CURRICULUM VITAE

Personal Information

Name : Dr. Sana Ullah
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Qualification

Degree	Institution	Passing Year	CGPA	Percentage (%)
B.Sc. (Hons.) Soil Science- Agriculture	University of Agriculture Faisalabad	2012	**3.85/4.00**	81.60
M.Sc. (Hons.) Soil Science	University of Agriculture Faisalabad	2014	**3.97/4.00**	84.40
Ph.D. in Agronomy (Agriculture)	LAMMC and VMU Lithuania.	2026	-	-

Job Experience

Sr. No.	Designation	Department	Institution	Period	
				From	To
1.	Junior Scientist	Soil & Environmental Sciences Division	Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad	28-12-2015	14-02-2020
2.	Junior Scientist	Soil & Environmental Sciences Division	Nuclear Institute of Agriculture (NIA), Tandojam	20-02-2020	30-11-2021
3.	Junior Researcher	Agrobiology Lab.	LAMMC Lithuania	2022	2026
4.	Senior Scientist	Soil & Environmental Sciences Division	Nuclear Institute of Agriculture (NIA), Tandojam	01-12-2021	Continue

PhD project title (Completed-2026)

The Effects of Zinc and Copper Stress on Plant Growth and Quality.

Research Interest

- Effect of heavy metals contaminated wastewater on the growth and quality of crop plants.
- Role of organic amendments in improving soil fertility and crop growth and quality under stressful conditions.
- Phytoremediation of heavy metals (Cu, Zn, Cd, Cr, Pb, As) from polluted soils and wastewater.
- Phytomanagement of metal-polluted soils and wastewater.
- Assessing human health risks in crops grown on metal-polluted soils.
- Assessing animal health risks in crops grown on metal-polluted soils.
- Micronutrient biofortification (Fe, Zn, Mn, Ni, Se) of cereals and vegetables.
- Role of Anti-ROS compounds in plants under stressful environments.
- Role of PGPR interaction with crop plants under stressful environments.

International doctoral internships

Sr. No	Title	Duration	Host Institute
1.	PhD internship "Use of Advanced technique "Micro X-Ray Fluorescence" to study metal distribution in buckwheat and spinach crop grown under Cu and Zn contamination.	Sep-Nov 2023 (03 Months)	Department of Biology, Biotechnical faculty of Ljubljana University, **Slovenia**.
2.	PhD internship "Compost-induced reduction in metal uptake from the soil bioavailable in maize plants and health risk assessment".	July 2025 (01 Month)	Laboratory of Environmental Soil Functionality, Udine University. Udine, **Italy**.

International awards

- 2025 Support of the Lithuanian Research Council (LMT) for Study Results.
- 2025 Support of the Lithuanian Research Council (LMT) for Academic Trip.

Conferences, Trainings, Summer School, Workshops, Seminars

1) International and Regional

Sr. No	Title	Duration	Host Institute
3.	Regional training course on "Nuclear Techniques in Soil, Water, and Nutrient Management Under Marginal Land".	09-13 April, 2018	Nuclear Institute for Food and Agriculture (NIFA). International Atomic Energy Agency (IAEA). **Pakistan.**
4.	IAEA Regional Workshop on Disseminating Technologies Packages on Improved Varieties as well as Nutrient and Water Saving Technologies.	29 April to 03 May, 2019	International Atomic Energy Agency (IAEA). Malaysian Nuclear Agency (MNR), **Malaysia**.
5.	Summer School for Doctoral Students and Young Scientists of LAMMC.	June 13-17, 2022	Girionys, Kaunas District, LAMMC, **Lithuania**.
6.	Conference "Plants, Metals & Environment": CA19116-Trace metal metabolism in plants.	April 13-14, 2023	Smolenice, **Slovakia**.
7.	19th International Conference of Young Scientists on Energy and Natural Resources (CYSENI).	23-26 May, 2023	LAMMC, **Lithuania**.
8.	3rd International Conference "RETASTE, Rethink Food Resources, Losses, and Waste.	27-29 September 2023	Harokopio University of Athens, **Greece**.
9.	Training School "*Metals as essential nutrients for agricultural crops"* CA19116-Trace metal metabolism in plants.	6-8 March 2024	Nouryon, **Netherlands**.
10.	Training School *"Use of Synchrotron X-ray Fluorescence imaging and X-ray Absorption Spectroscopy in Plant Science"* CA19116-Trace metal metabolism in plants.	9-11 April 2024	Grenoble, **France.**
11.	20th International Conference of Young Scientists on Energy and Natural Resources (CYSENI).	21-23 May, 2024	Lithuanian Energy Institute (LEI), **Lithuania**.

