Chapter 1. Microbiome ecosystem ecology: unseen majority in an anthropogenic ecosystem. *In*. M. Saleem. 2015. *Microbiome Community Ecology: Fundamentals and Applications*. Publisher Springer link (New York, USA). Citations: 5

WORK ACKNOWLEDGED IN PEER-REVIEWED ARTICLES

Ji et al. ATP-dependent binding cassette transporter G Family member 16 increases plant tolerance to abscisic acid and assists in basal resistance against *Pseudomonas syringae* DC3000. *Plant Physiology* 166.2 (2014): 879-888.

EXTENSION/POPULAR ARTICLES

17. Javed Iqbal & **Saleem, M**.2020. Facts and myths of nitrate leaching from long-term conventionally and organically managed agricultural soils in US soybean-Cotton Belt. (in prep)

16. Mushtaq, M.N. & **Saleem, M**. Timely planting for increased wheat productivity. Dawn News, December 04, 2006.

15. **Saleem, M**., Hussain, S., Arshad, M. & Ziaulhasan. Promoting use of microbial biopesticides. Dawn News, November 20, 2006.

14. **Saleem, M**., Hussain, S., Arshad, M. Biotechnology for sustainable agriculture. Dawn News November 6, 2006.
13. **Saleem, M**., Hussain, S., Arshad, M. Bio-fuel production from sugar cane. Dawn News, March 6, 2006.
12. **Saleem, M**., Hussain, S., Arshad, M. Harnessing wetland resources. Dawn News. January 09, 2006.

11. **Saleem, M**., Hussain, S., Arshad, M. Bio-saline agriculture for poverty alleviation. Dawn News, December 27, 2005.

10. **Saleem, M**., Hussain, S. Biotech for wheat growing. Dawn News, November 21, 2005.

9. **Saleem, M**. Is corporate farming a solution? The Nation, October 09, 2005.

8. **Saleem, M**. Irrigated area under wastewater. Dawn News, October 03, 2005.

7. Arshad, M. & **Saleem, M**. Eliminating salinity. Dawn News, August 21, 2005.

6. **Saleem, M**. Poisoned water. Dawn News, May 14, 2005.

5. **Saleem, M**. Dam's construction vital for our existence. Pakistan and Gulf Economist, December 6, 2004.

4. **Saleem, M**. Is global warming for real, Effect of global warming on agriculture? The Nation, December 5, 2004.

3. Yaseen, M. & **Saleem M**. Fields crops foliar feeding technology. Dawn, September 6, 2004.

2. **Saleem, M**. Rural poverty alleviation. Dawn News, September 20.

1. **Saleem, M**. Agriculture uplift, need of the hour. The Nation, May 31, 2004.

RESEARCH DOCUMENTARY BROADCASTED ON EUROPEAN TV

[Doku][Hitec] Die Reparatur einer Talsperre (Hitch Documentary, The repair of a dam). It can be seen on 3sat at following link: http://www.youtube.com/watch?v=Q3F9AB1fOaA

INVITED LECTURES/TALKS/ABSTRACTS

37. **M.Saleem**. Composition of soil aggregates determine the resilience of soil organic carbon to experimental warming. NISBKX matting, Montgomery Al. March 27-9. Abstract for oral presentation was accepted, while meeting was cancelled due to coronavirus outbreak.

36. Rachana Pandit, BK. Robertson and **M. Saleem**.2020. Diversity matters: interactions between legume and non-legume cover plant species influence microbiological and edaphic properties of soil ecosystems. Annual Research Frontier Symposium, Alabama State University (March 11-12, 2020).

35. Lindenberger, J., B. M. Hupp, S.J Mellema, R. G. Miller, J. Contreras, Pervaiz, Z. H. and **Saleem, M**. 2018. Higher diversity of soil aggregates determine the chemical and microbial properties of the corn root and rhizosphere environments. *NSF EPSCoR Annual PI Meeting, Lincholn Nebraska*.

34. **Saleem, M**. Law A. & Moe L. A. (2017). Seed size history determines the structure and diversity of root microbiome. 8th Annual Argonne Soil Metagenomics Meeting November 1-3, Lemont, IL (**USA**), Argonne National Laboratory (Talk).

