

Curriculum Vitae



Personal Information

Name : **Dr. Muhammad Zafar-ul-Hye Gondal**
Father's Name : **Muhammad Khan Saif Gondal**
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Present Position

Chairman

&

Associate Professor of Agriculture-Soil Science

Department of Soil Science, Faculty of Agricultural Sciences and Technology, Bahauddin
Zakariya University Multan, Pakistan

Administrative Experience

Chairman, Department of Soil Science, Bahauddin Zakariya University Multan, Pakistan (27-
07-2016 to 26-07-2019)

Teaching and Research Experience

1. Associate Professor, Department of Soil Science , Bahauddin Zakariya University
Multan, Pakistan (28-12-2014 to date)
2. **Assistant Professor**, Department of Soil Science , Bahauddin Zakariya University
Multan, Pakistan (09-04-2009 to 28.12.2014)
3. **Lecturer** in Soil Science at University College of Agriculture, Bahauddin Zakariya
University Multan, Pakistan (17-2-06 to 08-04-2009).

Academic Qualifications

Class/Degree	Year of degree awarded	Board / University	Division	% age
B.Sc. (Hons.) Agriculture-Soil Science	1999	University of Agriculture Faisalabad, Pakistan	1 st Division	71.64
M. Sc. (Hons.) Agriculture-Soil Science	2001	University of Agriculture Faisalabad, Pakistan	1 st Division	76.44
Ph.D. Soil Science Thesis in Soil Microbiology	2008	University of Agriculture Faisalabad, Pakistan		
Postdoc-I (USA)	2014-15	Fulbright Scholar Award (USA)		
Postdoc-II (UK)	2015	Commonwealth Academic Fellowship (Sheffield University, UK)		

Distinctions

1. Fulbright Scholar Award USA for 2014-2015
2. Commonwealth Academic Fellowship UK 2015
3. HEC (Higher Education Commission) approved Ph.D. Supervisor
4. First Position in Secondary School Certificate Examination (Matriculation) in School
5. Throughout first divisions
6. Guest Editor: Special Issue "Frontiers in Soil Microbial Ecology and Its Role in Sustainable Agroecosystems" in Sustainability (Impact Factor: 3.251) (https://www.mdpi.com/journal/sustainability/special_issues/Frontiers_Agroecosystems)

Supervision of students

Ph.D. Students Supervised:	02
M.Phil. Students Supervised:	30
B. Sc. (Hons.) Students supervised :	37
Ph.D students under supervision:	02
M.Phil. Students under Supervision:	03
M.Phil. Students under supervision as supervisory committee member :	01

List of Ph.D Students supervised (by Dr. M. Zafar-ul-Hye)

Sr. No.	Name of Student	Degree	Year	Theses Title
1	Rizwan Yaseen	Ph.D. Agriculture-Soil Science	2019	Mitigating the effect of salinity and drought stress in wheat (<i>Triticum aestivum</i> L.) through combined application of rhizobacteria containing ACC-Deaminase and organic amendment
2	Subhan Danish	Ph.D. Agriculture-Soil Science	2020	Effect of ACC-deaminase containing rhizobacteria and biochar on wheat and maize productivity under drought stress

List of M.Sc. (Hons) Students supervised (Dr. M. Zafar-ul-Hye)

Sr. No.	Name of Student	Year of Admission	Year of Completion	Theses Title
1	Kashif Munir	2008	2011	Effect of different doses of boron on wheat under salt affected conditions
2	M. Kashif Ashiq	2008	2011	Effect of different levels of nitrogen and sowing methods on wheat crop under salt affected conditions
3	Adila Nasir	2010	2012	Growing maize crop on compact and salt affected soil using microbial ACC-deaminase biotechnology
4	Hafiz Muhammad Farooq	2010	2012	Use of microbial ACC-deaminase for growth of maize under drought and salt affected conditions
5	Hafiz Muhammad Tariq Shehzad Bhutta	2011	2013	Amelioration of NaCl induced stress on wheat through multiple bacterization
6	Umar Aslam	2011	2013	Response of bacterial inoculation to improve wheat production using different carrier materials
7	Niaz Muhammad Hussain	2011	2013	Mitigating the effect of salinity stress on wheat through multi-strain inoculation

8	Misbah Batool Zahra	2012	2014	Effect of mineral fertilizers in combination with beneficial bacteria on wheat growth under field conditions
9	Ch. Shaheryar Ali	2015	2017	Studying the response of radish to ACC-deaminase containing plant growth promoting rhizobacteria
10	Ali Hassan	2015	2017	Studying the response of maize (<i>Zea mays</i> L.) cultivars to double strain bacterization
11	Umer Farooq	2015	2017	Assessing the response of maize to rhizobacterial inoculation in combination with biogas slurry
12	Muhammad Naeem	2015	2017	Assessing the effectiveness of rhizobacteria on bitter gourd (<i>Momordica charantia</i>) productivity on cadmium contaminated soil
13	Sonia Siddique	2015	2017	Studying soil attributes to identify soil series in different areas of the Punjab
14	Areeba Shahjahan	2015	2018	Isolation of bacterial strains from cadmium polluted soil and screening for improvement in wheat growth
15	Fiza Mahmood	2016	2018	Effect of ACC-deaminase producing PGPR and potassium fertilization on spinach growth under salt stress condition
16	Muhammad Mubashir Waseem	2016	2018	Effect of organic amendments and nitrogen fertilization on soil carbon and nitrogen dynamics and maize growth
17	Naveed Asghar	2016	2018	Impact of biochar in combination with organic amendments on soil carbon and nitrogen dynamics
18	Shakeela Arif	2016	2018	Evaluating the role of plant growth promoting rhizobacteria and biochar on rice (<i>Oryza sativa</i> L.) growth and yield
19	Wazda Maqsood	2016	2018	Effect of rhizobacteria and potassium fertilization on growth and yield of maize under drought stress

