



Dr. Muhammad Zakir Ali

Associate Professor, PhD

Department of Environmental Sciences,
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Personal Details

CNIC No: 31101-7206574-1
Date of Birth: November 10, 1980.
Place of Birth: Bahawalnagar, Pakistan.
Sex: Male.
Marital Status: Married.
Nationality: Pakistan
Address: House # 12, Street # 1, New Canalview Colony, 61100, Vehari, Pakistan.

Educational Background

PhD

(2007-2012)

Funded by:
**HEC-Overseas
Scholarship Phase-
II-Batch-I**

Specialization: Biology esp. Chemical Ecology

Division of Chemical Ecology,
Department of Plant Protection Biology,
Swedish University of Agricultural Sciences (SLU),
Alnarp-Sweden.

B. Sc. (Hons.)

(2002-2006)

Agriculture (Agronomy)

Department of Agronomy, University of Agriculture (UAF),
Faisalabad-Pakistan

Intermediate

(1996-2001)

F. Sc. (Pre-Medical)

Govt., Degree College, Bahawalnagar - Pakistan

Matriculation

(1995-1996)

Govt., High School Haroonabad, Bahawalnagar-Pakistan.

Subject: Science

Research Skills

- Plant-Insect Interactions – Plant Microbe Interactions – Plant Insect Microbe Interactions
Biopesticides - Plant Physiology – Microbiology – Ecology – Entomology – Sustainable
Agriculture
- Electrophysiology – GC-EAD & GC-MS analyses.
- Plant Volatiles collection, Identifications & Applications
- Electrophysiological, Chemical, Ecological and Behavioural data analyses
- Statistical: Minitab, Prism, R, MATLAB

Teaching Experience

Mar 2013 – Sep 2014:

Assistant Professor (IPFP)

Department of Plant Sciences, Institute of Biological Sciences, Quaid-i-Azam University (QAU), Islamabad, Pakistan.

Research: Involved in supervision of students at **Master level** and **Graduate level**.

Courses: Evolutionary Biology, Plant Physiology, Origin and Diversity of Green Plants, Research Techniques and Instrumentation, Research Planning & Scientific Writing and Stress Physiology.

Oct 2014 - Present:

Tenured Associate Professor

Department of Environmental Sciences, COMSATS University Islamabad, Vehari Campus, Pakistan.

Research: Involved in supervision of students at **Undergraduate** and **Graduate level**.

Courses: Fundamentals of Biology, Introduction to Statistics, Fundamentals of Ecology, Energy and Environment, Environment and Development, Environmental Toxicology, Natural Resource Management.

Research Projects and Fundings

1. **As PI: HEC-NRPU (2019-24).** *Exploiting the specificity of Herbivore-induced volatile chemicals in real-time crop monitoring for sustainable agriculture in Pakistan (Duration: 3 years, Approved amount = 12.7M PKRs).*
2. **As Co-PI: HEC-NRPU (2019-24).** *Biodegradation of agricultural toxicants persist in food chain and use of microbial biopesticides to diminish environmental pollution (Duration: 3 years, Approved amount = 2.06M PKRs).*
3. **As Co-PI: HEC-SRGP (2017-18).** *Arsenic induced developmental and cytotoxic effects in chick (*Gallus gallus*) embryo and preventive role of Vitamin E (PI: Dr Naveed Ahmad, Status: Completed: Worth = 0.5M PKRs).*
4. **As PI: NTIF-PSF (2021).** *Understanding and exploiting communication between plant growth promoting rhizobacteria and cultivated plants for sustainable agriculture in Pakistan. (Status: under review, Worth = 8.0M)*

Supervision (HEC-Approved PhD Supervisor 2013-date)

Supervisor (BS/MS)

