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DR. NOREEN KHALID

Assistant Professor,
Department of Botany
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EDUCATION

University of Agriculture Faisalabad, Pakistan

PhD, Botany (August, 2016)

Dissertation: “Effect of automobile related metal pollution on plants: a case study along two roads (Faisalabad to Sargodha and Pindi Bhattian to Lillah) in the Punjab, Pakistan.”

Advisor: Prof. Dr. Mumtaz Hussain

Researcher: University of California Santa Barbara, USA

Advisor: Prof. Dr. Hillary S. Young

Mphil, Botany (2011)

Dissertation: “Effect of simulated acid rain (SAR) and growth promoters on physiological and biochemical attributes of sunflower (*Helianthus annuus* L.).”

Advisor: Prof. Dr. Mumtaz Hussain

University of the Punjab, Lahore, Pakistan

MSc, Botany (2006)

BSc, Botany, Chemistry, Zoology (2004)

Board of Intermediate and Secondary Education Gujranwala, Pakistan

FSc, Biology, Chemistry, Physics (2002)

Matriculation, Biology, Chemistry, Physics (2000)

POSITIONS HELD

Assistant Professor (2016-Todate)

Department of Botany, Govt. College Women University Sialkot

Adjunct Research Fellow (2023- Todate)

INTI International University, Nilai, Malaysia

Teaching Assistant (2015-2016)

Department of Botany, University of Agriculture Faisalabad, Pakistan

RESEARCH INTERESTS

Emerging contaminants

Microplastics

Phytoremediation

Environmental Toxicology

Environmental Management and modelling

Plant Ecology

Wetlands

Climate Change

1. Qaiser, Z., **Khalid, N.**, Mahmood, A., Rizvi, Z.F., Lee, S.Y. and Aqeel, M., 2024. Spatial distribution and impacts of microplastics on potato growth and yield in agroecosystems in Sialkot, Pakistan. *Journal of Hazardous Materials*, p.136262. <https://www.sciencedirect.com/science/article/abs/pii/S0304389424028413> **IF 12.2**
2. Irshad, M.K., Aqeel, M., Saleem, S., Javed, W., Noman, A., Kand, M.W., **Khalid, N.**, Lee, S.S. 2024. Mechanistic insight into interactive effect of microplastics and arsenic on growth of rice (*Oryza sativa* L.) and soil health indicators. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2024.176875> **IF 8.2**
3. Akhter, N., Nafees, R., Noman, A., Aqeel, M., Hadayat, N., **Khalid, N.**, Kausar, A., Alshaharni, M.O., Shahnaz, M.M., Saleem, A. and Alomran, M.M., 2024. Examining Adaptive Responses of *Foeniculum vulgare* to Elevated Sodium and Chloride Stress in the Root Zone. *Journal of Soil Science and Plant Nutrition*, pp.1-15. <https://doi.org/10.1007/s42729-024-02022-2> **IF 3.4**
4. Arshad, R., Huqail, A.A.A., Alghanem, S.M.S., Alsudays, I.M., Farid, M., Sarfraz, W., Abbas, M., **Khalid, N.**, Yong, J.W.H. and Abeed, A.H., 2024. Phyto-treatment of tannery industry effluents under combined application of Citric Acid and Chromium-Reducing Bacterial Strain through *Lemna minor* L.: A Lab scale study. *Heliyon*. 10(16): E36309. <https://doi.org/10.1016/j.heliyon.2024.e36309> **IF 3.4**
5. Kanwal, H., Shoaib, I., Noman, A., Maqsood, M.F., Naheed, R., Alzoubi, O., Hashem, M., Elnour, R., Alzuaibr, F.M., **Khalid, N.** and Irshad, M.K., 2024. Bio-stimulant mediated cellular repair by improving antioxidant dynamics and osmoregulation against metal stress in Canola. *Turkish Journal of Agriculture and Forestry*, 48(4), pp.580-594. Doi: 10.55730/1300-011X.3203. **IF 3**
6. Masood, A., Arooj, S., Shahbaz, M., **Khalid, N.**, Sajjad, M., Maqsood, M.F., Chaudhari, S.K., Abid, A., Zainab, R. and Fatima, N., 2024. Exploring the morpho-physiological responses of maize to nickel stress modulated by salicylic acid. *Cereal Research Communications*, pp.1-12. <https://doi.org/10.1007/s42976-024-00567-7> **IF 1.6**
7. Ejaz, U., Khan, S.M., **Khalid, N.**, Jehangir, S., Shah, S.F.A. and Svenning, J.C., 2024. Elucidating the phytoremediation potentials and ecophysiological mechanisms of indicator plants in the industrial polluted region. *Journal of Environmental Management*, 366, p.121821. <https://doi.org/10.1016/j.jenvman.2024.121821> **IF 8.0**
8. Alghanem, S.M.S., Alsudays, I.M., Farid, M., Sarfraz, W., Ishaq, H.K., Farid, S., Zubair, M., **Khalid, N.**, Aslam, M.A., Abbas, M. and Abeed, A.H., 2024. Evaluation of heavy metal accumulation and tolerance in oxalic acid-treated *Phragmites australis* wetlands for textile effluent remediation. *International Journal of Phytoremediation*, pp.1-16. <https://doi.org/10.1080/15226514.2024.2372849> **IF 3.4**
9. Ejaz, U., Khan, S.M., Abdullah, S.J., Chandio, N.H., Qurat-Ul-Ain, R.A., Rizvi, Z.F., **Khalid, N.** Dynamic interchange between floristic composition and industrial pollution: an ecological perspective. *Pak. J. Bot*, 56(6). DOI: [http://dx.doi.org/10.30848/PJB2024-6\(29\)](http://dx.doi.org/10.30848/PJB2024-6(29)) **IF 0.9**
10. Al-Huqail, A.A., Alghanem, S.M.S., Alhaithloul, H.A.S., Naeem, N., Sarfraz, W., **Khalid, N.**, Ali, B., 2024. Elucidating melatonin-mediated distinct mechanistic of specific gene expression of coriander (*Coriandrum sativum* L.) under chromium stress. *Turkish Journal of Agriculture and Forestry*, 48(3), pp.402-416. Doi: 10.55730/1300-011X.3190 **IF 3.0**
11. Ejaz, U., Khan, S.M., Jehangir, S., **Khalid, N.**, Abdullah, A., Iqbal, M., Ahmed, Z., Nazir, A. and Svenning, J.C., 2024. Integrated analytics and machine learning for water quality index assessment-Monitoring of industrial waste polluted stream. *Journal of Cleaner Production*, p.141877. <https://doi.org/10.1016/j.jclepro.2024.141877> **IF 11.1**
12. Rizvi, Z.F., Jamal, M., Parveen, H., Sarfraz, W., Nasreen, S., **Khalid, N.**, Muzammil, K. 2024. Phytoremediation potential of *Pistia stratiotes*, *Eichhornia crassipes*, and *Typha latifolia* for chromium with stimulation of secondary metabolites. *Heliyon*, 10: E29078. <https://doi.org/10.1016/j.heliyon.2024.e29078> **IF 4**
13. Irshad, M.K., Kang, M.W., Aqeel, M., Javed, W., Noman, A., **Khalid, N.**, Lee, S.S., 2024. Unveiling the detrimental effects of polylactic acid microplastics on rice seedlings and soil health. *Chemosphere*, p.141771. <https://doi.org/10.1016/j.chemosphere.2024.141771> **IF 8.8**
14. Asmara Iftikhar, Z.Q., Sarfraz, W., Ejaz, U., Aqeel, M., Rizvi, Z.F., **Khalid, N.**, 2024. Understanding the leaching of plastic additives and subsequent risks to ecosystems. *Water Emerging Contaminants & Nanoplastics*, 3:5 DOI: 10.20517/wecn.2023.58