20	Maria Abid	2017	2019	Effect of PGPR and biochar on maize growth in lead contaminated soil
21	Ifat Nazir	2017	2019	Effect of phosphorus solubilizing bacteria and organic amendment on maize growth
22	Ayesha Iftikhar	2017	2019	Effect of phosphorus solubilizing bacteria and biochar on maize growth in different textured soils
23	Muhammad Mudassir Aslam	2017	2019	Effect of potassium solubilizing bacteria and biochar on sorghum growth under drought conditions
24	Muhammad Tahzeeb-ul-Hassan	2017	2019	Effect of PGPR and organic amendment on vegetable growth on lead contaminated soil
25	Qurat-ulain Raza	2017	2019	Assessment of sugar industry by-products as soil amendments for rice production and soil health
26	Muhammad Shakeel Nawaz	2018	2021	Response of alfalfa to caffeic acid in saline soil
27	Muhammad Naeem Akbar	2018	2021	Response of lentil to ACC-deaminase producing rhizobacteria and caffeic acid under drought condition
28	Hira Asghar	2018	2021	ACC-deaminase producing rhizobacteria and caffeic acid effect on wheat growth under saline soil condition
29	Arbab Shehzadi	2018	2021	Effect of ACC-deaminase producing rhizobacteria and ascorbic acid on spinach growth in saline soil

Extra Trainings:

- EU Asia Link Project Short Course on “Principles of Experimental Design and Analysis” organized by the University of Agriculture Faisalabad, Pakistan in collaboration with the University of Wales, Bangor, UK (December 01-12,2003)
- Workshop on “Identification, Maintenance and Preservation of Microorganisms” organized By the Quaid-i-Azam University Islamabad, Pakistan. (May 10-12, 2004)

Publications (Total Impact Factor : 123.913)

1. Bushra Saeed and **Muhammad Zafar-ul-Hye**. 2024. Salicylic acid promotes sunflower production under normal and water deficit conditions. Pakistan Journal of Botany.56(4): DOI: [http://dx.doi.org/10.30848/PJB2024-4\(20\)](http://dx.doi.org/10.30848/PJB2024-4(20)).
2. Muhammad Zahid Mumtaz, Maqshoof Ahmad, **Muhammad Zafar-ul-Hye**, Muhammad Saqib, Muhammad Fakhar U Zaman Akhtar and Muhammad Saqlain Zaheer. 2022. Seed-applied zinc-solubilising Bacillus biofertilisers improve antioxidant enzyme activities, crop productivity, and biofortification of maize. Crop & Pasture Science. 73(5) 503-514 <https://doi.org/10.1071/CP21415>.
3. Mazhar Abbas, Saba Shakeel, Pingsheng Ji and **Muhammad Zafar-ul-Hye**, 2022. Induction of resistance in tomato against *Sclerotium rolfsii* by application of seaweed extract and chemical compounds. International Journal of Pest Management. DOI: 10.1080/09670874.2022.2096268.
4. Muhammad Ahmad Zeshan, Yasir Iftikhar, Ashara Sajid, Muhammad Usman Ghani, **Muhammad Zafar-ul-Hye** and Mazhar Abbas. 2022. Spatio-temporal analysis of cucumber mosaic virus disease and its sustainable management. Pakistan Journal of Botany: 54(4): 1537-1547.
5. Muhammad Umer, Mustansar Mubeen, Yasir Iftikhar, , Haider Ali , **Muhammad Zafar-ul-Hye** , Rafia Asghar , Mazhar Abbas , Malik Abdul Rehman , Ernesto A. Moya-Elizondo8 and Yuejun He. 2022. Papaya ring spot virus: An understanding of a severe positive-sense single stranded RNA viral disease and Its management. Phyton-International Journal of Experimental Botany: 91(10).2099-2110. Doi:10.32604/phyton.2022.022013
6. Amjad Ali , Yasir Iftikhar, , Mustansar Mubeen, Haider Ali, Muhammad Ahmad Zeshan, Zohaib Asad , **Muhammad Zafar-ul-Hye**, Malik Abdul Rehman, Mazhar Abbas, Muhammad Rafique and Muhammad Usman Ghani. 2022. Antagonistic potential of bacterial species against fungal plant pathogens (FPP) and their role in plant growth promotion (PGP): A Review. Phyton-International Journal of Experimental Botany. DOI: 10.32604/phyton.2022.021734.
7. **Muhammad Zafar-ul-Hye**, Muhammad Tahzeeb-ul-Hassan, Abdul Wahid, Subhan Danish, Muhammad Jamil Khan, Shah Fahad, Martin Brtnicky, Ghulam Sabir Hussain, Martin Leonardo Battaglia and Rahul Datta. 2021. Compost mixed fruits and vegetable waste biochar with ACC deaminase rhizobacteria can minimize lead stress in mint plants. Scientific Reports. 11:6606. | <https://doi.org/10.1038/s41598-021-86082-9>.
8. **Muhammad Zafar-ul-Hye** , Muhammad Naeem Akbar, Yasir Iftikhar, Mazhar Abbas, Atiqah Zahid, Shah Fahad, Rahul Datta, Muqarrab Ali, Abdallah M. Elgorban, Mohammad Javed Ansari and Subhan Danish.2021. Rhizobacteria Inoculation and Caffeic Acid Alleviated Drought Stress in Lentil Plants. Sustainability:13, 9603. <https://doi.org/10.3390/su13179603>.
9. Mustansar Mubeen, Yasir Iftikhar, Aqleem Abbas, Mazhar Abbas, Muhammad Zafar-ul-Hye, Ashara Sajid and Faheema Bakhtawar. 2021. Yellow vein mosaic disease in okra (*Abelmoschus esculentus* L.): An overview on causal agent, vector and management. Phyton-International Journal of Experimental Botany. DOI: 10.32604/phyton.2021.016664.
10. **Muhammad Zafar-ul-Hye**, Rizwan Yaseen, Muhammad Abid, Mazhar Abbas, Maqshoof Ahmad, Ashfaq Ahmad Rahi and Subhan Danish.2021. Rhizobacteria having ACC- deaminase and biogas slurry can mitigate salinity adverse effects in wheat. Pakistan Journal of Botany. 54(1): DOI: [http://dx.doi.org/10.30848/PJB2022-1\(7\)](http://dx.doi.org/10.30848/PJB2022-1(7)).