33. Alsabri, M.R. **Saleem, M**., and Debolt, S. (2017). Seed inoculated probiotics: rhizobacterial diversity increases plant productivity in nutrient-poor soil. 8th Annual Argonne Soil Metagenomics Meeting November 1-3, Lemont, IL (**USA**), Argonne National Laboratory (Poster presentation).

32. **Saleem, M**. (2017). Microbial successions in the fermented foods: basics and applications. Department of Biological Sciences, Minnesota State University, Mankato MN (USA) 14 March 2017 (Invited lecture).

31. **Saleem, M**. (2017). Linking microbial species diversity to applied microbial processes. Department of Biological Sciences, Minnesota State University, Mankato MN (USA) 13 March 2017 (Invited lecture).

30. **Saleem, M**. (2017). The role of *Vibrio spp*. in nutrient recycling and disease. Department of Biology, Easter Washington University, Cheney WA (USA) 3 March 2017 (Invited lecture).

29. **Saleem, M**. (2017). Role of higher microbial diversity in ecosystem functioning and host performance. Department of Biology, Easter Washington University, Cheney WA (USA) 2 March 2017 (Invited lecture).

28. **Saleem, M**. (2017). Root exudates and metal uptake; a way-forward-thinking. Department of Crop and Soil Sciences, North Carolina State University, Raleigh NC (**USA**) 6 January 2017 (Invited lecture).

27. **Saleem, M**. (2017). Higher microbial diversity ensures greater agroecosystem services. Department of Crop and Soil Sciences, North Carolina State University, Raleigh NC (**USA**) 5 January 2017 (Invited lecture).

26. Law A., **Saleem, M**., & Moe L. A. (2016). Tobacco, microbes, and carcinogens: correlation between tobacco cure conditions, tobacco-specific nitrosamine content, and cured leaf microbial

community. 16th International Symposium on Microbial Ecology organized by ISME, Montreal (**Canada**) 21-26 August 2016 (Poster presentation).

25. **Saleem, M**. (2016). Dissecting the role of below/above-ground microbial interactions in soil ecosystem services. Department of Agricultural and Environmental Sciences, Clemson University, Clemson, SC (**USA**) 11 July, 2016 (Invited lecture).

24. **Saleem, M**. (2016). Role of microbial interactions in sustainable agriculture and environment. North Florida Research & Education Center, Quincy, FL (**USA)** 8 January, 2016 (Invited lecture).

23. **Saleem, M**. (2016). Taming microbiome for sustainable agroecosystem productivity in an era of global change. UF/IFAS Soil and Water Science Department, University of Florida, Gainesville, FL (**USA)** 7 January, 2016 (Invited lecture).

22. **Saleem, M**. (2016). Microbial interactions for sustainable agroecosystem productivity. Southwest Florida Research & Education Center, Immokalee, FL (**USA**) 6 January, 2016 (Invited lecture).

21. **Saleem, M**. Law A. & Moe L. A. (2015). Nicotiana roots recruit rare rhizosphere taxa as major root-inhabiting microbes. 7th Annual Argonne Soil Metagenomics Meeting October 21-23, Naperville, IL (**USA**), Argonne National Laboratory (Poster presentation).

20. **Saleem, M.** Trait-specific plant-microbe interactions: agroecological implications and laboratory practices. Plant & Soil Sciences, University of Kentucky KY (**USA)** 23 June, 2015 (Oral presentation). (Talk to middle and High School Teachers).

19. **Saleem, M**. Linking microbial diversity and multitrophic interactions to ecosystem processes in an era of global change. Department of Biology, Wright State University Dayton OH (**USA)** 23 February, 2015 (Invited lecture).

18. **Saleem, M**. The relationship of *napA* and *narG* genes carrying microbial communities with nitrate, tobacco-specific nitrosamines (TSNAs), and alkaloids contents in curing leaves. Kentucky Tobacco Research and Development Center (KTRDC), Lexington KY (**USA)** 01 January, 2015 (Oral presentation).

17. **Saleem, M**. The role of tobacco and arabidopsis microbiome in plant fitness under laboratory and field conditions. College of Agriculture, University of Kentucky KY (**USA)** 08 October, 2014 (Oral presentation).

16. **Saleem, M**. Elucidating plant-microbiome ecological interactions in the context of basic and applied research. College of Agriculture, University of Kentucky KY (**USA**) 19 December, 2013 (Oral presentation).