15. Aqeel, M., **Khalid, N.**, Noman, A., Ran, J., Manan, A., Hou, Q., Dong, L., Ying, S., Deng, Y., Lee, S.S. and Hu, W., 2023. Interplay between edaphic and climatic factors unravels plant and microbial diversity along an altitudinal gradient. *Environmental Research*. 242:117711. <https://doi.org/10.1016/j.envres.2023.117711> **IF 8.3**
16. Alomran, M.M., Noman, A., **Khalid, N.**, Hadayat, N., Alqahtani, F.M., Alzuaibr, F.M., Akhter, N., Hashem, M., Habeeb, T., Al-Zoubi, O.M. and Aqeel, M., 2023. Harnessing Melatonin Protective Efficacy in Capsicum Plants Against Nickel-Contaminated Soil. *Journal of Soil Science and Plant Nutrition*, 24: 408-420. <https://doi.org/10.1007/s42729-023-01551-6> **IF 3.9**
17. Alwutayd, K.M., Alghanem, S.M.S., Alwutayd, R., Alghamdi, S.A., Alabdallah, N.M., Al-Qthanin, R.N., Sarfraz, W., **Khalid, N.**, Naeem, N., Ali, B. and Saleem, M.H., 2023. Mitigating chromium toxicity in rice (*Oryza sativa* L.) via ABA and 6-BAP: Unveiling synergistic benefits on morphophysiological traits and ASA-GSH cycle. *Science of The Total Environment*. 908:168208. <https://doi.org/10.1016/j.scitotenv.2023.168208>. **IF 9.8**
18. Qaiser, Z., Aqeel, M., Sarfraz, W., Rizvi, Z.F., Noman, A., Naeem, S. and **Khalid, N.**, 2023. Microplastics in wastewaters and their potential effects on aquatic and terrestrial biota. *Case Studies in Chemical and Environmental Engineering*. 8:100536. <https://doi.org/10.1016/j.cscee.2023.100536> **IF 9.2**
19. KhokharVoytas, A., Shahbaz, M., Maqsood, M.F., Zulfiqar, U., Naz, N., Iqbal, U.Z., Sara, M., Aqeel, M., **Khalid, N.**, Noman, A. and Zulfiqar, F., 2023. Genetic modification strategies for enhancing plant resilience to abiotic stresses in the context of climate change. *Functional & Integrative Genomics*, 23(3): 283. <https://doi.org/10.1007/s10142-023-01202-0> **IF 2.9**
20. Alomran, M.M., Noman, A., Aqeel, M., **Khalid, N.**, Maqsood, M.F., Akhter, N., Arshad, M., Alqahtani, F.M., Alzuaibr, F.M., Hashem, M. and Habeeb, T., 2023. Relative biochemical and physiological docking of cucumber varieties for supporting innate immunity against *Podosphaera xanthii*. *Microbial Pathogenesis*. 184: 106359. <https://doi.org/10.1016/j.micpath.2023.106359> **IF 3.8**
21. Alharbi, K., Aqeel, M., **Khalid, N.**, Nazir, A., Irshad, M.K., Alzuaibr, F.M., Alhathloul, H.A.S., Akhter, N., Al-Zoubi, O.M., Qasim, M., Syaad, K.M., AlShaqhaa, M.A., Noman, A. 2023. Microplastics in soil differentially interfere with nutritional aspects of chilli pepper. *South African Journal of Botany*, 160: 402-413. <https://doi.org/10.1016/j.sajb.2023.07.027>. **IF 3.1**
22. Ejaz, U., Khan, S.M., **Khalid, N.**, Ahmad, Z., Jehangir, S., Rizvi, Z.F., Lho, L.H., Han, H., Raposo, A. 2023. Detoxifying the Heavy Metals: A Multipronged Study of Tolerance Strategies against Heavy Metals Toxicity in Plants. *Frontiers in Plant Science*. <https://doi.org/10.3389/fpls.2023.1154571>. **IF 6.627**
23. Zaka, S., Aqeel, M., Mahmood, A., Noman, A., Rizvi, Z.F., Sarfraz, W., Nazir, A., Arshad, K., **Khalid, N.** 2023. Integrative evaluation of the ecological hazards by microplastics and heavy metals in wetland ecosystem. *Bulletin of Environmental Contamination & Toxicology*. 110:81. <https://doi.org/10.1007/s00128-023-03716-6> **IF 2.807**
24. Akhter, N., Noreen, A., Saifullah, S., Noman, A., Shahnaz, M.M., Letuma, P.M., Kausar, A., Siddique, M., Hashem, M., Alamri, S., Al-zoubi, O.M., Saleem, M., **Khalid, N.**, Aqeel, M. 2023. Salt ions mediated changes in biochemical and anatomical characteristics of Brassica napus can be countered with Moringa Leaf extract. *South African Journal of Botany*. 156:352-364. <https://doi.org/10.1016/j.sajb.2023.03.040> **IF 3.111**
25. Chen, F., Aqeel, M., **Khalid, N.**, Nazir, A., Irshad, M.K., Akbar, M.U., Alzuaibr, F.M., Ma, J., Noman, A. 2023. Interactive effects of polystyrene microplastics and Pb on growth and phytochemicals in mung bean (*Vigna radiata* L.). *Journal of Hazardous Materials*. 449: 130966. <https://doi.org/10.1016/j.jhazmat.2023.130966> **IF 14.224**
26. Chen, F., Aqeel, M., **Khalid, N.**, Irshad, M.K., Farhat, F., Nazir, A., Jing, M., Akhtar, M.S., Eldesoky, G.E., Aljuwayid, A.M., Noman, A. 2023. Glutathione treatment suppresses the adverse effects of microplastics in rice. *Chemosphere*. 322: 138079. <https://doi.org/10.1016/j.chemosphere.2023.138079> **IF 8.943**
27. Tufail, A., Ahmad, F., Hameed, M., Ahsan, M., Siddiqua, U.H., **Khalid, N.**, Rashid, M., Momtaz, M., Shah, A.A., AbdElgawad, H. 2023. Structural modifications in Bermuda grass [*Cynodon dactylon* (L.) Pers.] ecotypes for adaptation to environmental heterogeneity. *Frontiers in Plant Science*, 13, p.5426. <https://doi.org/10.3389/fpls.2022.1084706> **IF 6.627**
28. Nazir, A., Sarfraz, W., Allah, D., **Khalid, N.**, Farid, M., Shafiq, M., Bareen, F., Rizvi, Z.F., Naeem, N. 2023. Synergistic impact of two autochthonous saprobic fungi (*A. niger* and *T. pseudokoningii*) on the growth, ionic