11. Yasir Iftikhar, Mazhar Abbas, Mustansar Mubeen, **Muhammad Zafar-ul-Hye**, Faheema Bakhtawar, Sonum Bashir, Ashara Sajid and Muhammad Asif Shabbir. 2021. Overview of strain characterization in relation to serological and molecular detection of citrus tristeza *Closterovirus*. *Phyton-International Journal of Experimental Botany*. DOI: 10.32604/phyton.2021.015508.
12. Emre Babur, Ömer Süha Uslu, Martín Leonardo Battaglia, Andre Diatta, Shah Fahad, Rahul Datta, **Muhammad Zafar-ul-Hye**, Ghulam Sabir Hussain and Subhan Danish. 2021. Studying soil erosion by evaluating changes in physico-chemical properties of soils under different land-use types. *Journal of the Saudi Society of Agricultural Sciences*. 190–197.
13. Qurat-Ul-Ain Raza, Muhammad Amjad Bashir, Abdur Rehim, **Muhammad Zafar-Ul-Hye**, Zahid Hassan Tarar. 2021. Achieving sustainable rice production with the application of sugarcane industrial by-products. *Pakistan Journal Agriculture, Agricultural Engineering and Veterinary Sciences*. 37 (1): 1-10.
14. Jiri Holatko, Tereza Hammerschmiedt, Rahul Datta, Tivadar Baltazar, Antonin Kintl, Oldrich Latal, Vaclav Pecina, Petr Sarec, Petr Novak, Ludmila Balakova, Subhan Danish, **Muhammad Zafar-ul-Hye**, Shah Fahad and Martin Brtnicky. 2020. Humic acid mitigates the negative effects of high rates of biochar application on microbial activity. *Sustainability*. 12: 9524. [Doi:10.3390/su12229524](https://doi.org/10.3390/su12229524)
15. Rafiullah, M. Tariq, F. Khan, A.H. Shah, S. Fahad, F. Wahid, J. Ali, M. Adnan, M. Ahmad, M. Irfan, **M. Zafar-ul-Hye**, M.L. Battaglia, Tayebbeh Zarei, R. Datta, I.A. Saleem, Hafeez- u-Rehman, S. Danish. 2020. Effect of micronutrients foliar supplementation on the production and eminence of plum (*Prunus domestica* L.). *Quality Assurance and Safety of Crops & Foods*. 12 (SP1): 32–40.
16. Mazhar Abbas, Faisal Imran, Rashid Iqbal Khan, **Muhammad Zafar-ul-Hye**, Tariq Rafique, Muhammad Jameel Khan, Süleyman Taban, Subhan Danish and Rahul Datta. 2020. Gibberellic acid induced changes on growth, yield, superoxide dismutase, catalase and peroxidase in fruits of bitter gourd (*Momordica charantia* L.). *Horticulturae*. 6: 72. [Doi:10.3390/horticulturae6040072](https://doi.org/10.3390/horticulturae6040072)
17. Rafiullah, Muhammad Jamal Khan, Dost Muha, Shah Fahad, Muhammad Adnan, Fazli Wahid, Saud Alamri, Farmanullah Khan, Khadim Muhammad Dawar, Inam Irshad, Subhan Danish, Muhammad Arif, Amanullah, Shah Saud, Bushra Khan, Ishaq Ahmad Mian, Rahul Datta, Tayebbeh Zarei, Anis Ali Shah, Musarrat Ramzan, **Muhammad Zafar-ul-Hye**, Maria Mussarat and Manzer H. Siddiqui. 2020. Phosphorus nutrient management through synchronization of application methods and rates in wheat and maize crops. *Plants*. 9: 1389. [Doi:10.3390/plants9101389](https://doi.org/10.3390/plants9101389)
18. **Muhammad Zafar-ul-Hye**, Muhammad Naeem, Subhan Danish, Muhammad Jamil Khan, Shah Fahad, Rahul Datta, Martin Brtnicky, Antonin Kintl, Muhammad Sabir Hussain and Mohamed A. El-Esawi. 2020. Effect of cadmium-tolerant rhizobacteria on growth attributes and chlorophyll contents of bitter gourd under cadmium toxicity. *Plants*. 9: 1386. [Doi:10.3390/plants9101386](https://doi.org/10.3390/plants9101386)
19. Mazhar Abbas, Kishwar Jam, Rashid Iqbal Khan, **Muhammad Zafar-ul-Hye**, Tariq Rafique and Zahid Mahmood. 2020. Bio-stimulant and salicylic acid application triggers antioxidants activities and yield parameters of bottle gourd (*Lagenaria siceraria* L.). *Pakistan Journal of Agricultural Research*. 33(3): 652-661.
20. Muhammad Izhar Shafi, Muhammad Adnan, Shah Fahad, Fazli Wahid, Ahsan Khan, Zhen Yue, Subhan Danish, **Muhammad Zafar-ul-Hye**, Martin Brtnicky and Rahul Datta. 2020. Application of single superphosphate with humic acid improves the growth, yield and phosphorus uptake of wheat (*Triticum aestivum* L.) in calcareous soil. *Agronomy*. 10: 1224. [Doi:10.3390/agronomy10091224](https://doi.org/10.3390/agronomy10091224)