- 1) **Uzma Shahbaz (MS):** Effect of plant growth promoting rhizobacteria (PGPR) induced changes in tomato plant on growth and development of *Spodoptera litura*.
- 2) **Shagufta Guljan (MS):** Effect of cadmium and plant growth promoting rhizobacteria (PGPR) on potato plant and *Spodoptera litura*.
- 3) **Muhammad Ali Sial (MS):** Determination of pesticide residues in cattle milk being produced in District Vehari, Pakistan.
- 4) **Noreen Aslam (MS):** Qualitative, quantitative and socioeconomic analyses of animal feed on dairy milk in Multan region, Pakistan.
- 5) **Hafiz Asad Masood (MS):** Determination of Workplace Associated Chemical Exposure Effects on Workers by Hematological Measures and Workers Awareness in District Vehari.
- 6) **Rashid Mehmood (MS):** Health Risk Assessment and Remediation of Arsenic and Lead in Groundwater from Dunyapur, Punjab, Pakistan.

- 7) **Muhammad Shoaib (MS):** Synthesis of sensors for real-time monitoring of agricultural crops emanating volatile organic compounds.
- 8) **Hafiza Sajida Parveen (MS):** Health Risk Assessment of Potentially Toxic Metals in Groundwater of Gaggoo Punjab, Pakistan.
- 9) **Shahid Hussain (MS):** Age Dependent Health Risk Assessment of Potentially Toxic Metals in Groundwater of Different Schools in Kehror Pakka.
- 10) **Muhammad Amin (MS):** Biosynthesis of Co-NPs through *Cassia Fistula* for Degradation of Water Soluble Dye.
- 11) **Rimsha Jameel (MS):** Evaluation of Biosorption, Health Risk Assessment and Biological Activities of *Ricinus Communis* Biochar and its Composites with ZnO and CuO Nanoparticles for Chromium Contaminated Water.
- 12) **Muhammad Rabid Hassan (MS):** Investigation of Occurrence and Abundance of Aphids (*Hemiptera: Aphididae*) at Various Growth and Developmental Stages of Wheat and Farmer's Awareness in Vehari, Pakistan.
- 13) **Nida Ahmad (BS):** Determination of Cigarette Smoke Induced Morphophysiological Effects in Developing Chick Embryos and Adult Males.
- 14) **Mazhar Hussain (BS):** Significance of Magnesium Sulfate Applications on Plant Growth, Plant Protection Measures in BT Cotton.
- 15) **Ismat Sattar (BS):** Removal of Nitrate from Contaminated Water Using Cotton Stalk Biochar and Its Composite with Nanomaterials.
- 16) **Muhammad Ahmad (BS):** Investigating the Role of Herbivore-Induced Changes in Plants on Host Selection in *Spodoptera Litura*.
- 17) **Aqsa Khalid (BS):** Investigation of Calling Behaviour in Female Moths of *Spodoptera Litura* in Response to Damaged Host Plant.
- 18) **Kamran Fazal (BS):** Plant Growth and Yield Comparison of Different Maize Varieties under Climatic Conditions of District Vehari.
- 19) **Maryam Qamar (BS):** Oxidative Removal of Methyl orange dye using UV-C/H₂O₂ and UV-C/TiO₂.
- 20) **Muhammad Zubair Arshad (BS):** Oxidative Removal of Methyl Orange and Methylene Blue Dyes from Contaminated Water Using UV-C/H₂O₂ and UV-C/TiO₂.

Co-supervisor (BS/MS)

- 21) **Rashid Hafeez (MS):** Analysis and Re-design of Municipal Solid Waste Management Operations in District Vehari.
- 22) **Saima Faqir (MS):** Human Health Risk Assessment of Pesticide Residues via Dietary Intake of Market Vegetables of District Vehari, Pakistan.
- 23) **Waheed Aslam Khan (MS):** Systematic Assessment of Milk Quality in Vehari: Evaluation of Public Health Concerns.
- 24) **Nuzhat Fatima (MS):** Physio-chemical Evaluation of Hematological Parameters of Farmers in district Vehari Exposed to Pesticides.
- 25) **Najma Bibi (MS):** Effect of Silicon Fertilization on Brinjal Growth and Insect Population Dynamics.
- 26) **Haider Ali (MS):** Inducing Salt and Cadmium Stress Resilience in Maize through Bacterial Inoculation.
- 27) **Shabana Kosar (MS):** Prevalences and Risk Factors of Hepatitis (B and C) in City Vehari.
- 28) **Zeeshan Iqbal (MS):** Growth and Yield Response of Local and Exotic Onion Varieties Grown Under Organic and Conventional Practices.
- 29) **Abdul Ghaffar (MS):** Evaluation of Activated Biochar for Arsenic Removal from Contaminated Drinking Water.