- contents, and metals uptake in *Brassica juncea* L. and *Vigna radiata* L. under tannery solid waste contaminated soil. *International Journal of Phytoremediation*, 25: 1488-1500. <https://pubmed.ncbi.nlm.nih.gov/36633455/> **IF 4.003**
29. Arshad, K., Aqeel, M., Noman, A., Nazir, A., Mahmood, A., Rizvi, Z.F., Sarfraz, W., Hyder, S., Zaka, S., **Khalid, N.** 2023. Ecological health risk assessment of microplastics and heavy metals in sediments, water, hydrophytes (*Alternanthera philoxeroides*, *Typha latifolia*, and *Ipomoea carnea*), and fish (*Labeo rohita*) in Marala wetlands in Sialkot, Pakistan. *Environmental Science and Pollution Research*. 30:41272-41285. <https://doi.org/10.1007/s11356-023-25142-1> **IF 5.8**
 30. **Khalid, N.**, Noman, A., Nazir, A., Tufail, A., Hadayat, N., Alzuaibr, F.M., Ikram, S., Akhter, N., Hussain, M. and Aqeel, M., 2023. *Nerium oleander* could be used for sustainable management of traffic-borne elemental-enriched roadside soils. *Environmental Science and Pollution Research*, 30:40551-40562. <https://doi.org/10.1007/s11356-023-25160-z> **IF 5.8**
 31. Hyder, S., Rizvi, Z.F., los Santos-Villalobos, S.D., Santoyo, G., Gondal, A., **Khalid, N.**, Fatima, S.N., Nadeem, M., Rafique, K. and Rani, A., 2023. Applications of plant growth-promoting rhizobacteria for increasing crop production and resilience. *Journal of Plant Nutrition*, 46: 2551-2580. <https://doi.org/10.1080/01904167.2022.2160742> **IF 2.277**
 32. Sarfraz, W., Farid, M., **Khalid, N.**, Rizvi, Z.F., Asam, Z.Z., Nazir, A., Naeem, N., Farid, S., Ali, S. 2022. Ameliorative role of foliar Zn-lysine application on wheat (*Triticum aestivum* L.) stressed by Tannery Wastewater. *Physiology and Molecular Biology of Plants*. <https://doi.org/10.1007/s12298-022-01265-6> **IF 3.023**
 33. Aqeel, M., **Khalid, N.**, Nazir, A., Irshad, M.K., Hakami, O., Basahi, M.A., Alamri, S., Hashem, M. and Noman, A., 2022. Foliar application of silver nanoparticles mitigated nutritional and biochemical perturbations in chilli pepper fertigated with domestic wastewater. *Plant Physiology and Biochemistry*. <https://doi.org/10.1016/j.plaphy.2022.12.005> **IF 5.437**
 34. Akhter, N., Aqeel, M., Maqsood, M.F., Nawaz, S., Shahnaz, M.M., **Khalid, N.**, Basahi, M.A., Al-Zoubi, O.M., Habeeb, T., Marc, R.A. and Irshad, M.K., 2022. Comparative assessment of remediation potential of *Xanthium strumarium* ecotypes in NaCl-affected root zone. *Water, Air, & Soil Pollution*, 233(12), pp.1-18. <https://doi.org/10.1007/s11270-022-05990-2>. **IF 2.984**
 35. **Khalid, N.**, Aqeel, M., Noman, A., Rizvi, ZF., 2022. Impact of plastic mulching as a major source of microplastics in agroecosystems. *Journal of Hazardous Materials*.44:130455. <https://doi.org/10.1016/j.jhazmat.2022.130455> **IF 14.224**
 36. Ejaz, U., Khan, S.M., Aqeel, M., **Khalid, N.**, Sarfraz, W., Naeem, N., Han, H., Yu, J., Yue, G., and Raposo, A. 2022. Use of *Parthenium hysterophorus* with synthetic chelator for enhanced uptake of cadmium and lead from contaminated soils—a step toward better public health. *Frontiers in Public Health*. <https://doi.org/10.3389/fpubh.2022.1009479> **IF 6.461**
 37. Ma, J., Aqeel, M., **Khalid, N.**, Nazir, A., Alzuaibr, F.M., Al-Mushhin, A.A., Hakami, O., Iqbal, M.F., Chen, F., Alamri, S. and Hashem, M., 2022. Effects of microplastics on growth and metabolism of rice (*Oryza sativa* L.). *Chemosphere*, 307(1): 135749. <https://doi.org/10.1016/j.chemosphere.2022.135749> **IF 8.943**
 38. Chen, F., Aqeel, M., Maqsood, M.F., **Khalid, N.**, Irshad, M.K., Ibrahim, M., Akhter, N., Afzaal, M., Ma, J., Hashem, M., Alamri, S., Noman, A., Lam, S.S. 2022. Mitigation of lead toxicity in *Vigna radiata* genotypes by silver nanoparticles. *Environmental Pollution*, (308): 119606. <https://doi.org/10.1016/j.envpol.2022.119606> **IF 9.988**
 39. Naheed, R., Zahid, M., Aqeel, M., Maqsood, M.F., Kanwal, H., **Khalid, N.**, Hashem, M., Alamri, S., Noman, A. 2022. Mediation of Growth and Metabolism of *Pisum sativum* in Salt Stress Potentially Be Credited to Thiamine. *Journal of Soil Science and Plant Nutrition*. 22, 2897–2910. <https://doi.org/10.1007/s42729-022-00854-4> **IF 3.610**
 40. Akhter, N., Habiba, O., Hina, M., Shahnaz, M.M., Alzuaibr, F.M., Alamri, S., Hashem, M., **Khalid, N.**, Aqeel, M., Noman, A. (2022) Structural, biochemical, and physiological adjustments for toxicity management, accumulation, and remediation of cadmium in wetland ecosystems by *Typha domingensis* Pers. *Water Air & Soil Pollution*. 233:151. <https://doi.org/10.1007/s11270-022-05613-w> **IF 2.52**