21. Subhan Danish, **Muhammad Zafar-ul-Hye**, Shah Fahad, Shah Saud, Martin Brtnicky, Tereza Hammerschmiedt and Rahul Datta. 2020. Drought stress alleviation by ACC Deaminase producing *Achromobacter xylosoxidans* and *Enterobacter cloacae*, with and without timber waste biochar in maize. Sustainability. 12: 6286. Doi:10.3390/su12156286
22. Rahul Datta, Jiri Holatko, Oldrich Latal, Tereza Hammerschmiedt, Jakub Elbl, Vaclav Pecina, Antonin Kintl, Ludmila Balakova, Maja Radziemska, Tivadar Baltazar, Petr Skarpa, Subhan Danish, **Muhammad Zafar-ul-Hye**, Tomas Vyhnánek and Martin Brtnicky. 2020. Bentonite-based organic amendment enriches microbial activity in agricultural soils. Land. 9: 258. Doi:10.3390/land9080258
23. Ammara Basit, Shahid Hussain, Muhammad Abid, **Muhammad Zafar-ul-Hye** and Niaz Ahmed. 2020. Zinc and potassium priming of maize (*Zea mays* L.) seeds for salt-affected soils. Journal of Plant Nutrition. DOI: 10.1080/01904167.2020.1799005.
24. Rizwan Yaseen, Omar Aziz, Muhammad Hamzah Saleem, Muhammad Riaz, **Muhammad Zafar-ul-Hye**, Muzammal Rehman, Shafaqat Ali, Muhammad Rizwan, Mohammed Nasser Alyemeni, Hamed A. El-Serehy, Fahad A. Al-Misned and Parvaiz Ahmad. 2020. Ameliorating the drought stress for wheat growth through application of ACC- deaminase containing rhizobacteria along with biogas slurry. Sustainability. 12: 6022. Doi:10.3390/su12156022.
25. **Muhammad Zafar-ul-Hye**, Muhammad Naeem, Subhan Danish, Shah Fahad, Rahul Datta, Mazhar Abbas, Ashfaq Ahmad Rahi, Martin Brtnicky, Jiří Holátko, Zahid Hassan Tarar and Muhammad Nasir. 2020. Alleviation of cadmium adverse effects by improving nutrients uptake in bitter melon through cadmium tolerant rhizobacteria. Environments. 7: 54. Doi:10.3390/environments7080054.
26. Muhammad Adnan, Shah Fahad, Muhammad Zamin, Shahen Shah, Ishaq Ahmad Mian, Subhan Danish, **Muhammad Zafar-ul-Hye**, Martin Leonardo Battaglia, Raja Mohib Muazzam Naz, Beena Saeed, Shah Saud, Imran Ahmad, Zhen Yue, Martin Brtnicky, Jiri Holatko and Rahul Datta. 2020. Coupling phosphate-solubilizing bacteria with phosphorus supplements improve maize phosphorus acquisition and growth under lime induced salinity stress. Plants. 9: 900. Doi:10.3390/plants9070900.
27. **Muhammad Zafar-ul-Hye**, Muhammad Tahzeeb-ul-Hassan, Muhammad Abid, Shah Fahad, Martin Brtnicky, Tereza Dokulilova, Rahul Datta and Subhan Danish. 2020. Potential role of compost mixed biochar with rhizobacteria in mitigating lead toxicity in spinach. Scientific Reports. 10:12159. <https://doi.org/10.1038/s41598-020-69183-9>
28. Rashid Iqbal Khan, Mazhar Abbas, Khuram Goraya, **Muhammad Zafar-ul-Hye** and Subhan Danish. 2020. Plant derived antiviral products for potential treatment of COVID-19: A review. Phyton-International Journal of Experimental Botany. 89: 437-452. DOI:10.32604/phyton.2020.010972
29. **Muhammad Zafar-ul-Hye**, Umer Farooq, Subhan Danish, Shahid Hussain, Muhammad Shaaban, Muhammad Farooq Qayyum and Abdur Rehman. 2020. *Bacillus amyloliquefaciens* and *Alcaligenes faecalis* with biogas slurry improved maize growth and yield in saline-sodic field. Pakistan Journal of Botany. 52(5). DOI: [http://dx.doi.org/10.30848/PJB2020-5\(20\)](http://dx.doi.org/10.30848/PJB2020-5(20))
30. **Muhammad Zafar-ul-Hye**, Fiza Mahmood, Subhan Danish, Shahid Hussain, Mehreen Gul, Rizwan Yaseen and Muhammad Shaaban. 2020. Evaluating efficacy of plant growth promoting rhizobacteria and potassium fertilizer on spinach growth under salt stress. Pakistan Journal of Botany. 52(4). DOI: [http://dx.doi.org/10.30848/PJB2020-4\(7\)](http://dx.doi.org/10.30848/PJB2020-4(7)).

31. Subhan Danish and **Muhammad Zafar-ul-Hye**. 2020. Combined Role of ACC Deaminase producing bacteria and biochar on cereals productivity under drought. *Phyton- International Journal of Experimental Botany*. 89 (2): 217-227. DOI: 10.32604/phyton.2020.08523
32. **Muhammad Zafar-ul-Hye**, Misbah Batool Zahra, Subhan Danish, Mazhar Abbas, Abdur Rehman, Muhammad Naeem Akbar, Ayesha Iftikhar, Mehreen Gul, Ifat Nazir, Maria Abid, Muhammad Tahzeeb-ul-Hassan and Maria Murtaza. 2020. Multi-strain inoculation with PGPR producing ACC Deaminase is more effective than single-strain inoculation to improve wheat (*Triticum aestivum*) growth and yield. *Phyton- International Journal of Experimental Botany*. 89 (2): 405- 413. DOI:10.32604/phyton.2020.08918
33. Aroosa Kanwal, Muhammad Bismillah Khan, Mubshar Hussain, Muhammad Naeem, Muhammad Shahid Rizwan and **Muhammad Zafar-ul-Hye**. 2020. Basal Application of Zinc to Improve Mung Bean yield and zinc-grains-biofortification. *Phyton-International Journal of Experimental Botany*. 89(1): 87-96. DOI:10.32604/phyton.2020.07845
34. **Muhammad Zafar-ul-Hye**, Muhammad Mubashir Wasim, Tariq Muhammad Munir, Muhammad Aon, Muhammad Shaaban, Mazhar Abbas, Mubshar Hussain and Maqshoof Ahmad . 2020. Co-application of sugarcane bagasse biochar, farmyard manure and mineral nitrogen improved growth indices of corn grown in alkaline calcareous soil. *Journal of Plant Nutrition*, DOI: 10.1080/01904167.2020.1727509
35. Subhan Danish, **Muhammad Zafar-ul-Hye**, Shahid Hussain, Muhammad Riaz and Muhammad Farooq Qayyum. 2020. Mitigation of drought stress in maize through inoculation with drought tolerant ACC deaminase containing PGPR under axenic conditions. *Pakistan Journal of Botany*. 52(1): 49-60. DOI: [http://dx.doi.org/10.30848/PJB2020-1\(7\)](http://dx.doi.org/10.30848/PJB2020-1(7))
36. Mazhar Abbas, Jahanzeb Anwar, **Muhammad Zafar-ul-Hye**, Rashid Iqbal Khan, Muhammad Saleem, Ashfaq Ahmad Rahi, Subhan Danish and Rahul Datta. 2020. Effect of seaweed extract on productivity and quality attributes of four onion cultivars. *Horticulturae*. 6 (2): 28. DOI:10.3390/horticulturae6020028.
37. **Muhammad Zafar-ul-Hye**, Muhammad Mudassir Aslam, Maqshoof Ahmad, Muhammad Suleman, Arbab Shehzadi, Muhammad Shakeel Nawaz and Subhan Danish. 2020. Combined effect of KSB and biochar on growth indices and phosphorus, potassium and chlorophyll content in sorghum under drought stress. *International Journal of Biosciences*. 16(5): 212-221.
38. Muhammad Farooq Qayyum, Mehak Ameer Abdullah, Muhammad Rizwan, Ghulam Haider, Muhammad Arif Ali, **Muhammad Zafar-ul-Hye** and Muhammad Abid. 2019. Different nitrogen and biochar sources' application in an alkaline calcareous soil improved the maize yield and soil nitrogen retention. *Arabian Journal of Geosciences*. 12,664. DOI: <https://doi.org/10.1007/s12517-019-4846-6>
39. Muhammad Shaaban, Qi-an Peng, Saqib Bashir, Yupeng Wu, Aneela Younas, Xiangyu Xu, Mehran Razaei Rashti, Muhammad Abid, **Muhammad Zafar-ul-Hye**, Avelino Núñez-Delgado, William R. Horwath, Yanbin Jiang, Shan Lin and Ronggui Hu. 2019. Restoring effect of soil acidity and Cu on N₂O emissions from an acidic soil. *Journal of Environmental Management*. 250: 109535. <https://doi.org/10.1016/j.jenvman.2019.109535>
40. Muhammad Farooq Qayyum, Rabia Abdur Rehman, Seemab Liaqat, Muhammad Ikram, Shafaqat Ali, Muhammad Rizwan, Muhammad Zia ur Rehman,