- 30) **Shahbaz Rasool (MS):** Characterization and Remediation of Wastewater by an Aquatic Macrophyte *Eichhornia Crassipus*.
- 31) **Humera Aslam (MS):** Degradation and Mobilization of Pesticides, Residues in Earthworms in Contaminated Soil (Radish).
- 32) **Qurat-ul-Ain (BS):** Removal of Medicinal Compounds in Pain Killer injections using Green Synthesized CoONPs.
- 33) **Humera Aslam (BS):** Water Pollution Assessment and Phytoremediation Potential of *Eichhornia Crassipus* along the Downgradient of Sutlej River.

Conferences - Meetings - Seminars Participation

- Oral Presentation: Two days workshop organized by Chemical Ecology Alnarp in collaboration with Max Planck Institute for Chemical Ecology Jena from April 14-15, 2008 at Hackeberga, Genarp, Sweden.
- Poster Presentation: Presented poster entitled; Herbivore induced volatiles reduce egg laying in Egyptian cotton leafworm (2009) in the 25th Annual meeting of International Society of Chemical Ecology (ISCE), Neuchatel, Switzerland.
- Poster Presentation: Presented poster entitled; Identification of oviposition deterring volatiles in *Spodoptera littoralis* from infested cotton *Gossypium hirsutum* (2010) in the 26th Annual meeting of International Society of Chemical Ecology (ISCE), Tours, France.
- Oral Presentation: Two days workshop organized by Chemical Ecology Alnarp in collaboration with Max Planck Institute for Chemical Ecology Jena from Sep 29-30, 2010 at Turning Torso, Malmo, Sweden.
- Poster Presentation: Presented poster entitled; Herbivore-induced *de novo* synthesized volatile compounds in cotton repel oviposition in *Spodoptera littoralis* (2012): 16th International Symposium on Olfaction and Taste (ISOT)-2012, Stockholm, Sweden.
- Poster Presentation: Presented poster entitled; Herbivore-induced *de novo* synthesized volatile compounds in cotton repel oviposition in *Spodoptera littoralis* (2012) in the 14th International Behavioral Ecology Congress (ISBE)-2012, Lund, Sweden.
- ESCON-2019: Participation as faculty member organizing an international environmental science conference (ESCON) on environmental health and toxicology at the Department of Environmental Sciences, COMSATS University Islamabad, Vehari Campus.
- ESCON-2022: Participation as faculty member organizing an international environmental science conference (ESCON) on environmental health and toxicology at the Department of Environmental Sciences, COMSATS University Islamabad, Vehari Campus.
- International Workshop on Scientific Writing and Data Analysis at UAF (2022). Participated as a **Resource Person** in two-day international hands-on training workshop on scientific writing and data analysis during October-31 to November-1 organized by UAF Sub-Campus Burewala, Burewala, Pakistan.
- Invited as “**Key Note Speaker**” in one day seminar on “**Crop Monitoring for Sustainable Agriculture in Pakistan**” organized by the Department of Botany, University of Education (UoE) Vehari Campus on March 13, 2024.

Publications

1. **Ali Zakir**, Influence of herbivore-induced changes in host plants on reproductive behaviours in *Spodoptera littoralis*. **Acta Universitatis Agriculturae Sueciae**, 2012.