41. Ali, S., Khan, S. M., Ahmad, Z., Ejaz, U., **Khalid, N.** 2022. Indicator species analysis and assessment of ornamental plants using multivariate statistical techniques in the Home Gardens of Rustam Valley, Pakistan. *International Journal of Applied and Experimental Biology* 1(2): 87-95. <https://doi.org/10.56612/ijaeb.v1i2.16>
42. Khilji, S.A., Aqeel, A., Maqsood, M.F., **Khalid, N.**, Tufail, A., Sajid, Z.A., Al-Surhanee, A.A., Hashem, M., Alamri, S., Al-Mutairi, K.A., Noman, A. 2021. *Hemarthria compressa*—*Aspergillus niger*—*Trichoderma pseudokoningii* mediated trilateral perspective for bioremediation and detoxification of industrial paper sludge. *Sustainability*. 13(21): 12266. [10.3390/su132112266](https://doi.org/10.3390/su132112266) **IF 3.251**
43. Sarfraz, W., Farid, M., Ejaz, U., Naeem, N., Yousaf, A., Kabir, Z., Rizvi, Z.F., Hadayat, N., **Khalid, N.** 2021. EDTA could enhance the bioaccumulation of Pb and Cd in *Ricinus communis* for potential decontamination of roadside soils. *Fresenius Environmental Bulletin*. 31(01):81-91. **IF 0.691**
44. **Khalid, N.**, Aqeel, M., Noman, A., Khan, S.M. and Akhter, N., 2021. Interactions and effects of microplastics with heavy metals in aquatic and terrestrial environments. *Environmental Pollution*, 290: 118104 <https://doi.org/10.1016/j.envpol.2021.118104>. **IF 8.071 highly cited paper**
45. Noman, A., Aqeel, M., Akhter, N., Zafar, S., **Khalid, N.** 2021. Covid-19 treatment with herbal medicines: Dark room can be enlightened in other way too. *J. Plant Environ.* 02 (01): 01-03. DOI: 10.33687/jpe.002.01.3581
46. Akhtar, N., Aqeel, M., Hameed, M., Alhaithloul, H.A.S., Alghanem, S.M., Shahnaz, M.M., Hashem, M., Alamri, S., **Khalid, N.**, Alzoubi, O.M., Iqbal, M.F., Masood, T., Noman, A. 2021. Foliar architecture and physio-biochemical plasticity determines survival of *Typha domingensis* Pers. ecotypes in nickel and salt affected soil. *Environmental Pollution*. 286: 117316. Doi: 10.1016/j.envpol.2021.117316. **IF 8.071**
47. Naeem, N., **Khalid, N.**, Sarfraz, W., Ejaz, U., Yousaf, Y., Rizvi, Z.F., Ikram, S. 2021. Assessment of lead and cadmium pollution in soil and wild plants at different functional areas of Sialkot. *Bulletin of Environmental Contamination and Toxicology*. 107(2), 336-342. DOI: [10.1007/s00128-021-03251-2](https://doi.org/10.1007/s00128-021-03251-2) **IF 2.807**
48. Yousaf, A., **Khalid, N.**, Aqeel, M., Noman, A., Naeem, N., Sarfraz, W., Ejaz, U., Qaiser, Z., Khalid, A. 2021. Nitrogen Dynamics in Wetland Systems and Its Impact on Biodiversity. *Nitrogen*. 2: 196–217. <https://doi.org/10.3390/nitrogen2020013> **IF 1.6**
49. **Khalid, N.**, Rizvi, Z.F., Yousaf, N. Khan, S.M., Noman, A., Aqeel, M., Latif, K., Rafique, A. 2021. Rising Metals Concentration in the Environment: A Response to Effluents of Leather Industries in Sialkot. *Bulletin of Environmental Contamination and Toxicology*. 106(3), 493-500. <http://link.springer.com/article/10.1007/s00128-021-03111-z> **IF 2.807**
50. Aqeel, M., **Khalid, N.**, Tufail, A., Ahmad, R.Z., Akhter, M.S., Luqman, M., Javed, M.T., Irshad, M.K., Alamri, S., Hashem, M., Noman, A. 2021. Elucidating the distinct interactive impact of cadmium and nickel on growth, photosynthesis, metal-homeostasis, and yield responses of mung bean (*Vigna radiata* L.) varieties. *Environmental Science and Pollution Research*. <https://doi.org/10.1007/s11356-021-12579-5>. **IF 4.223**
51. Noman, A., Aqeel, M., Islam, W., **Khalid, N.**, Akhtar, N., Qasim, M., Yasin, G., Hashem, M., Alamri, S., Al-Zoubi, O.M. and Jalees, M.M., 2021. Insects–plants–pathogens: toxicity, dependence and defense dynamics. *Toxicon*. 197: 87-98. <https://www.sciencedirect.com/science/article/abs/pii/S0041010121001082>. **IF 3.033**
52. **Khalid, N.**, Aqeel, M., Noman, A., Hashem, M., Mostafa, Y.S., Alhaithloul, H.A.S. Alghanem, S.M., 2020. Linking effects of microplastics to ecological impacts in marine environments. *Chemosphere*, 126(2): 128541. <https://doi.org/10.1016/j.chemosphere.2020.128541>. **IF 7.086 highly cited paper**
53. **Khalid, N.**, Aqeel, M. and Noman, A., 2020. Microplastics could be a threat to plants in terrestrial systems directly or indirectly. *Environmental Pollution*, 267:115653. <https://doi.org/10.1016/j.envpol.2020.115653>. **IF 8.071 highly cited paper**
54. Noman, A., Aqeel, M., **Khalid, N.**, Hashem, M., Alamri, S., Zafar, S., Qasim, M., Irshad, M.K. and Qari, S.H., 2020. Spike glycoproteins: Their significance for corona viruses and receptor binding activities for pathogenesis and viral survival. *Microbial pathogenesis*, 150:104719. **IF 3.738**
55. Tufail, A., Aqeel, M., **Khalid, N.**, Ahsan, M., Khilji, S.A., Ahmad, F., Hameed, M., Noman, A., Alamri, S., Hashem, M. 2020. Salt toxicity in a natural habitat induces structural and functional modifications and modulate metabolism in bermuda grass (*Cynodon dactylon* [L.] Pers.) ecotypes. *Applied Ecology And Environmental Research* 18(5):6569-6588. http://dx.doi.org/10.15666/aeer/1805_65696588 **IF 0.740**

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57. Noman, A., Qari, S.H., Aqeel, M., **Khalid, N.**, Alamri, S., Bouqellah, N.A., Hashem, M., Soliman, M.H., Ali, H., Haider, I. 2020. Regulation of *Capsicum* immunity against microbial pathogens: Transcription factors in focus. *Physiological and Molecular Plant Pathology*. 112: 101548. **IF 2.747**
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60. **Khalid, N.**, Masood, A., Noman, A., Aqeel, M., Qasim, M. (2019) Study of the responses of two biomonitor plant species (*Datura alba* & *Ricinus communis*) to roadside air pollution. *Chemosphere*. 235: 832-841. <https://doi.org/10.1016/j.chemosphere.2019.06.143>. **IF 5.350**
61. Noman, A., Aqeel, M., **Khalid, N.**, Islam, W., Sanaullah, T., Anwar, M., Khan, S., Ye W., Lou, Y. (2019) Zinc finger protein transcription factors: Integrated line of action for plant antimicrobial activity. *Microbial Pathogenesis*. 132: 141-149. **IF 2.914**
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63. **Khalid, N.**, Noman, A., Aqeel, M., Masood, A., Tufail, A. (2019). Phytoremediation potential of *Xanthium strumarium* for heavy metals contaminated soils at roadsides. *International Journal of Environmental Science and Technology*. 16(4): 2091-2100. DOI :10.1007/s13762-018-1825-5. **IF 2.540**
64. Aqeel M, Noman A, Sanaullah T, Kabir Z, Buriro M, **Khalid N**, Islam W, Qasim M, Khan MU, Fida A, Fida S, Akram MA, Rasool SU. 2019. Characterization of genetically modified plants producing bioactive compounds for human health: a systemic review. *International Journal Of Agriculture & Biology*. DOI: 10.17957/IJAB/15.1201. **IF 0.802**
65. **Khalid, N.**, Hussain M., Young H.S., Boyce B., Aqeel, M., Noman, A. (2018). Effects of road proximity on heavy metal concentrations in soils and some common wild plants in Southern California. *Environmental Science and Pollution Research*. 25(35): 35257-35265. <https://link.springer.com/article/10.1007/s11356-018-3218-1> **IF 2.914**
66. **Khalid, N.**, Noman, A., Sanaullah, T., Akram, M.A., Aqeel, A. (2018). Vehicle pollution toxicity induced changes in physiology, defence system and biochemical characteristics of *Calotropis procera* L. *Chemistry and Ecology* 34(6): 565-581. **IF 1.214**
67. **Khalid, N.**, Hussain, M., Ashraf, M., Masood, A. & Akhtar, Y. (2018). Spatio-Temporal variation in cadmium released by automobiles along two roads in Pakistan. *Pakistan Journal of Botany*. 50(2): 529-536. **IF 0.75**
68. **Khalid, N.**, Hussain, M., Young, H. S., Ashraf, M., Hameed, M. & Ahmad, R. (2018). Lead concentrations in soils and some wild plant species along two busy roads in Pakistan. *Bulletin of Environmental Contamination and Toxicology*. 100(2): 250-258. **IF 1.65**
69. Arooj S, Arfan M, Masood A, Abid A, Fatima T, **Khalid N**, Tazeen SK, Akbar KF, Naseer I, Fayyaz A, Luqman M, Maqsood MF. 2018. Assessment of salicylic acid in morpho-physiological attributes of maize (*Zea mays*) subjected to nickel stress. *Fresenius Environmental Bulletin*. 27: 6519-6524. **IF 0.691**
70. Noman, A., Ali, Q., Naseem, J., Javed, M.T., Kanwal, H., Islam, W., Aqeel, M., **Khalid, N.**, Zafar, S., Tayyeb, M., Iqbal, N., Buriro, M., Maqsood, J., Shahid, S. (2018). Sugar beet extract acts as a natural bio-stimulant for physio-biochemical attributes in water stressed wheat (*Triticum aestivum* L.). *Acta Physiologiae Plantarum*. 40:110. <https://doi.org/10.1007/s11738-018-2681-0>. **IF 1.608**
71. **Khalid, N.**, Noman, A., Aqeel, M., Hadayat, N., Anjum, S. (2017). NPK could alleviate the adverse effects of simulated acid rain in sunflower (*Helianthus annuus* L.). *Journal of Plant Nutrition* 41(5): 584-595. **IF 0.753**