15. **Saleem, M**. Linking microbial diversity to ecosystem processes. College of Agriculture, University of Kentucky KY (**USA)** 10 October, 2013 (Oral presentation).

14. **Saleem, M**., Pervaiz, Z.H., Traw, M.B. Bacterial diversity and ecosystem functioning: from nutrient removal to plant fitness. Annual Bacterial Meeting, Department of Biological Sciences, Duquesne University, Pittsburgh PA (**USA)** 9 March, 2013.

13. **Saleem, M**. Exploring microbial interactions in the context of biodiversity and ecosystem functioning research. Department of Biological Sciences, University of Pittsburgh PA (**USA**), 6 February, 2013.

12. **Saleem, M**. Bacteria-protist interactions in the context of biodiversity and ecosystem functioning research. Faculty of Biosciences, Pharmacy and Psychology, University of Leipzig (**Germany**), 19 October, 2012.

11. **Saleem, M**. Role of ecology theory in microbial ecology and bioremediation. Geological Survey of Denmark and Greenland – GEUS, Copenhagen, **Denmark** 28 April, 2011 (Invited lecture).

10. Chatzinotas, A., Schäwe, R., **Saleem, M**., Fetzer, I., Harms, H. Microbial model systems and ecological theory: How does increasing environmental stress affect microbial interactions and ecosystem services? Annual Meeting of the VAAM (Association for General and Applied Microbiology-VAAM) Karlsruhe (**Germany**) 03-06 April 2011.

9. **Saleem, M**. Moving from microbe-microbe to Daphnia-microbe interaction: Why? University of Basel, **Switzerland** 18 February, 2011 (Invited lecture).

8. Chatzinotas, A., Schäwe, R., **Saleem, M**., Fetzer, I., Harms, H. Addressing ecological questions with microbial model systems: diversity, interactions and ecosystem services under increasing stress. Biothermodynamics of Metabolic and Ecological Networks Physikzentrum Bad Honnef (**Germany**), 12-14 January, 2011.

7. **Saleem, M**. Implication of microbial diversity-functioning research in studying endophytes-grapevine plant interactions. Michele all'Adige (TN), Trentino, **Italy** 12 January, 2011 (Invited lecture).

6. **Saleem, M**., Fetzer, I., Harms, H., Chatzinotas, A. The more biodiversity, the less pollution. CITE conference Leipzig, **Germany** 23 March, 2010 (Oral presentation).

5. **Saleem, M**., Fetzer, I., Harms, H., Chatzinotas, A. Unseen majority: social life and services. Doc conference, UFZ Leipzig, **Germany**, 26-27 April, 2010 (Oral presentation).

4. **Saleem, M**., Fetzer, I., Harms, H., Chatzinotas, A. Prey-predator interactions in microbial microcosms. UFZ Leipzig, **Germany**, 4 February, 2010 (Oral presentation).

3. **Saleem, M**., Fetzer, I., Harms, H., Chatzinotas, A. Biodiversity mechanisms in prokaryotic systems – effects of predation on ecosystem functioning. UFZ Leipzig, **Germany**, 8 July, 2010 (Oral presentation).

2. **Saleem, M**., Fetzer, I., Harms, H., Chatzinotas, A. Do changes in the diversity of prokaryotic prey and protistan predators influence biomass production and ecosystem functioning? EURECO-GFOE conference, Leipzig, **Germany** 15-19 September, 2008 (Poster presentation).

1. **Saleem, M**. Biodegradation of endosulfan by soil fungi in broth and soil slurry. Institute of Soil & Environmental Sciences, University of Agriculture Faisalabad, **Pakistan**, 21 June, 2007 (Oral presentation).