2. **Ali Zakir**, Medhat M. Sadek, Marie Bengtsson, Bill S. Hansson, Peter Witzgall, Peter Anderson (2013). Herbivore-induced plant volatiles provide associational resistance against an ovipositing herbivore. ***Journal of Ecology*** 101, 410-417 (IF: 5.69).
3. **Ali Zakir**, Marie Bengtsson, Medhat M. Sadek, Bill S. Hansson, Peter Witzgall, Peter Anderson (2013). Herbivore-induced de novo synthesized volatile compounds in cotton repel oviposition in the moth *Spodoptera littoralis*. ***Journal of Experimental Biology*** 216, 3257-3263 (IF: 3.3).
4. Mehmood Zaffar, Muhammad Farooq Hussain Munis, Fahd Rasul, Sajid Masood, Syed Waqas Hassan, Muhammad Imran, Wajid Nasim, **Ali Zakir**, Umar Masood Quraishi and Hassan Javed Chaudhary (2014) Biological assays of plant extracts from *Araucaria columnaris* and *Cycas revolute*. ***Journal of Food, Agriculture & Environment*** 12 (1): 128-131 (IF: 0.4).
5. Eduardo Hatano, Saveer M. Ahmed, Felipe Borrero-Echeverry, Martin Strauch, **Ali Zakir**, Marie Bengtsson, Bill Hansson, Rickard Ignell, Peter Anderson, Paul Becher, Peter Witzgall, Teun Dekker (2015). A herbivore-induced plant volatile interferes with host plant and mate location in moths through suppression of olfactory signalling pathways. ***BMC Biology*** 13 (1), 75 (IF: 7.98).
6. **Ali Zakir**, Muhammad Khallaf, Bill S. Hansson, Peter Witzgall, Peter Anderson (2016). Herbivore induced changes in host plant modulate reproductive behaviours in the moth *Spodoptera littoralis*. ***Frontiers in Ecology and Evolution*** 5, 49 (IF: 2.686).
7. Muhammad Farhan Saeed, Mussarat Shaheen, Iftikhar Ahmad, **Ali Zakir**, Muhammad Nadeem, Arif Ali Chishti, Muhammad Shahid, Khuda Bakhsh, Christos A. Damalas. (2017) Pesticide exposure in the local community of Vehari District in Pakistan: An overview. ***Science of the Total Environment*** 587, 137-144 (IF=4.33).
8. Farah Ashraf, Ghulam Abbas, Behzad Murtaza, Muhammad Amjad, Muhammad Imran, Muhammad Asif Naeem, Muhammad Saqib, Nabeel Khan Niazi, **Ali Zakir**, Munawar Hussain and Rahat Shabir (2018). Comparative Tolerance And Phytostabilization Potential Of Conocarpus Erectus And Eucalyptus Camaldulensis Grown In Cadmium Contaminated Soil. ***Pakistan Journal of Agricultural Sciences*** 55(3), 521-529 (IF: 0.690).
9. Muhammad Rafique, Ahson Jabbar Shaikh, Reena Rasheed, Muhammad Bilal Tahir, Syed Sajid Ali Gillani, Arslan Usman, Muhammad Imran, **Ali Zakir**, Zia Ul Haq Khan, Faiz Rabbani. (2018). Aquatic Biodegradation of Methylene Blue by Copper Oxide Nanoparticles Synthesized from *Azadirachta indica* Leaves Extract. ***Journal of Inorganic and Organometallic Polymers and Materials*** 28 (6), 2455–2462 (IF: 1.754).
10. M Imran, M Suddique, GM Shah, I Ahmad, B Murtaza, NS Shah, M Mubeen, S Ahmad, **A Zakir**, RJ Schotting (2019). Kinetic and equilibrium studies for cadmium biosorption from contaminated water using *Cassia fistula*. ***International Journal of Environmental Science and Technology*** 16 (7) 3099-3108 (IF: 2.037).