72. Noman, A., Kanwal, H., **Khalid, N.**, Sanaullah, T., Tufail, A., Masood, A., Sabir, S., Aqeel, M. & He, S. (2017). Perspective Research Progress in Cold Responses of *Capsella bursa-pastoris*. *Frontiers in Plant Science*, 8:1388. doi: 10.3389/fpls.2017.01388. **IF 4.298**
73. **Khalid, N.**, Hussain, M., Hameed, M., & Ahmad, R. (2017). Physiological, biochemical and defense system responses of *Parthenium hysterophorus* to vehicular exhaust pollution. *Pakistan Journal of Botany*, 49(1), 67-75. **IF 0.75**
74. Noman, A., Aqeel, M., Deng, J., **Khalid, N.**, Sanaullah, T., & Shuilin, H. (2017). Biotechnological advancements for improving floral attributes in ornamental plants. *Frontiers in Plant Science*, 8:530. doi: 10.3389/fpls.2017.00530. **IF 4.298**
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76. **Khalid, N.**, Hussain, M., & Aqeel, M. (2013). Amelioration of adverse effects of simulated acid rain (SAR) on growth and yield attributes of sunflower (*Helianthus annuus* L.) by growth tonics. *Pakistan Journal of Botany*, 45(6), 1989-1993. **IF 1.326**

BOOK CHAPTERS

1. Azhar, H., **Khalid, N.**, Qaiser, Z., Aqeel, M., Sarfraz, W., Ejaz, U., Rizvi, Z.F., Khan, S.M. and Noman, A., 2025. Microplastics: toxicity and tolerance in plants. In *Microplastics* (pp. 129-159). Elsevier. <https://doi.org/10.1016/B978-0-443-29804-2.00005-6>
2. Qaiser, Z., Aqeel, M., Noman, A., Sarfraz, W., Rizvi, Z.F. and **Khalid, N.** 2024. Uranium contamination and its bioremediation strategies in soil-plant system. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 423-446). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00025-2>
3. Naeem, N., Sarfraz, W., **Khalid, N.**, Rizvi, Z.F., Nazir, A., Ejaz, U., Amjad, N., Safdar, L., Amanat, R., Akhtar, S. and Ditta, A., 2024. Factors affecting the remediation of wastewater worldwide through eco-technologies. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 21-31). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00022-7>
4. Ishaq, M., Khalid, J., Qaiser, Z., Sarfraz, W., Ejaz, U., Naeem, N., Masood, A., Tufail, A., Arshad, K., Zaka, S. and **Khalid, N.**, 2024. Nickel contamination, toxicity, tolerance, and remediation approaches in terrestrial biota. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 479-497). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00007-0>
5. Sarfraz, W., Farid, M., **Khalid, N.**, Sheeren, H., Zarnab, R., Nazir, A., Naeem, N., Jabeen, F., Goraya, A., Naseer, A. and Ditta, A., 2024. Bioremediation of metal (loid) contaminated soils using organic amendments. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 641-658). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00023-9>
6. Sarfraz, W., Naeem, N., Farid, M., **Khalid, N.**, Gillani, S.A., Zainab, S.Z., Basharat, M., Safa, S., Ejaz, U. and Ditta, A., 2024. Factors affecting the remediation of soil through ecotechnologies. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 629-639). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00036-7>
7. Sarfraz, W., **Khalid, N.**, Farid, M., Naeem, N., Latif, A., Rizvi, Z.F., Jahangir, A., Shehbaz, A., Amanat, M., Shabbir, F. and Ditta, A., 2024. Toxicity and bioremediation of heavy metals contaminated tannery wastewater. In *Bio-organic Amendments for Heavy Metal Remediation* (pp. 257-269). Elsevier. <https://doi.org/10.1016/B978-0-443-21610-7.00013-6>
8. Sarfraz, W., Farid, M., **Khalid, N.**, Ditta, A., Ejaz, U., Rizvi, Z.F., Raza, N., Ali, S. 2023. Ecophysiological Responses of Tropical Plants to Varying Resources Availability. In: *Ecophysiology of Tropical Plants*. CRC Press, Taylor & Francis. DOI: [10.1201/9781003335054-11](https://doi.org/10.1201/9781003335054-11)
9. Abdullah, Shujaul Mulk Khan, Zahoor Ul Haq, **Noreen Khalid**, Ujala Ejaz. 2022. Utilization of three indigenous plant species as alternative to plastic can reduce pollution and bring sustainability in environment. *Natural*

Resources Conservation and Advances for Sustainability. Pages 533-544 <https://doi.org/10.1016/B978-0-12-822976-7.00001-6>. Elsevier

10. Islam, W., Sanaullah, T., **Khalid, N.**, Aqeel, M., Noreen, S., Irshad, M.K., Noman, A. 2021. In: Fahad, S., Sonmez, O., Saud, S., Wang, D., Wu, C., Adnan, M., Turan, V. (eds.) "Plants, Environmental Constraints, and Climate Change." *Climate Change and Plants: Biodiversity, Growth and Interactions*. p171. CRC Press, Taylor & Francis. <https://www.routledge.com/Climate-Change-and-Plants-Biodiversity-Growth-and-Interactions/Fahad-Sonmez-Saud-Wang-Wu-Adnan-Turan/p/book/9780367623272>
11. Nazakat, S., Khan, S.M., Abdullah, Noor, R., Zaman, I., Arif, M., **Khalid, N.**, Ahmad, Z. 2021. Floral Composition, Sustainable Utilization, and Conservation of Important Medicinal Plants in the Ayubia National Park, Abbottabad, Khyber Pakhtunkhwa, Pakistan. In: A.M. Abbasi, R.W. Bussmann (eds.), *Ethnobiology of Mountain Communities in Asia, Ethnobiology*. Springer Nature, Switzerland. <https://www.springer.com/gp/book/9783030554934#aboutBook>
12. **Khalid, N.**, Aqeel, M., Noman, A. 2019. System biology of metal tolerance in plants: An integrated view of genomics, transcriptomics, metabolomics and phenomics. In: G. Sablok (ed.) *Plant metabolomics and functional omics*. Springer Nature, Switzerland. https://doi.org/10.1007/978-3-030-19103-0_6
13. Noman, A., Sanaullah T., **Khalid N.**, Islam W., Khan S., Irshad M.K., Aqeel, M. 2019. Crosstalk Between Plant miRNA and Heavy Metal Toxicity. In: G. Sablok (ed.) *Plant metabolomics and functional omics*. Springer Nature, Switzerland. https://doi.org/10.1007/978-3-030-19103-0_7