ONGOING RESEARCH PROJECTS AND GRANTS APPLICATIONS

Research experiments and evolving grant applications:

- Underpinning the interactions between leguminous and non-leguminous cover crop species, and their significance in improving multiple biotic and abiotic indicators of soil health.
- Testing the impact of cover crop seed metabolome and its composition on soil microbiome functioning, regeneration of microbial communities, and organic carbon contents.
- Elucidating the impact of composition and diversity of soil aggregate-size classes on root system architecture, metabolome, and microbiome of soybean and corn plants.
- Linking tree fruit yield history and root traits with multiple indicators of soil health including the composition and diversity of soil-inhabiting bacterial and fungal diversity.
- Testing the significance of soil structural complexity in determining the resilience of soil organic carbon to climate warming.
- Underpinning the role of bacterial and fungal diversity in soil polysaccharide contents and aggregation across the microbial biodiversity gradients.
- Underpinning the influence of Fusarium complex (*Fusarium oxysporum and Fusarium graminearum*) on soil-plant interactions and trophic networks in the agricultural soils.
- Elucidating the impact of soil microbiome biodiversity and its functional attributes on soil-plant interactions, and nutrient synergisms in poor soils.

Submitted:

18. Underpinning the influence of drought on microbial prey-predator interactions in the soil environment. NSF. Division of Biological Sciences ($300,000 as Principal investigator).*Declined*. I planned to resubmit this to USDA (a. Foundational Knowledge of Agricultural Production Systems Program Area Priority Code: A1102) but University is closed due to coronavirus and have some administrative issues.

17. Discerning the genetic basis of relationship between plant seed size history and below-ground soil-root-microbiome interactions at reproductive maturity. NSF- Plant Biotic Interactions ($500,000, as Principal investigator). *Pending since October 2019.*

16. Impact of drought and trophic complexity on soil microbial communities and functions in semi-natural and engineered ecosystems. Department of Defense. ARO → Basic Research → Physical Sciences → Life Sciences →Microbiology ($659,774, as Principal investigator). *Pending since October 2019.*

Funded:

15. Linking fungal and bacterial communities to the root system architectures of various tree fruits. University of Nebraska Core Facility Grant ($5,000, as Principal investigator)
14. Metagenomic analysis of microbial communities in the soil and root environments of different cover crops. University of Nebraska Research Services Council (RSC) grant ($5,000, as Principal investigator).
13. Developing experimental set up for plant-microbe interaction experiments. Nebraska Research Initiative (NRI) ($20,000, Co-PI)
12. Deciphering the structure and diversity of corn root microbiome and metabolome. Nebraska-EPSCOR (NSF) through CRRI - University of Nebraska ($200,000, Principal investigator)
11. Postdoc at UK (BAT-funded) Sept. 2013 to Dec. 2017. Funded by Industry (British American Tobacco Company).
10. Postdoc at Pitt (NSF-funded) Jan. 2012 to Sept. 2013

STUDENTS AND RESEARCHERS SUPERVISED

Researchers of all level who worked under my supervision successfully completed their research projects, and their research has been published or submitted (or is in preparation). See publication list for their contribution.

Undergraduates

Emmanuel Opokuma (Male, African American)
Sophie J Mellema (*Female, White American*)
Regan G Miller (*Female, White American, she won undergraduate research fellowship under my supervision*)
Amalina Amirullah (Female, Malaysian)
Lucas Poiani De Schueler Barboza (*Male, Brazilian, work-study student*)
Josh H Lindenberger (*Male, white American with physical disability, he won undergraduate research fellowship under my supervision*)
Brody M Hupp (*Male, white American, he won undergraduate research fellowship under my supervision*)
Landis Slepicka (*Female, white American, she went to vet school after training in my lab*)
Vuong Nguyen (*Male, Vietnamese, supported by a fellowship)*
Nicole Meckes (Female, daughter of a veteran, white American, *she went to med school after training in my lab*)

Daniel Amache (Male, African American, *he is pursuing degree in agricultural biotechnology*)
Darve Robinson (Male, Afro-Caribbean, *he went to med school after training in my lab*)
Brent (Male, white American, *work-study student*)
Janet Contreras (Female, Mexican/American, *he won undergraduate research fellowship under my supervision*)

Graduates

Robert Ward (Male, African American)
Rachana Pandit (Female, Nepal)
Andy Lariviere (Male, white American, Iraq Veteran)
Hao Ji (Male, Chinese)
Mohammad Alsabri (Male, Iraqi)
Alexa Stefan (Male, White American)
Joseph Ayariga (Male, Nigeria/Africa)
Logan Gildea (Male, White American)
Robert Ward (Male, White American)
Karthikeya Venkatesan (India)

International research scholars/postdocs

Zahra Kalim (Female, Pakistani)
Dr. Qingming Zhang (Male, Chinese)
Dr. Zahida Haasan Pervaiz (Female, Pakistan)