11. Hafiz Muhammad Rashad Javeed, Rafi Qamar, Shahid Ibni Zamir, Atique-ur-Rehman, Fahim Nawaz, Muhammad Maooz Faheem, Mazhar Ali, Abdul Rehman, Amjad Farooq and **Ali Zakir** (2019). Selenate Uptake Through Roots Improves The Tolerance To Cell Disruptors And Fungal Infection In Canola Seedlings After Exogenous Selenium Application. **Pakistan Journal of Agricultural Sciences** 56(2), 329-337 (IF: 0.690).
12. Zia Ul Haq Khan, Hafiz Masood Sadiq, Noor Samad Shah, Arif Ullah Khan, Nawshad Muhammad, Sadaf Ul Hassan, Kamran Tahir, Sher Zaman safi, Faheem Ullah Khan, Muhammad Imran, Naveed Ahmad, Faizan Ullah, Ashfaq Ahmad, Murtaza Sayed, Muhammad Shafique Khalid, Saeed Ahmad Qaisrani, Mazhar Ali, **Ali Zakir** (2019). Greener Synthesis of Zinc Oxide Nanoparticles using *Trianthema Portulacastrum* Extract and Evaluation of its Photocatalytic and Biological Applications Journal: **Journal of Photochemistry & Photobiology, B: Biology** 192 (2019) 147-157 (IF: 3.165).
13. Behzad Murtaza, Gohar Zaman, Muhammad Imran, Ghulam Mustafa Shah, Muhammad Amjad, Naveed Ahmad, Muhammad Asif Naeem, **Ali Zakir**, Amjad Farooq, Sajjad Ahmad, and Ghulam Murtaza (2019). Municipal solid waste compost improves crop productivity in saline sodic soil: a multivariate analysis of soil chemical properties and yield response (2019). **Communications in Soil Science and Plant Analysis** 50 (8), 1013-1029 (IF: 0.690).
14. Muhammad Tahir, Iftikhar Ahmad, Muhammad Shahid, Ghulam Mustafa Shah, Abu Bakr Umer Farooq, Muhammad Akram, Sohail Akhtar Tabassum, Muhammad Asif Naeem, Umaira Khalid, Sajjad Ahmad, **Ali Zakir** (2019). Regulation of antioxidant production, ion uptake and productivity in potato (*Solanum tuberosum* L.) plant inoculated with growth promoting salt tolerant *Bacillus* strains. **Ecotoxicology and Environmental Safety** 178, 33-42 (IF: 4.527).
15. Abdel Latef Arafat Abdel Hamed, Mojtaba Kordrostami, **Ali Zakir**, Hoida Zaki, Osama Moseilhy Saleh (2019). Eustress with H₂O₂ Facilitates Plant Growth by Improving Tolerance to Salt Stress in Two Wheat Cultivars (2019). **Plants** 8 (9), 303 (IF: 2.632).
16. Muhammad Naeem, Muhammad Imran, Muhammad Amjad, Ghulam Abbas, Muhammad Tahir, Behzad Murtaza, **Ali Zakir**, Muhammad Shahid, Laura Bulgariu, Iftikhar Ahmad (2019). Batch and Pilot Scale Removal of Cadmium from Aqueous Solutions Using Raw and Acid Activated Wheat Straw Biochar: Characterization, Kinetics and Equilibrium Modeling. **Water** 11 (7), 1438 (IF: 2.524).
17. Muhammad Amjad, Nuzhat Ameen, Behzad Murtaza, Ghulam Abbas, Muhammad Imran, Muhammad Asif Naeem, Waqas Manzoor Bhutta, **Ali Zakir**, Nasir Masood, Sven-Erik Jacobsen (2019). A Comparative Analysis of Salinity and Nickel Tolerance of Tomato (*Solanum lycopersicum* L.). **Communications in Soil Science and Plant Analysis** 50 (18), 2294-2308 (IF: 0.690).
18. Mehdi Bakhshipour, Mohammad Mafakheri, Mojtaba Kordrostami, **Ali Zakir**, Najmeh Rahimi, Fatemeh Feizi, Mahdi Mohseni (2019). In vitro multiplication, genetic fidelity and phytochemical potentials of *Vaccinium arctostaphylos* L.; An endangered medicinal plant. **Industrial Crops and Products** 141 (111412) (IF: 4.191).