SELECTED PRESENTATIONS

1. "Duckweed (*Lemna minor* L.) as a Sentinel Organism for Heavy Metals and Microplastics Monitoring in Urban Wetlands" (November 11 – 16, 2024) in Society of Wetland Scientists' annual meeting 2024 in Taipei, Taiwan. **Oral Presentation**
2. "Are microplastics a threat to our food security?" The Global Advances in Health and Life Sciences Conference (Lifehealth Global 2024) conference (August 20 – 21, 2024) organized by INTI International University, Malaysia. **Keynote Speaker**
3. "Garden of Debris: Microplastics could be a threat to Plant Life" organized by Envirochats at University of Exeter, UK (Jan 26, 2024) **Invited Guest Lecture**
4. "Effects of microfibers from wastewaters on rice (*Oryza sativa* L.) growth and metabolism" International Conference and expo on medicinal plants and natural products (Dec 14-16, 2023) organized by PMAS-Arid Agriculture University Rawalpindi, Pakistan. **Oral Presentation**
5. "Microplastics in our soils and waters" organized by INTI International University, Malaysia (September 20, 2023) **Invited Guest Lecture**
6. "Climate change may worsen the management of weeds in agroecosystems" 2nd International Conference on Recent Approaches in Plant Sciences (May 4-5, 2023) organized by University of Education, Lahore, Pakistan. **Oral Presentation**
7. "Role of Salicylic acid and 24-Epibrassinolide in modulating morpho-physiological, biochemical, and yield attributes of tomato (*Lycopersicon esculentum*) under salt stress" 5th International Conference on Emerging Trends in Bioinformatics and Biosciences (Sept 14-16, 2023) organized by Hazara University, Mansehra, Pakistan. **Oral Presentation**
8. Evaluation of phytoremediation potential of four wetland plant species for the removal of heavy metals from textile mill effluents" 8th International and 17th National Conference on Advances in Plant Science in the Era of Climate Change (Oct 26-28, 2022) organized by the Botanical Society of Pakistan. **Oral Presentation**
9. "Influence of foraging and edaphic factors on the distribution of Bermudagrass (*Cynodon dactylon* Pers.) in an arid area of Pakistan". ESACSEE joint annual meeting (August 14-19, 2022) organized by Ecological Society of America and Canadian Society for Ecology & Evolution, Montreal, Canada. **Online Oral Presentation**
10. "Ecological risk assessment and physicochemical characterization of various ecosystem components of Marala and Bajwat wetlands in Sialkot, Pakistan" Joint Aquatic Sciences Meeting (May 14-20, 2022) organized by the Society of Wetland Scientists and American Fisheries Society at Grand Rapids, USA. **Online Oral Presentation**

11. “Sustainable Management of Traffic Borne Elemental Enriched Roadside Soils by Using *Nerium oleander* L.” International Conference on Sustainable Development Goals: Localizing the SDGs through academia (March 29-31, 2022) organized by Lahore College for Women University, Lahore, Pakistan. **Oral Presentation**
12. “Remediation of chromium and arsenic contaminated soils by using *Ricinus communis*” 1st International Conference on Recent Approaches in Plant Sciences (March 30-31, 2022) organized by University of Education Lahore, Pakistan. **Online Oral Presentation**
13. “Use of *Parthenium hysterophorus* in remediation of chromium and arsenic contaminated soils” 3rd International Conference on Environment and Sustainable Development (Sept 13-15, 2021) organized by Government College University Lahore, Pakistan. **Online Oral Presentation**
14. “How roadside belts can be managed for a sustainable environment?” IENE International Conference: LIFE LINES – Linear Infrastructure Networks with Ecological Solutions (January 12-14, 2021) organized by University of Évora, Portugal. **Online Oral Presentation**
15. “Effect of climate change on plant-soil interactions”. International Conference on “Post Pandemic Ecological Sustainability: Challenges and Role of IT” (Oct 6-7, 2020) organized by Virtual University of Pakistan. **Online Oral Presentation**
16. “Impact of vehicle exhaust pollution on the environment in Pakistan”. 2nd International Conference of Plant Sciences (Dec 5-7, 2018) at Government College University Lahore, Pakistan. **Oral Presentation**
17. “Study of the responses of two biomonitors plant species to road side air pollution.” 15th International Phytotechnology Conference (Oct 1-5, 2018) at University of Novi Sad, Novi Sad, Serbia. **Oral Presentation**
18. “Assessment of native plant species (*Xanthium strumarium*) for phytoremediation of heavy metals in the vicinity of a major road in Pakistan.” 1st International Conference on “Conventional and Modern Approaches in Plant Sciences” (Nov 28-29, 2017) at University of the Punjab, Lahore, Pakistan. **Oral Presentation**
19. “Tracing the highway contributions to carbon and nitrogen deposition using plant biomonitors and soil” International conference on Ecology and Transportation. May 14-18, 2017. Salt Palace Convention Centre, Salt Lake City, Utah, USA. Organized by North Carolina State University, USA. **Oral Presentation**
20. “Effect of simulated acid rain (SAR) and growth promoters on physiological and biochemical attributes of Sunflower (*Helianthus annuus* L.)” International conference on “Environmental constraints to plants: Assessment and Reclamations”. 2016. Government College University, Faisalabad, Pakistan. **Oral presentation**
21. “Spatio-Temporal variation in Cadmium released by automobiles along two roads in Pakistan”. International conference on Climate Change and Phytodiversity “Challenges and Opportunities”. 2016. University of Karachi, Karachi, Pakistan. **Oral presentation**
22. “Nitrogen and carbon pollution from vehicular emissions: measurements along a major highway in Punjab, Pakistan.” International conference on Forestry and Environment: Challenges and Prospects. 2016. University of Agriculture Faisalabad, Pakistan. **Oral presentation**

CONFERENCE PROCEEDINGS

1. Azhar, H., **Khalid, N.**, Zafar, B., Qaiser, Z. (2024). Microplastics interaction with co-stressors and their subsequent influence on health and quality of edible food crops. International Conference on Food and Applied Sciences (ICFAS-2024).
2. Qaiser, Z., **Khalid, N.**, Naz, I., Azhar, H. (2024). Microbial interactions with microplastics and their implication for environmental health and food security. International Conference on Food and Applied Sciences (ICFAS-2024)
3. Azhar, H., **Khalid, N.**, Qaiser, Z., Azhar, S., Khalid, J., Ishaq, M., Iftikhar, A. (2024). Role of micro-bioremediation for mitigating climate change impacts caused by micro-plastics and nano-plastics in natural environment. 1st international conference on Climate Change: aspects, impacts, and solutions (ICCC-2024)
4. Ishaq, M., **Khalid, N.**, Iftikhar, A., Azhar, H., Khalid, J., Qaiser, Z. (2024). Investigating the potential use of genetically-modified plants to boost the detoxification and degradation of airborne microplastics in contaminated environment. 1st international conference on Climate Change: aspects, impacts, and solutions (ICCC-2024)

5. Qaiser, Z., **Khalid, N.**, Iftikhar, A., Azhar, H., Naz, I., Ishaq, M., Khalid, J. (2024). Microplastics influence on global warming and carbon sequestration in a changing climate. 1st international conference on Climate Change: aspects, impacts, and solutions (ICCC-2024)
6. Iftikhar, A., **Khalid, N.**, Qaiser, Z., Ishaq, M., Khalid, J. Azhar, H. (2024). Evaluating the contribution of microplastic on climate change and the sinking of blue carbon in Coastal ecosystem as a natural climate solution. 2024. 1st international conference on Climate Change: aspects, impacts, and solutions (ICCC-2024)
7. Yousaf, N and **Khalid N.** 2021. Spatial variation of weed populations in Wheat crops of Sialkot under the influence of various Edaphic factors. Proceedings of the International conference of Smart Plant Protection, January 27-28, 2021. Organized by Institute of Plant Protection, MNS University of Agriculture, Multan, Pakistan.
8. **Khalid, N.**, Anjum, S., Hadayat, N. 2021. “How roadside belts can be managed for a sustainable environment?” Proceedings of the IENE International Conference: LIFE LINES –Linear Infrastructure Networks with Ecological Solutions (January 12-14, 2021) organized by University of Évora, Portugal.
9. **Khalid, N.** 2017. miRNAs mediated heavy metal stress tolerance in plants. Proceedings of the 1st International Conference on “Conventional and Modern Approaches in Plant Sciences” (Nov 28-29, 2017). University of the Punjab, Lahore, Pakistan.
10. **Khalid, N.** 2017. Tracing the highway contributions to carbon and nitrogen deposition using plant biomonitors and soil. Proceedings of the International conference on Ecology and Transportation. May 14-18, 2017. Salt Palace Convention Centre, Salt Lake City, Utah, USA. Organized by North Carolina State University, USA.
11. N. Hadayat, M. Hussain, S. Anjum and **N. Khalid.** 2016. Simulated acid rain: its effect on growth and yield of sunflower (*Helianthus annuus* L.). Proceedings of the International conference on “Environmental constraints to plants: Assessment and Reclamations”. Government College University, Faisalabad, Pakistan.
12. S. Anjum, M. Hussain, N. Hadayat and **N. Khalid.** 2016. Combined effect of micronutrients and cadmium on chlorophyll and nutrient contents of mungbean [*Vigna radiata* (L.) Wilczek]. Proceedings of the International conference on “Environmental constraints to plants: Assessment and Reclamations”. Government College University, Faisalabad, Pakistan.