12.	Training on "Data management and modelling; A model-based assessment of management options to maintain soil organic carbon stocks in agricultural soils, 2 ECTS". SLU University and EJP Soil.	27-31 May 2024	Uppsala, **Sweden.**
13.	Summer Training School on "Sustainable organic amendment application from a soil and groundwater management perspective", learning, training, and knowledge exchange activity. *Funded by the European Union TwinSubDyn Project.*	2-6 June 2025	Novi Sad, **Serbia**

2) National

Sr. No	Title	Duration	Host Institute
1.	Training/ workshop "Modern Techniques in Research and on Abiotic Stress Tolerance in Plants".	14-18 March, 2016	Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, Pakistan
2.	Training/ workshop "Soil, Water and Plant Analysis".	06-09 September, 2016	Nuclear Institute for Agriculture and Biology (NIAB), Faisalabad, Pakistan.
3.	National workshop on "Practical Approaches for Identification for Stress Tolerant Plants".	February 08-10, 2017	Nuclear Institute of Agriculture (NIA), Tandojam, Pakistan.
4.	National Seminar on "Biofertilizers: Pros & Cons of Entrepreneurship in Pakistan".	November 8, 2017	University of Agriculture Faisalabad (UAF), Faisalabad, Pakistan.
5.	4Q Training, Phase 4 No. (QS4-F01).	03-14 September, 2018	National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan
6.	4Q Training, Phase 2 No. (QS2-19-F02).	24 June to 05 July, 2019	National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan.

7.	Quality Management System (QMS) Requirements & Implementation Course-ISO Directorate of Quality Management (DQM) 64th Course	13-14 July 2026	Nuclear Institute of Agriculture (NIA) Tandojam.

Publications

Citations: 575
Publications (*CA WoS* and Peer-reviewed):

1. Abbas, M., Depar, N., Irfan, M., **Ullah, S.,** Shah, J. A., & Afzal, J. (2026). The relative contribution of pre- and post-anthesis zinc accumulation to wheat grain zinc under varying soil zinc supply. **Journal of Plant Nutrition**. https://doi.org/10.1080/01904167.2025.2559913
2. Touseef, B., Denafas, G., Barčauskaitė, K., & **Ullah, S.** (2026). Mass distribution of nutrients, trace elements, and heavy metals among particle-size fractions of municipal solid waste compost from different regions of the Baltic States. **Agronomy**. https://doi.org/10.3390/agronomy16030358
3. Hosney, A., Matelionienė, N., Drapanauskaitė, D., **Ullah, S.,** & Barčauskaitė, K. (2026). Evaluation of formulation-dependent antimicrobial activity and plant compatibility of chitosan-based silver nanoparticles. **Marine Drugs**. https://doi.org/10.3390/md24050183
4. Hosney, A., Urbonavičius, M., Varnagiris, Š., Ignatjev, I., Bolaños-Zuñiga, J., Drapanauskaitė, D., **Ullah, S.,** & Barčauskaitė, K. (2026). Optimizing chitosan extraction and characterization from shrimp shells: Deproteinization and exploratory machine learning-based similarity model. **ChemEngineering.** https://doi.org/10.3390/chemengineering10050056
5. **Ullah, S.**, Naeem, A., Praspaliauskas, M., Vaskeviciene, I., Hosney, A., Drapanauskaite, D., & Barcauskaite, K. (2025). Compost application modulates growth, physiology and metal uptake by *Pisum sativum* grown in two different pH soils irrigated with contaminated wastewater. **Plant and Soil**. https://doi.org/10.1007/s11104-025-07366-x
6. **Ullah, S.,** Vogel-Mikus, K., Naeem, A., Ahmad, I., & Barcauskaite, K. (2025). Differential response of buckwheat growth, physiology, and elements distribution to copper and zinc toxicity in hydroponics. **Water, Air, & Soil Pollution**, *236*(6). https://doi.org/10.1007/s11270-025-07950-y
7. **Ullah, S.**, Praspaliauskas, M., Vaskeviciene, I., Hosney, A., & Barcauskaite, K. (2025). Compost mitigates metal toxicity and human health risks and improves the growth and physiology of lettuce grown in acidic and neutral loam-textured soils polluted with copper and zinc. ***Land**, 14*(3), Article 478. https://doi.org/10.3390/land14030478
8. **Ullah, S.**, Naeem, A., Praspaliauskas, M., Vaskeviciene, I., Hosney, A., & Barcauskaite, K. (2025). Comparative toxicity of copper and zinc contaminated wastewater irrigation on growth, physiology, and mineral absorption of wheat. **Water Environment Research**. Advance online publication. https://doi.org/10.1002/wer.70001
9. Hosney, A., Urbonavičius, M., Varnagiris, Š., Ignatjev, I., **Ullah, S.,** & Barčauskaitė, K. (2025). *Feasibility study on optimizing chitosan extraction and characterization from shrimp biowaste via acidic demineralization*. **Biomass Conversion and Biorefinery**. https://doi.org/10.1007/s13399-024-06017-y