19. Haroon Shahzad, Sami Ullah, Muhammad Iqbal, Hafiz Muhammad Bilal, Ghulam Mustafa Shah, Sajjad Ahmad, **Ali Zakir**, Allah Ditta, Muhammad Aslam Farooqi, Iftikhar Ahmad (2019). Salinity Types and Level-Based Effects on the Growth, Physiology and Nutrient Contents of Maize (*Zea mays* L.). **Italian Journal of Agronomy** 14(4), 199-207 (IF: 2.00).
20. Muhammad Amjad, Hasan Raza, Ghulam Abbas, Behzad Murtaza, Muhammad Shahid, Muhammad Imran, Muhammad Asif Naeem, **Ali Zakir** (2019). Nickel toxicity induced changes in antioxidants profiling and nutrients dynamics in two maize (*Zea mays* L.) hybrids. **Plants** 9(1),5 (IF: 2.632).
21. Noor S Shah, Javed Ali Khan, Murtaza Sayed, Zia Ul Haq Khan, Jibran Iqbal, Muhammad Imran, Behzad Murtaza, Ali Zakir, Kyriaki Polychronopoulou (2020). Nano zerovalent zinc catalyzed peroxymonosulfate based advanced oxidation technologies for treatment of chlorpyrifos in aqueous solution: A semi-pilot scale study. **Journal of Cleaner Production**, 119032 (IF: 6.395).
22. Muhammad Imran, Zia ul haq khan, Noor Shah, Saima Muzammil, shafaqat ali, Nawshad Muhammad, Arwa Aziz, Behzad Murtaza, Muhammad Naeem, Muhammad Amjad, Muhammad Shahid, **Ali Zakir** (2020). Potential of siltstone and its composites with biochar and magnetite nanoparticles for the removal of cadmium from contaminated aqueous solutions: batch and column scale studies. **Environmental Pollution** 113938 (IF: 9.988).
23. Abdel Latef Arafat Abdel Hamed, Mojtaba Kordrostami, Hoida Zaki, Osama Saleh, **Ali Zakir** (2020). Bacterial inoculation with *Azospirillum* and *Azotobacter* genera reinforces maize (*Zea Mays* L.) plant growth by improving physiological activities under saline conditions. **Journal of Plant Growth Regulator** p1-14 (IF: 4.640).
24. Iftikhar Ahmad, Muhammad Javed Akhtar, Muhammad Yahya Khan, Muhammad Baqir Hussain, Abdul Khaliq, Muhammad Farhan Saeed, Muhammad Rizwan Ashraf, **Ali Zakir**, Khuda Bakhsh (2020). Biogas Slurry and Plant Growth Promoting Bacillus Strain CIK-515 Improve Tuber Yield and Nutrient Uptake of Potato. **Pakistan Journal of Botany** 52 (4), 1465-1472 (IF: 1.1).
25. Hafiz Faiq Bakhat, Najma Bibi, Shah Fahad, Hafiz Mohkum Hammad, Natasha, Sunaina Abbas, Ghulam Mustafa Shah, **Ali Zakir**, Behzad Murtaza & Muhammad Rizwan Ashraf (2021). Rice Husk Biochar Improves Brinjal Growth, Decreases Insect Infestation by Enhancing Silicon Uptake. **Silicon** 13, 3351–3360 (IF: 2.941).
26. Muhammad Shahid, Sana Khalid, Nabeel Khan Niazi, Behzad Murtaza, Naveed Ahmad, Amjad Farooq, **Ali Zakir**, Muhammad Imran, Ghulam Abbas (2021). Health risks of arsenic buildup in soil and food crops after wastewater irrigation. **Science of The Total Environment** 772, 145266 (IF: 10.754).
27. Ihtisham Ul Haq, Ahmad Khan, Muhammad Farhan Saeed, Adil Mihoub, Aftab Jamal, Muhammad Fawad, **Ali Zakir**, Rabia Manzoor, Abid Ali, Muhammad Shafique Khalid (2022). Timing and Splitting of Nitrogen Compensated for the Loss in Grain Yield of Dual-Purpose Wheat Under Varied Cutting Heights. **Gesunde Pflanzen** 75, 237–252 (IF: 2.082).