HONOURS, FELLOWSHIPS AND AWARDS

HEC Approved PhD Supervisor since April 2019

1. Received **Best Young Researcher Award** for year 2023 from Govt. College Women University Sialkot, Pakistan
2. Won **British Council’s Charles Wallace Visiting Fellowship** to visit **University of Exeter**, United Kingdom (2023-2024)
3. Won fully funded **International Award** (\$2500) from Society of Wetland Scientists, United States to present research at 2019 Annual Meeting, The Role of Wetlands in Meeting Global Environmental Challenges: Linking Wetland Science, Policy, and Society Baltimore, Maryland, USA
4. Received **Travel Grant** from PHEC to present research at 15th International Phytotechnology Conference 2018 in Novi Sad, Serbia (2018)
5. Received **Travel Grant** from Higher Education Commission (HEC) of Pakistan to present paper at ICOET 2017 in USA (2017).
6. Received grant to perform research at **University of California Santa Barbara, USA** under **IRSIP** (International Research Support Initiative Program) scholarship by the Higher Education Commission of Pakistan (2014-2015).
7. Received merit based **Indigenous Ph.D. fellowship** by Higher Education Commission of Pakistan (2012-2016).

RESEARCH PROJECTS

PI of the HEC funded (0.5 million Rs) SRGP project “Phytoremediation of industrial waste contaminated soil using native wild plant species” No:21-1306/SRGP/R&D/HEC/2017 (2017-2018)

EDITING/REVIEWING EXPERIENCE

Editor:

Bulletin of Environmental Contamination and Toxicology

Reviewer:

Environmental Pollution
Science of the Total Environment
Chemosphere
Critical Reviews in Environmental Science and Technology
Journal of Hazardous Materials
Journal of Environmental Chemical Engineering
Water, Air, and Soil Pollution
Bulletin of Environmental Contamination and Toxicology
Pedosphere
Environmental Earth Sciences
Environmental Science and Pollution Research
Ecological Letters
Applied Soil Ecology

PROFESSIONAL MEMBERSHIPS

1. Member of SWS's **Global outreach and *hoc* committee** (representing Asia) (2020 – continue)
2. Member of SWS's **Publication Committee** since 2020
3. Member, Society of Wetland Scientists (SWS) 2018-2024
4. Member, Ecological Society of America (ESA) since 2022
5. Member, Infrastructure and Ecology Network Europe (IENE) since 2013.
6. Member, British Ecological Society (BES) (2015-2021)
7. Member, International Environment Forum (IEF) since 2015
8. Member, 'Green Peace International' since 2016
9. Member, Pakistan Botanical Society 2013-2016

WORKSHOPS/TRAININGS/SEMINARS/SYMPOSIA

- **“Environmental damage and sediment management”** Online session organized by Remtech Europe. Sept 23, 2022.
- **“Emerging contaminants of concern”** Online session organized by Remtech Europe. Sept 23, 2022.
- **“Phytoremediation and nature-based solutions”** Online session organized by Remtech Europe. Sept 22, 2022.
- **“Sustainable management of contaminated sites”** Online session organized by Remtech Europe. Sept 22, 2022.
- **“ASTM Phase I Environmental Site Assessment Process”** Online session organized by Remtech Europe. Sept 20, 2022.
- **“ Introduction to Sustainable Remediation - Principles and Practices”** Online session organized by Remtech Europe. Sept 20, 2022.
- **“Zero Pollution for Soil Outlook: high level synthesis report and Watchlist on emerging contaminants”** Online session organized by Remtech Europe. Sept 19, 2022.
- **“WOW! The Wonders of Wetlands: K-12 Wetland Curriculum”** Webinar organized by Society of Wetland Scientists, USA. Sept 15, 2022.
- **“Land Use Clarity via Advanced Mapping”** Webinar organized by EcoBot USA. June 29, 2022
- **“Space Debris as Pollution of the Space Environment”** Webinar organized by the International Environment Forum. April 30, 2022

- **“Climate change, global pollution, biodiversity: can we turn the corner?”** Webinar organized by the British Ecological Society. April 08, 2022.
- **“Statistical Methods Series: Multi-Species (Species Interactions) Occupancy Modeling”** workshop organized by Ecological Society of America. April 4, 2022.
- **“Co-Designing a New and Better Global Systems Accounting for Pollution”** Online discussion organized by the International Environment Forum. Feb 19-20, 2022.
- **“Precision restoration: A necessary approach to foster forest recovery in the 21st century”** Webinar organized by The Society for Ecological Restoration, USA. Jan 26, 2022.
- **“The Accelerating Environmental Crisis: A 60-year Perspective with Arthur Dahl”** Webinar organized by International Environment Forum. Jan 22-23, 2022.
- **“A new legal principle on ecological restoration: a way to scale-up restoration?”** Webinar organized by The Society for Ecological Restoration, USA. Jan 10, 2022.
- **“Environmental Education for Children Inspired by Spiritual Teachings”** Webinar organized by International Environment Forum. Dec 18-19, 2021.
- **“Mentoring the Next Generation of Wetland Professionals”** Webinar organized by Society of Wetland Scientists, USA. Oct 7, 2021.
- **“Discussion: Carbon Footprint”** Webinar organized by International Environment Forum. July 24, 2021.
- SWS annual meeting **“Wetland Sciences 2021: Adaptation Drives Innovation”** Annual Meeting organized by Society of Wetland Scientists, USA. June 1, 3, 8, and 10, 2021.
- **“Floating Wetlands in Pakistan”**, Webinar organized by Society of Wetland Scientists, USA. July 15, 2021.
- **“Ahead of G20 [Ep. 5] | Interfaith Initiatives to Achieve the Agenda 2030 Environmental Goals”**, Webinar organized by International Environment Forum. July 14, 2021.
- **“Species & ecological processes; taxonomy & traits in the workings of nature”** Online event organized by British Ecological Society. May 28, 2021.
- **“An Overview of the United Nations World Food Programme Activities in the Lake Chad Region”** Webinar organized by International Environment Forum. May 22, 2021.
- **“Thermo Fisher Scientific: Science for Sustainability Symposia”** Virtual symposium organized by Thermo Fisher Scientific, USA. April 27-29, 2021.
- **“Deforestation: Interconnected Causes and Solutions”** Webinar organized by International Environment Forum. April 24, 2021.
- **“Science for Sustainability Symposia”** Virtual symposium organized by Thermo Fisher Scientific, USA. April 13-16, 2021.
- **Trapping Trash and Diverting it from our Waterways** Workshop, hosted by the U of T Trash Team, in collaboration with PortsToronto and Ocean Conservancy. University of Toronto, March 24-25, 2021.
- **Analytics for Agriculture: Featuring the analytic capabilities of ArcGIS to identify and manage climate risk in order to increase overall crop productivity.** Webinar organized by Arc-GIS, USA. March 25th, 2021
- **Achieving the SDGs: Has COVID-19 made this impossible?** Webinar organized by Agha Khan University Karachi, Pakistan. March 09, 2021.
- **“Building Capacity in Undergraduate Engineering Students to Deal with Climate Change”** organized by University of Brasilia, Brazil. February 20, 2021.
- **“Assessing Vegetative Species Re-colonization of Commercial Cranberry Bogs”** Webinar organized by Society of Wetland Scientists, USA. February 18, 2021.
- **“Exploring Barriers to Justice and Sustainability in Economic Systems: Discussion on Root Causes and Potential Remedies”** Webinar organized by International Environment Forum. January 23-24, 2021.
- **HEC Author Pakistan Workshop organized by WILEY Dissecting the scholarly publishing process.** An overview and guidance on publishing, January, 2021