Overseas PhD thesis evaluation committee

1. **Mr. Muhammad Shaukat**. PhD thesis. Assessing carbon sequestration potential of tillage and nutrient management in rice-wheat cropping system using modeling techniques. Department of Agronomy, University of Agriculture Faisalabad.
2. **Ms. Riffat Yasmin**. PhD Thesis. Characterization and application of zinc resistant plant growth promoting rhizobacteria for zinc homeostasis in plants grown on polluted soil. Department of Microbiology, Government College University. Pakistan.
3. **Ms. Hina Batool**. PhD Thesis. Assessment of metal pollution caused by automobiles and its effects on physiological and biochemical aspects of roadside plants. Department of Botany Agriculture University Faisalabad, Pakistan

SCIENTIFIC COLLOBAORATION, OUTREACH AND EXTENSION ACTIVITIES

- Worked at agricultural farms and research stations with extension agents, local growers and industry (2005-2007)
- Field research on a phytoremediation site next to oil refinery in Leuna Germany (2007-2012, UFZ-Helmholtz Centre For Environmental Research) to enhance bioremediation of water and soil environments.

- Field research on tobacco and hemp crops with extension agents and growers to improve crop quality (2013-2017, University of Kentucky, Lexington, KY).
- Risk assessment of commonly used herbicides for their effects on microbiomes of agricultural and forest soils in collaboration to extension faculty (2013-2017, University of Kentucky, Lexington, KY)
- Field experiments on corn and soybean crops in North plate, Grant, and Ogallala, Nebraska, with extension faculty (2018-onward, University of Nebraska Lincoln). We are particularly investigating multidirectional interactions among pathogenic and beneficial microbes, soil structural and root architectural traits, and their impacts on crop yield.
- Lab and field experiments addressing the impact of soil structural complexity and physicochemical properties on corn and soybean growth, root microbiome, and metabolome (2018-onward, Dr. Daniel Schachtman and Dr. Sophie Al baba Labs, University of Nebraska Lincoln).
- Understanding multiple biotic and abiotic indicators of soil health in agricultural soils under long-term soil nutrient management practices (2019-onward, Javed lab at University of Nebraska Lincoln).
- Research collaboration on soil and plant health experimentation, with Dr. Qingming Zhang and Dr. Caixia Wang groups at College of Plant Health and Medicine, Qingdao Agricultural University, Qingdao, 266109, Shandong, China.
- Research collaboration, addressing the impact of environmental and climatic changes on multiple biotic and abiotic indicators of soil health, with Dr. Hui wei group at Department of Ecology, College of Natural Resources and Environment, South China Agricultural University, Guangzhou 510642, China.
- Research collaboration, addressing the impact of climatic changes on multiple biotic and abiotic indicators of soil health, with Dr. Dima Chen group at Chinese Academy of Sciences, College of Biological and Pharmaceutical Sciences, China Three Gorges University, Yichang, China.
- Research collaboration, addressing the impact of microbial biodiversity on soil and plant health, with Dr. Seth De Bolt Lab, Department of Horticulture, University of Kentucky, and with Dr. Alexandre Jousset group at Utrecht University, Netherlands.
- Research collaboration and work at initial stage on hemp crop-microbe interactions with Dr. Luke Moe Lab at Department of Plant and Soil Sciences at University of Kentucky, Lexington KY.
- Research collaboration and work at initial stage on hemp crop-microbe interactions with extension faculty (2020-onward, Yucheng lab at Auburn University.
- Research collaboration, addressing the impact of algal-microbiome-nutrient interactions on harmful algal blooms and their impacts on freshwater quality, with Dr. Alan Wilson, Professor & Graduate Program Officer, School of Fisheries, Aquaculture, and Aquatic Sciences, Auburn University.