10. Hosney, A., Kundrotaitė, A., Drapanauskaitė, D., Urbonavičius, M., Varnagiris, Š., **Ullah, S.,** & Barčauskaitė, K. (2025). Green synthesis of chitosan silver nanoparticle composite materials: A comparative study of microwave and one-pot reduction methods. **Polymers**. https://doi.org/10.3390/polym17212960
11. Abbas, M., Depar, N., **Ullah, S.,** Irfan, M., Shah, J. A., & Afzal, J. (2025). Comparative efficacy of soil and foliar zinc application for agronomic biofortification of wheat with zinc. **Discover Soil.** https://doi.org/10.1007/s44378-025-00153-1
12. Abbas, M., Depar, N., Akram, M. A., Irfan, M., Sial, N. A., Afzal, J., Shah, J. A., & **Ullah, S.** (2024). Characterizing wheat genotypes for zinc efficiency based on high grain yield and zinc uptake. **Journal of Pure and Applied Agriculture**, *9*(2). https://ojs.aiou.edu.pk/index.php/jpaa/article/view/2758
13. **Ullah, S.,** Depar, N., Khan, D., Memon, A.A., Naeem, A. and Ali, A., 2023. Selenate and Selenite Induce Differential Morpho-Physiological Modifications to Mitigate Arsenic Toxicity and Uptake by Wheat. **Soil and Sediment Contamination: An Int. J.** https://www.tandfonline.com/doi/full/10.1080/15320383.2023.2204956
14. Motiejauskaitė D., **Ullah S.,** Kundrotaitė A., Žvirdauskienė R., Bakšinskaitė A., Barčauskaitė K. 2023. Isolation of biologically active compounds from Cannabis sativa L. inflorescences by using different extraction solvents and evaluation of antimicrobial activity. **Antioxidants,** 12 (5): 998. https://www.mdpi.com/2076-3921/12/5/998
15. **Ullah, S.,** A. Naeem, I. Calkaite, A. Hosney, N. Depar and K. Barcauskaite. 2023. Zinc (Zn) mitigates copper (Cu) toxicity and retrieves yield and quality of lettuce irrigated with Cu and Zn-contaminated simulated wastewater. **Environmental Science and Pollution Research.** https://doi.org/10.1007/s11356-023-26250-8.
16. Ayaz, M., D. Feizienė, V. Tilvikienė, V. Feiza, E. Baltrėnaitė-Gedienė and **S. Ullah**. 2023. Biochar with Inorganic Nitrogen Fertilizer Reduces Direct Greenhouse Gas Emission Flux from Soil. **Plants.** 12: 1002. https://www.mdpi.com/2223-7747/12/5/1002
17. Hosney A., **Ullah S.**, Barčauskaitė K. 2022. A review of the chemical extraction of chitosan from shrimp wastes and prediction of factors affecting chitosan yield by using an atificial neural network. **Marine Drugs**, 20 (11): 675. https://www.mdpi.com/1660-3397/20/11/675
18. **Ullah, S**., S. Mahmood, R. Ali, M.R. Khan, K. Akhtar and N. Depar. 2021. Comparing chromium phyto-assessment in *Brachiaria mutica* and *Leptochloa fusca* growing on chromium polluted soil. **Chemosphere.** 269: 128728. https://www.sciencedirect.com/science/article/pii/S004565352032926X
19. **Ullah, S**., R. Ali, S. Mahmood, M.A. Riaz and K. Akhtar. 2020. Differential growth and metal accumulation response of *Brachiaria Mutica* and *Leptochloa Fusca* on cadmium and lead contaminated soil. **Soil and Sediment contamination: An Int. J.** 29: 844-859. https://www.tandfonline.com/doi/full/10.1080/15320383.2020.1777935
20. **Ullah, S.,** T. Mahmood, Z. Iqbal, A. Naeem, R. Ali1 and S. Mahmood. 2019. Phytoremediative potential of salt-tolerant grass species for cadmium and lead under contaminated nutrient solution. **International Journal of Phytoremediation.** 21: 1012-1018. https://www.tandfonline.com/doi/full/10.1080/15226514.2019.1594683