- **Exploring Barriers to Justice and Sustainability in Economic Systems: Discussion on Root Causes and Potential Remedies.** Webinar organized by International Environment Forum, January 23-24, 2021.
- Elsevier Workshop on Journal indexing in Scopus organized by HEC Pakistan and Elsevier on January 21, 2021.
- **A seminar on Development of Novel-multifunctional Biochar-based adsorbent for the removal of typical environmental pollutants on wastewater.** Organized by The University of Lahore, January 11, 2021.
- SWS 2020 Virtual Meeting- **“Wetland Connections Over 40 Years”** organized by the Society of Wetland Scientists, USA. December 1-3, 2020
- **The Good, The Bad, The Peatland: sharing knowledge to better restore wetlands.** Webinar organized by Society of Wetland Scientists, USA. June 20, 2019.
- Three days training workshop on **“Andragogical/ Pedagogical Skills”**, 15-17 January, 2018 at PHEC Staff Development Academy, University of Education, Lahore
- **“Modern techniques in research on abiotic stress tolerance in plants”.** Nuclear Institute for Agriculture and Biology, Pakistan (2016)
- **Laboratory Safety Training** at University of California Santa Barbara USA, January 2015

EXTRACURRICULAR ACTIVITIES

- Convener/Focal person of the **Character-Building Society** of the GC Women University Sialkot formulated by **National Accountability Bureau Lahore (NAB), Pakistan**
- Organized a **seminar on “Youm e Tahaffuz Namoos Risalat”** on March 5, 2024 in collaboration with Higher Education Commission (HEC) of Pakistan
- Organized **“awareness walk” on Internal Anticorruption Day** on Dec 09, 2023 at GC Women University Sialkot
- Organized an ethical ‘Movie Show’ on film ‘Aik Hai Nigar’ in collaboration with NAB, Lahore, on May 31st, 2023 at GC Women University Sialkot
- Organized a seminar on **“Character Development Among Youth”** on March 16, 2023 at GC Women University Sialkot
- Organized a session on **Character building** on March 09, 2023 at GC Women University Sialkot
- Organized **“awareness walk” on Internal Anticorruption Day** on Dec 09, 2022 at GC Women University Sialkot
- Organized a webinar on **“Anticorruption”** with **NAB Lahore** on Dec 19, 2022 at GC Women University Sialkot
- Organized various activities (English & Urdu declamation contests, English and Urdu essay writing competitions, Poster competition, Seminar, and Awareness walks) to celebrate **“International Anti-corruption Week 2021 (December 06-12, 2021)”** at GC Women University Sialkot
- Organized a **Seminar on Anti-corruption and Character Building** on March 02, 2021 at GC Women University Sialkot
- Conducted a series of various activities to celebrate **Anti-Corruption Week** during Dec 07-12, 2021 at GC Women University Sialkot
- Organized an online essay writing competition on the topic **“Corruption Overtakes Patriotism”** in December, 2020
- Organized an online essay writing competition on the topic **“Impact of Pandemic on Character Building”** in April, 2020
- Member of the **Clean Water Committee** of the GC Women University Sialkot
- **Sketching Artist** for a Novel to be published soon in California, USA.

PHD STUDENTS SUPERVISED

1. **Zonaira Qaiser (2022)** Microplastic contamination in agroecosystems and its effects on growth, physio-biochemical and yield attributes of *Solanum tuberosum* L.
2. **Kiran Bibi (2023)** Effect of fibrous microplastics from municipal wastewater on growth and metabolism of *Solanum tuberosum* L.
3. **Farwa Yasir (2024)** Topic not finalized yet

MS STUDENTS SUPERVISED

1. **Aimen Javed (2024)** Fibrous microplastic-mediate change in soil properties and its effect on chilli plant (*Capsicum annum* L.)
2. **Ayesha (2024)** Microplastic pollution and its effect on aquatic microphytes in the natural water stream-Palhu
3. **Kinza Amjad (2024)** Microplastics contamination in the natural water streams-Aik and its retention by aquatic macrophytes
4. **Maleeha Ishaq (2023)** effect of rubber wear microplastics from vehicles on roadside wheat agroecosystems
5. **Hira Azhar (2023)** Microplastic adsorption by *Spirodela polyryza* and *Lemna minor* at urban runoff sites in Sialkot
6. **Jawaria Khalid (2023)** Influence of tyre wear microplastics on urban roadside plant communities in Sialkot
7. **Asmara Iftikhar (2023)** Effect of microplastics on plant community composition in urban wetlands in Sialkot
8. **Shanza Mukhtar (2022)** Phytomonitoring of urban runoff heavy metal pollutants using *Lemna minor* L.
9. **Anisa Iftikhar (2022)** Use of *Eichhornia crassipes* for monitoring of urban runoff heavy metal pollution
10. **Farwa Yasir (2022)** Ecological risk assessment of heavy metals in fresh water stream-Nala Palkhu, Sialkot using sediments and aquatic plants
11. **Kinza Rafaqat (2022)** Pollution characteristics and ecological risk assessment of heavy metals in Nala Ek, Sialkot using sediments and aquatic plants
12. **Komal Arshad (2021)** Physicochemical characterization of sediments and some aquatic plants at Marala wetlands, Sialkot
13. **Shanza Zaka (2021)** Ecological risk assessment of some trace elements in sediments and some aquatic plants at Bajwat wetlands, Sialkot
14. **Yusra Munir (2020)** Weed diversity, distribution, and spatial variation in rice crops in Sialkot
15. **Anum Yousaf (2020)** Spatial variation of weed populations in Wheat crops of Sialkot under the influence of various edaphic factors
16. **Ujala Ejaz (2019)** Phytoextraction of cadmium and lead by *Parthenium hysterophorus* mediated by EDTA
17. **Shumaila Akbar (2019)** Phytoextraction potential of *Calotropis procera* for cadmium and lead
18. **Nayab Naeem (2019)** Assessment of lead and cadmium pollution in soil and plants at different functional areas of Sialkot
19. **Zonaira Qaiser (2019)** Assessment of the phytoextraction capacity of *Ricinus communis* for chromium and arsenic
20. **Arifa Khalid (2019)** Effect of EDTA on phytoextraction of chromium and arsenic by *Parthenium hysterophorus*
21. **Wajiha Sarfraz (2019)** Evaluation of the phytoremediation potential of *Ricinus communis* for cadmium and lead
22. **Asmara Rafique (2019)** Effect of industrial effluents on soil and growth of wild plants in Sialkot
23. **Hafiza Komal Latif (2019)** Effect of industrial waste contaminants on wild plants and soil in Sialkot