PROFESSIONAL DEVELOPMENT ACTIVITIES, TRAININGS, AND COURSES

- "NITROGEN" A Global Challenge. 2020. The University of Edinburgh, United Kingdom. **5 Weeks.** https://www.edx.org/course/nitrogen-a-global-challenge

Week 1: Global Nitrogen Challenge
Introduction to nitrogen, its uses, and overview of its role in global food production, pollution and climate change
Week 2: Nitrogen and Agriculture
Introduction to the nitrogen cycle, history of nitrogen use for food production, interactions with climate change, future challenges for food security
Week 3: Nitrogen and Air Pollution
How nitrogen causes local and global air pollution, its impacts, trends and future challenges
Week 4: Nitrogen and Water
How nitrogen gets into our water, impacts on freshwater and the oceans, risks to ecosystems and human health
Week 5: Nitrogen Solutions
Improving nitrogen use in agriculture, smart food choices, tackling air and water pollution, integrated ma

- College Board AP® Reading scoring the AP Research Exam. 30 Professional Development Hours. 3.0 Continuing Education Units. *Accredited and approved by* ***IACET*** (***The International Association for Continuing Education and Training***). 2020.
- eCampus Distance Education Course. University of Nebraska at Kearney. 3CH (**2018**).
- Next Generation Sequencing and Data Analysis Workshop, University of Kentucky (**2014**). (36 hrs).
- Academic presentation. (30hrs, ECTS=1) (**2010**).
- Introduction to R-statistics (38hrs, ECTS=1.2) (**2009**).
- Advanced course: Laser scanning microscopy (60hrs, ECTS=2) (**2009**).
- Advanced course: Terrestrial ecosystem functions and biodiversity (60hrs, ECTS=2) (**2009**).
- Introduction to biodiversity science (Basic and applied plant-soil-microbe ecology). (30hrs, ECTS=1) (**2009**).
- Introduction to environmental biotechnology: groundwater remediation and technologies in the processes, analyses, and technologies in the compartment transfer facility, Leuna Germany (60hrs, ECTS=2) (**2008**). **ECTS** stands for *European Credit Transfer and Accumulation System*.

ACADEMIC SERVICE

Journal peer reviews

Reviewed manuscript for about 50 journals: The ISME Journal, New Phytologist, Applied and Environmental Microbiology, Microbiome, Trends in Biotechnology, Oikos, Frontiers in Microbiology, PloS one, Frontiers in Plant Science, Journal of Biotechnology, Biotechnology and Bio-engineering, Biochemical Engineering Journal, Journal of Basic Microbiology, International Journal of Molecular Sciences, Journal of Hazardous Materials, Soil and Environment, Indian Journal of Science and Technology, Archives of Agronomy and Soil Science, Radioprotection, Journal of Environmental Quality, Aerobiologia, African Journal of Biotechnology, Ecotoxicology and Environmental Safety, Open Biotechnology Journal, Pakistan Journal of Botany Geomicrobiology Journal, Plants, International

Journal of Environmental Research and Public Health, AIMS Microbiology, Reviews in Environmental Science and Bio/technology, Chemosphere, Forests, Agriculture, Bragantia, Sustainability, Plant Gene, Diversity, Science of the total environment, msphere,

Book/Report Reviewer

Springer Nature

Institutional Service

Research Symposium Committee
Department Assessment Committee
Recruitment and Retention Committee
Curriculum Review Committee
Summer soil research camp

Member of the Editorial Board
Frontiers in Microbiology
Frontiers in Earth Science
Plants
(*Declined offer from several journals*)

Grant reviewer

Seed grant Arizona State University
Alberta Ingenuity New Faculty Award, Canada
National Science Foundation-NSF
Research grant, Ben-Gurion University (BGU), Israel
NASA Postdoctoral Fellowship
NSF-graduate research fellowship

Training school teachers

Training high school minority students (Montgomery Al)
Danville High School Kentucky
Casey County Middle School Kentucky
University of Kentucky Education Department graduates/Pre-service teachers)
Voluntarily advising students from back home country

COMMUNITY SERVICE

Lee County Jail/Detention Center (food supply, welfare of african-american prisoners)
Secretary, Auburn Islamic Center, Auburn Al (Serving Muslim community)

Member, Muslim center of Montgomery, Al (Serving, african-american Muslim community)

Judging science competitions

HOSA-Future Health Professional competition (Montgomery Al, February 21-22, 2019)
Montgomery BEST Engineering Notebook Award (October 17-18, 2019).
Research Frontier Symposium, Alabama State University (March 11-12, 2020)
NIS/BKX Joint Meeting (2020, canceled due top coronavirus)

Miscellaneous

Reviewer Sigma Xi member nomination candidates (2014-2015)

REFERENCES

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