21. **Ullah, S.,** Z. Iqbal, S. Mahmood, K. Akhtar and R. Ali. 2020. Phytoextraction potential of different grasses for the uptake of cadmium and lead from industrial wastewater. **Soil and Environment.** 39: 77-86. https://www.cabidigitallibrary.org/doi/pdf/10.5555/20219971100
22. **Ullah, S.,** M. Ashraf, H.N. Asghar, Z. Iqbal and R. Ali. 2019. Plant growth promoting rhizobacteria mediated amelioration of drought in crop plants**. Soil and Environment**. 38: 1-20. https://www.cabidigitallibrary.org/doi/pdf/10.5555/20193326025
23. Akhtar, M.J., **S. Ullah,** I. Ahmad, A. Rauf, S.M. Nadeem, M.Y. Khan, S. Hussain and L. Bulgariu. 2018. Nickel phytoextraction through bacterial inoculation in *Raphanus sativus*. **Chemosphere.** 190: 234-242. https://www.sciencedirect.com/science/article/pii/S0045653517315102
24. **Ullah, S.,** H.N. Asghar, M.Y. Khan, M.J. Akhtar and Z.A. Zahir. 2017. Differential response of single and co-inoculation of *Rhizobium leguminosarum* and *Mesorhizobium ciceri* for inducing water deficit stress tolerance in wheat. **Annals of Microbiology**. 67: 739-749. https://annalsmicrobiology.biomedcentral.com/articles/10.1007/s13213-017-1302-2
25. Qureshi, M.A., M.A. Ali, F. Mujeeb, M.J. Ahmad, S. Rashid, **S. Ullah** and M.A. Anjum. 2017. Yield and quality response of cotton to a consortium of PGPR at graded fertilizer levels. **International Journal of Biosciences**. 10: 46-53. https://innspub.net/yield-and-quality-response-of-cotton-to-a-consortium-of-pgpr-at-graded-fertilizer-levels/
26. **Ullah, S.,** M.A. Qureshi, M.A. Ali, F. Mujeeb and S. Yasin. 2017. Comparative potential of Rhizobium species for the growth promotion of sunflower (*Helianthus annuus* L.). **Eurasian Journal of Soil Science**. 6:189-196. https://ejss.fesss.org/10.18393/ejss.286694

Books/Chapters

1. **Ullah, S.,** Hussain, M.B., Khan, M.Y. and Asghar, H.N., 2017. *Ameliorating salt stress in crops through plant growth-promoting bacteria. Plant-Microbe. Interactions in Agro-Ecological Perspectives: Volume 1: Fundamental Mechanisms, Methods and Functions*, pp.549-575. **Springer, Singapore.** DOI https://doi.org/10.1007/978-981-10-5813-4_28.

Abstract published

1. **Ullah, S.,** M.A. Qureshi, F. Mujeeb, M. Ilyas, M. Sarfraz and M.A. Ali. 2014. Relative efficiency of *Rhizobium* sp. for auxin biosynthesis potential. In: 5th International congress of soil science on "*Soil Management in Changing Climate*", Islamabad, Pakistan.
2. **Ullah, S.,** D. Motiejauskaitė, K. Barcauskaite. Zinc ameliorates copper toxicity in lettuce grown in soil irrigated with contaminated simulated wastewater. In: *COSTACTION PLANTMETALS,* April 13th-14th, 2023. Bratislava Slovakia.
3. **Ullah, S.,** A. Naeem, I. Calkaite, A. Hosney, N. Depar, D. Motiejauskaitė, K. Barcauskaite. Zinc (Zn) alleviates copper (Cu) toxicity and rescues quality of lettuce grown in metal contaminated simulated wastewater. In: 3rd International Conference "*RETASTE, Rethink Food Resources, Losses, and Waste*. 27-29 September 2023. Harokopio University of Athens, Greece.

1. **Ullah, S.,** A. Naeem, I. Calkaite, A. Hosney, N. Depar, D. Motiejauskaitė, K. Barcauskaite. Zinc (Zn) alleviates copper (Cu) toxicity and rescues quality of lettuce grown in metal

contaminated simulated wastewater. In: 19th *International Conference of Young Scientists on Energy and Natural Sciences Issues (CYSENI)*. May 23-26, 2023. Kaunas, Lithuania.