28. Iftikhar Ahmad, Abdul Ghaffar, **Ali Zakir**, Zia Ul Haq Khan, Muhammad Farhan Saeed, Atta Rasool, Aftab Jamal, Adil Mihoub, Simone Marzeddu, Maria Rosaria Boni (2022). Activated Biochar Is an Effective Technique for Arsenic Removal from Contaminated Drinking Water in Pakistan. *Sustainability* 2022, 14(21), 14523 (IF: 3.889).
29. Hafiz Muhammad Rashad Javeed, Mazhar Ali, Nitasha Kanwal, Iftikhar Ahmad, Aftab Jamal, Rafi Qamar, **Ali Zakir**, Hina Andleeb, Raheela Jabeen, Emanuele Radicetti, Roberto Mancinelli (2023). Nitrogen Mineralization in Texturally Contrasting Soils Subjected to Different Organic Amendments under Semi-Arid Climates. *Land* 2023, 12(5), 989 (IF: 3.905).
30. Hafiz Muhammad Rashad Javeed, Mazhar Ali, Muhammad Shahid Ibni Zamir, Rafi Qamar, Sonia Kanwal, Hina Andleeb, Najma Qammar, Kiran Jhangir, Amr Elkelish, Muhammad Mubeen, Muhammad Aqeel Sarwar, Samina Khalid, Mariyam Zain, Fahim Nawaz, Khuram Mubeen, Muhammad Adnan Bukhari, **Ali Zakir**, Muhammad Amjad Farooq, Nasir Masood (2023). Biochar and Arbuscular Mycorrhizae Fungi to Improve Soil Organic Matter and Fertility. *Sustainable Agriculture Reviews* 61: Pages 331-354.
31. Shahbaz Rasool, Iftikhar Ahmad, Aftab Jamal, Muhammad Farhan Saeed, **Ali Zakir**, Ghulam Abbas, Mahmoud F Seleiman, Andrés Caballero-Calvo (2023). Evaluation of Phytoremediation Potential of an Aquatic Macrophyte (*Eichhornia crassipes*) in Wastewater Treatment. *Sustainability* 2023, 15(15), 11533.
32. Sohail Ahmad; Waseem Ahmed; Muhammad Farhan Saeed; Adil Mihoub; AFTAB JAMAL; Muhammad Shafique Khalid; **Ali Zakir**; Muhammad Fawad; Adil Zia (2023). Foliar Application of salicylic acid and spermidine enhance physico-chemical, enzymatic and phytochemical activities in different varieties of Marigold (*Calendula officinalis* L.) plants. *Journal of Soil Science and Plant Nutrition* (Submitted-under review).
33. Waleed Iqbal; Muhammad Zahir Afridi; Adil Mihoub; AFTAB JAMAL; Muhammad Farhan Saeed; Adil Zia; Muhammad Awais Khan; **Ali Zakir** (2023). Analysis of Salt Tolerance in Different Canola (*Brassica napus* L.) Genotypes Based on Morpho-Physiological and Enzymatic Responses Under Salinity Condition. *Soil Science and Plant Nutrition* (Submitted-under review).

Language skills

- **Proficient:** English, Urdu and Punjabi languages
- **Basic:** Swedish language

Extra-curricular Activities

- Football (Excellent)
- Badminton (Excellent: represented club in Swedish Badminton League)
- Travelling and Photography
- Running (My favorite activity on weekends)
- Tennis (Good)
- Good in Vector Graphic Designing i.e., Illustrator and Photoshop