- Muhammad Zafar-ul-Hye** and Qaiser Hussain. 2019. Cadmium immobilization in the soil and accumulation by spinach (*Spinacia oleracea*) depend on biochar types under controlled and field conditions. *Arabian Journal of Geosciences*. 12, 493. DOI: <https://doi.org/10.1007/s12517-019-4681-9>
41. Hameed, S., M. Abbas, R. I. Khan, M. T. Aslam and **M. Zafar-ul-Hye**. 2019. Assessment of vegetative and reproductive traits in bottle gourd cultivars. *Pakistan Journal of Agriculture, Agricultural Engineering and Veterinary Sciences*. 35 (1): 1-6.
 42. **Muhammad Zafar-ul-Hye**, Subhan Danish, Mazhar Abbas, Maqshoof Ahmad and Tariq Muhammad Munir. 2019. ACC Deaminase Producing PGPR *Bacillus amyloliquefaciens* and *Agrobacterium fabrum* along with niochar improve wheat productivity under drought stress. *Agronomy*. 9 (7): 343. DOI:10.3390/agronomy9070343.
 43. **Muhammad Zafar-ul-Hye**, Tariq Shahzad Bhutta, Muhammad Shaaban, Shahid Hussain, Muhammad Farooq Qayyum, Umar Aslam and Zahir Ahmad Zahir. 2019. Influence of plant growth promoting rhizobacterial inoculation on wheat productivity under soil salinity stress. *Phyton-Internatinlal Journal of Experimental Botany*. 88 (2) 119-129. DOI:10.32604/phyton.2019.06570
 44. **Muhammad Zafar-ul-Hye**, Niaz Muhammad Hussain, Subhan Danish, Umar Aslam and Zahir Ahmad Zahir. 2019. Multi-strain bacterial inoculation of *Enterobacter cloacae*, *Serratia ficaria* and *Burkholderia phytofirmans* with fertilizers for enhancing resistance in wheat against salinity stress. *Pakistan Journal of Botany*. 51(5): 1839-1846. Doi: [http://dx.doi.org/10.30848/pjb2019-5\(24\)](http://dx.doi.org/10.30848/pjb2019-5(24))
 45. Danish, S. and **M. Zafar-ul-Hye**. 2019. Co-application of ACC-deaminase producing PGPR and timber-waste biochar improves pigments formation, growth and yield of wheat under drought stress. *Scientific Reports*. 9:5999. Doi: 10.1038/s41598 019-42374-9
 46. Danish, S., **M. Zafar-ul-Hye**, M. Hussain, M. Shaaban, A. Núñez-Delgado, S. Hussain and M.F. Qayyum. 2019. Rhizobacteria with ACC-deaminase activity improve nutrient uptake, chlorophyll contents and early seedling growth of wheat under PEG-induced osmotic stress. *International Journal of Agriculture and Biology*. 21: 1212–1220.
 47. Yaseen, R., **M. Zafar-ul-Hye** and M. Hussain. 2019. Integrated application of ACC-deaminase containing plant growth promoting rhizobacteria and biogas slurry improves the growth and productivity of wheat under drought stress. *International Journal of Agriculture and Biology*. 21: 869–878.
 48. Hussain, S., K. Sahar, A. Naeem, **M. Zafar-ul-Hye** and M. Aon. 2018. Combined zinc and nitrogen applications at panicle initiation for zinc biofortification in rice. *Periodicum Biologorum*. 120 (2–3): 105–110. DOI: 10.18054/pb.v120i2-3.6866
 49. **Zafar-ul-Hye, M.**, A. Nasir, M. Aon, S. Hussain, M. Ahmad and I. Naz. 2018. Seed inoculation with *Pseudomonas fluorescens* and *Pseudomonas syringae* enhanced maize growth in a compacted saline-sodic soil. *Phyton- International Journal Experimental Botany*. 87: 25-31.
 50. Aon, M., M. Khalid, M.A. Naeem, **M. Zafar-ul-Hye**, S. Hussain, M. Hussain and Z. Aslam, 2018. Peanut-waste biochar and buffalo manure decreased nitrogen and phosphorus requirement of maize grown in an alkaline calcareous soil. *International Journal of Agriculture and Biology*. 20: 2661–2668.
 51. Farheen Nazli, Bushra, Muhammad Mazhar Iqbal, Fatima Bibi, **Zafar-ul-Hye**, Muhammad Ramzan Kashif and Maqshoof Ahmad. 2018. Modeling the potassium requirements of potato crop for yield and quality optimization. *Asian Journal of Agriculture and Biology*. 6(2):169-180.

52. Rabia Abdur Rehman, Muhammad Rizwan, Muhammad Farooq Qayyum, Shafaqat Ali, Muhammad Zia-ur-Rehman, **Muhammad Zafar-ul-Hye**, Farhan Hafeez and Muhammad Fasih Iqbal. 2018. Efficiency of various sewage sludges and their biochars in improving selected soil properties and growth of wheat (*Triticum aestivum*). Journal of Environmental Management. 223: 607–613.
53. **Muhammad Zafar-ul-Hye**, Areeba Shahjahan, Subhan Danish, Muhammad Abid and Muhammad Farooq Qayyum. 2018. Mitigation of cadmium toxicity induced stress wheat by ACC-deaminase containing PGPR isolated from cadmium polluted wheat rhizosphere. Pakistan Journal of Botany. 50(5); 1727-1734.
54. Shaaban, M., Y. Wu, Q. Peng, L. Wu, L. Van Z w i e t e n, M. S. Khalid, A. Younas, S. Lin, J. Zhao , S. Bashir, **M. Zafar-ul-hye**, M. Abid and R. Hu. 2018. The interactive effects of dolomite application and straw incorporation on soil N₂O emissions. European Journal of Soil Science. 69 (3): 502-511. DOI: 10.1111/ejss.12541.
55. Muhammad Shaaban , Yupeng Wu , Muhammad Salman Khalid , Qi-an Peng, Xiangyu Xu, Lei Wu a, Aneela Younas , Saqib Bashir , Yongliang Mo , Shan Lin , **Muhammad Zafar-ul-Hye** , Muhammad Abid and Ronggui Hu. 2018. Reduction in soil N₂O emissions by pH manipulation and enhanced nosZ gene transcription under different water regimes. Environmental Pollution. 235: 625-631.
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57. **Muhammad Zafar-ul-Hye**, Umar Aslam, Bushra Muqaddas and Muhammad Baqir Hussain. 2017. Connotation of *Enterobacter cloacae*-W6 and *Serratia ficaria*-W10 with or without carriers for improving growth, yield and nutrition of wheat. Soil & Environment. 36(2): 182-189.
58. Muhammad Farooq Qayyum, Fatima Liaquat, Rabia Abdur Rehman, Mehreen Gul, **Muhammad Zafar ul Hye**, Muhammad Rizwan and Muhammad Zia ur Rehman. 2017. Effects of co-composting of farm manure and biochar on plant growth and carbon mineralization in an alkaline soil. Environmental Science and Pollution Research. DOI 10.1007/s11356-017-0227-4
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75. **Zafar-ul-Hye, M.**, M. Yaseen, M. J. Akhtar, T. Mahmood and G. Yaseen. 2002. Effect of thermal power station waste on growth and nutrient use efficiency of wheat crop under field conditions. *Pakistan Journal of Arid Agriculture*. 5(1): 65-68.

76. Muhammad Ahmad Zeshan, Yasir Iftikhar, Ashara Sajid, Muhammad Usman Ghani, **Muhammad Zafar-ul-Hye** and Mazhar Abbas. 2021. Spatio-temporal analysis of cucumber mosaic virus disease and its sustainable management. **Pakistan Journal of Botany**. (IF: 0.972)

Book Chapter (Published)

1. Shahid Hussain, Zed Rengel, Muhammad Qaswar, Mamoona Amir, and **Muhammad Zafar-ul-Hye**. 2019. Arsenic and Heavy Metal (Cadmium, Lead, Mercury and Nickel) Contamination in Plant-Based Foods. Springer Nature Switzerland AG M. Ozturk, K. R. Hakeem (eds.), *Plant and Human Health, Volume 2*. P 447-490.
https://doi.org/10.1007/978-3-030-03344-6_20
2. Jitka Prichystalova, Jiri Holatko, Tereza Hammerschmiedt, Rahul Datta, Ram Swaroop Meena, Marek Sudoma, Lucie Bielska, Maja Radziemska, Zygmunt Mariusz Gusiati, Antonin Kintl, Meenakshi Sharma, Subhan Danish, Muhammad Zafar-ul-Hye and Martin Brtnicky. 2021. Biochar Role in Soil Carbon Stabilization and Crop Productivity In Carbon Stabilization. In Carbon and Nitrogen Cycling in Soil. Datta, R., Meena, R.S. (Eds.). Springer Nature. Singapore. pp 1-46.
3. Subhan Danish, Muhammad Zafar-ul-Hye, Muhammad Tahzeeb-ul-Hassan, Javed Iqbal, Inam Irshad, Muhammad Khalid Rasheed, Rahul Datta and Paul Ola Igboji. 2021. Role of Soil Microbes and Their Cell Components in Carbon Stabilization. In Carbon and Nitrogen Cycling in Soil. Datta, R., Meena, R.S. (Eds.). Springer Nature. Singapore. pp 169-204.
4. Paul Ola Igboji, Subhan Danish, Muhammad Zafar-ul-Hye and Rahul Datta, 2021. Carbon Stabilisation in Tropical Ecosystem In Carbon and Nitrogen Cycling in Soil. Datta, R., Meena, R.S. (Eds.). Springer Nature. Singapore. pp 243-275.

Research Papers Presented in International/National Conferences

1. Muhammad Shaaban, Ronggui Hu and **Muhammad Zafar-ul-Hye**. 2019. Genetic evaluation of N₂O emissions. 1st International Conference on Sustainable Agriculture: Food Security under Changing Climate Scenarios on April, 3-5, 2019 organized by Faculty of Agricultural Sciences, Ghazi University, Dera Ghazi Khan, Pakistan (The session was held in Bahauddin Zakariya University, Multan)
2. Yaseen, R. and **M. Zafar-ul-Hye**. 2018. Ameliorating the effect of drought stress through integrated application of ACC-deaminase containing plant growth rhizobacteria and organic amendment to improve the productivity of wheat. P 276. Abstract published in 1st international and 2nd national conference on Challenges and Opportunities to Boost Agriculture in Changing Climate held on 26-28 March. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus, Layyah, Pakistan.
3. Mahmood, F., **M. Zafar-ul-Hye** and M. Gul. 2018. Effect of plant growth promoting rhizobacteria and potassium fertilization on spinach growth under salt stress. Poster presentation in 1st international and 2nd national conference on Challenges and Opportunities to Boost Agriculture in Changing Climate held on 26-28 March. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus, Layyah, Pakistan.
4. Yaseen, R. and **M. Zafar-ul-Hye**. 2018. Integrated use of drought tolerant ACC-deaminase containing PGPRs and biogas slurry for sustainable production of

- wheat under drought stress condition. Abstract published in 17th International Congress of Soil Science held on March 13-15. Serena, Faisalabad, Pakistan.
5. Urwah Mansoor, Bushra Muqaddas, **Muhammad Zafar-ul-Hye**, Rabbia Rashid and Samia Aziz. Application of phosphorus improves growth of two maize (*Zea mays* L.) cultivars in salt affected soil. ICBES International conference on bio-approaches for environment and sustainability held on Feb 22-23, 2017 at Islamabad, Pakistan.
 6. Ashiq, K., A. Rehim, **Zafar Ul Hye** and M. Imran. 2014 .Effect of different nitrogen level and sowing method for wheat crop under salt affected conditions. p 191. Abstract published in 15th International Congress of Soil Science on Soil Management in Changing Climate held on 18-20 March at National Agricultural Research Centre, Islamabad, Pakistan.
 7. Yaseen, R., A. Rehim, M. Imran and **M. Z. Hye**. 2014. Mulching improves maize crop productivity and soil physical properties. p 135. Abstract published in 2nd International Conference on Global Environmental Changes held on 25-26 February. Government College University, Faisalabad Pakistan.
 8. **Zafar-ul-Hye, M.**, Z. A. Zahir, M. Ahmad, S. M. Shehzad and H. M. Haroon. 2010. Microbial ACC-deaminase biotechnology for sustainable production of lentil. 13th Congress of Soil Science held on 24-27 March, in Serena Hotel, Faisalabad, Pakistan.
 9. **Zafar-ul-Hye, M.**, Z. A. Zahir and S. M. Shehzad. 2008. Use of biotechnology of co-inoculation with plant growth promoting rhizobacteria containing ACC-deaminase and rhizobia to improve growth and nodulation of lentil under axenic and natural conditions. 2nd International Jordanian-Egyptian Biotechnology Conference held on 11-13 November, at Yarmouk University, Irbid, Jordan.
 10. Zahir, Z. A., **M. Zafar-ul-Hye**, M. Naveed, S. M. Shehzad, H. N. Asghar and M. Arshad. 2008. Improving growth and nodulation in lentil through co-inoculation with rhizobium and ACC-deaminase containing plant growth promoting rhizobacteria. International Conference of Plant Scientists (10th National Meeting of Plant Scientists) held on 21-24 April, at University of Agriculture, Faisalabad, Pakistan.
 11. **Zafar-ul-Hye, M.** and M. Yaseen. 2002. Effect of by-product of a thermal power station on the nutrient use efficiency of wheat crop under field conditions. 9th International Congress of Soil Science held on 18-20 March, at NIAB (Nuclear Institute for Agriculture and Biology) Faisalabad, Pakistan.

Research Projects Completed

1. Assessing the response of maize (*Zea mays* L.) to rhizobacterial inoculation in combination with biogas slurry (as PI, BZU project Rs. 190000/- ,**completed**)
2. Evaluating the role of plant growth promoting rhizobacteria and biochar on rice (*Oryza sativa* L.) growth and yield (as PI, BZU Rs. 200000/-, **completed**)
3. Ameliorating effect of elevated potassium fertilization on maize (*Zea mays* L) under salt stress (as CO-PI, HEC Startup Research Grant Program Rs. 4,49,500/-, **completed**)
4. Effect of phosphorus solubilizing bacteria and biochar on maize growth in different textured soils (as PI, BZU Rs. 250000/- **Completed**,)

PhD and MSc (Hons.) Theses Evaluation

Degree	Scholar	Thesis title	Year	Institution
PhD	Zahid	Evaluating the Potential	2020	School of

	Hussain	of Bacterial Assisted Constructed Wetlands for the Remediation of Dye-Rich Textile Effluent		Textile and Design, University of Management and Technology, Lahore
PhD	Zafar Iqbal	Potential of Endophytic Bacteria and Phosphate Solubilizing Rhizobacteria for Improving Wheat Productivity	2020	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Sobia Afzal	Role of melatonin in acclimating morphophysiological, ionic and biochemical attributes of maize under chromium stress	2019	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Muhammad Waqar Akhtar	Characterization of Different Halophytic Grasses Against Salinity Stress	2019	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Iftikhar Ahmed	Improvement in salt tolerance of wheat through melatonin supply	2019	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Aasma Parveen	Biochemical characterization of some medicinal plants of Cholistan	2016	Department of Soil Science, University College of

				Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Muhammad Faiz	Efficacy of zinc & boron application on growth & yield of okra (<i>Abelmoschus esculentus</i> L.)	2016	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur
MSc.(Hons.)	Abdul Rehman	Integrated use of PGPR & and organic fertilizers for enhancing yield & water use efficiency of chickpea (<i>Cicer arietinum</i> L.) under field condition	2016	Department of Soil Science, University College of Agri. & Enviorn. Sciences, The Islamia University of Bahawalpur

Title of M.Sc. (Hons.) Thesis

Effect of by-product of a thermal power station on the nutrient use efficiency of wheat crop under field conditions

Title of Ph.D. Thesis

Improving nodulation in lentil through co-inoculation with rhizobia and ACC-deaminase containing plant growth promoting rhizobacteria

Cources studied during Ph.D.

SS-709	Advanced Soil Fertility	3(3-0)
SS-713	Soil Plant Relationships	3(3-0)
SS-710	Advanced Soil Microbiology	3(3-0)
SS-712	Soil Mineralogy	3(3-0)
SS-719	Special Problem	1(1-0)
SS-719	Special problem	1(1-0)
SS-720	Seminar	1(1-0)
SS-720	Seminar	1(1-0)
Bot-707	Water Relations of Plants	3(2-2)
C.PHY-706	Stress Physiology	3(3-0)
C.PHY-709	Biological Nitrogen fixation	3(3-0)
BIOCHEM-706	Environmental Biochemistry	3(3-0)
STAT-710	Experimental Design-II	3(3-0)

Courses taught at Bahauddin Zakariya University Multan, Pakistan

For PhD Students;

SES-704 ADVANCED SOIL MICROBIOLOGY

For M.Sc. (Hons.) /M.Phil. Students;

SES-503 SOIL MICROBIOLOGY AND BIOCHEMISTRY

For B.Sc. (Hons) Students;

SES-401 SOIL MICROBIOLOGY AND ENVIRONMENT

SES-101 SOIL AND ENVIRONMENT I

SES-102 SOIL AND ENVIRONMENT II

SES- 305 SOIL SURVEY

SES-306 SOIL GENESIS AND MORPHOLOGY

Duties performed for HEC and other universities

1. Member (ex), National Curriculum Revision Committee in Agricultural Chemistry for Higher Education Commission, Pakistan
2. Member, Board of Studies, Department of Soil Science, The Islamia University of Bahawalpur
3. Served as Technical Expert in the Selection Board for appointment of Associate Professors in Ghazi University, Dera Ghazi Khan in 2020

Duties performed at Bahauddin Zakariya University Multan, Pakistan

1. Chairman, Department of Soil Science (27.07.2016 to 26.07.2019)
2. Member, Technical Purchase Committee, Faculty of Agricultural Sciences and Technology, BZU Multan (14.06.2019 to date)
3. Ex-Director Student's Affairs, Department of Soil Science
4. Member, Board of Studies, Department of Soil Science
5. Member, Board of Studies, Faculty of Agricultural Sciences and Technology, BZU Multan.
6. Member, Admission Committee, Department of Soil Science
7. Member, Departmental Discipline Committee, Department of Soil Science
8. Ex-Member, Departmental Examination Committee, Department of Soil Science
9. Coordinator, B.Sc. (Hons.) Agri. Soil Science Programme session 2012-16 (11.10.2012 to October, 2013).
10. Coordinator, M.Sc. (Hons.) Agri. Soil Science Programme (1.11.2018 to 31.10.2019).
11. Member, Admission Test Committees for PhD and M.Sc. (Hons.) Programmes.
12. Member, Comprehensive Examination Committees for PhD and M.Sc. (Hons.) Programmes.
13. Chairman, Committee for publication of a Newsletter of Faculty of Agricultural Sciences and Technology, BZU Multan.
14. Building Incharge (ex), Soil Science portion, Former University College of Agriculture, BZU Multan.
15. Member (ex) Departmental Purchase Committee.

16. Chairman, Technical Purchase Committee, HEC-NRPU Project No. 7314 Titled, “Improving Citrus Productivity and Quality by Integrated Plant Nutrition including Micronutrients”.
17. Chairman, Technical Purchase Committee, HEC-NRPU Project No. 8933 Titled, “Up and down regulation of zinc uptake in plants by arbuscular mycorrhizal fungi for improving crop productivity”.
18. Chairman, Technical Purchase Committee, PARC funded Project Titled, “Improving Mango Productivity and Fruit Quality by Integrated Plant Nutrition, including Micronutrients, in Mango Growing Areas of Pakistan (Multan, Muzaffargarh, Rahim Yar Khan and Mirpur Khas Districts”.
19. Chairman, Selection Committee for appointment of Research Associate under HEC Project titled “Fate of Biochar-Sorbed Metal Elements; focus on plant Availability in growth Medium”.
20. Chairman, Departmental Timetable Committee.
21. Chairman, Technical Purchase committee, Higher Education Commission project titled "Fate of Biochar-sorbed metal elements; focus on plant availability in growth medium" at total cost of Rs.8699994/-.

Membership

- I. American Society for Microbiology
- II. Soil Science Society of Pakistan
- III. Pakistan Society of Botany
- IV. Fulbright Alumni Association
- V. The Pakistan Alumni Association of Commonwealth Scholars

Technical Session Chair in International Conference

Technical Session Chair, 1st international and 2nd national conference on Challenges and Opportunities to Boost Agriculture in Changing Climate held on 26-28 March. College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus, Layyah, Pakistan

Activities

Organizer:

- I. International Seminar on Biochar Use in Changing Climate on October 05, 2018 at Auditorium Gilani Law College, Bahauddin Zakariya University, Multan, Pakistan
- II. Seminar, “Fertilizer Use Efficiency” on March 28, 2017 in Faculty of Agricultural Sciences and Technology, Bahauddin Zakariya University, Multan, Pakistan.
- III. One-Day Workshop on Tools and Methods in Research Writing- “Developing Skills in Scientific Writing” in collaboration with ScienceVier on April 18, 2017 in Ednan Shahid Auditorium, Department of Communication Studies, Bahauddin Zakariya University, Multan, Pakistan.

Dr. Muhammad Zafar-ul-Hye (CV)

Past Academic Editor: Asian Journal of Soil Science and Plant Nutrition
(<http://www.sciencedomain.org/journal/62/editorial-board-members>)

Reviewer :

1. Scientific Reports (Nature's Journal)
2. Microbiological Research
3. International Journal of Plant and Animal Sciences
4. International Research Journal of Plant and Crop Sciences
5. American Journal of Experimental Agriculture
6. Microbiological Research
7. Phyton- International Journal of Experimental Botany
8. Pakistan journal of Botany
9. Soil & Environment (Scientific Journal of Soil Science Society of Pakistan)

Reviewer: Ex- Reviewer, Pakistan Agricultural Research Council (PARC) funding projects under Agricultural Linkages Program (ALP)

Extra-Curricular Activities:

- Writer
- Compere
- Worked as President, “Society of Agricultural Writers (SAW)” –the Literary Society of University of Agriculture, Faisalabad
- Worked as Join Editor, “*Kisht-e-Nau*” –the Student Magazine of University of Agriculture, Faisalabad
- Participated in Alive Expo 2014 Conference on Food Security Challenges with collaboration of Bahauddin Zakariya University Multan on March 31 April 01-02, 2014
- Participated as Mentor in Food Security in Civic Hackathon 2020 organized by the Code for Pakistan