



DR. UMAIR RIAZ

email: umairbwp3@gmail.com
umair.riaz@uaf.edu.pk

CONTACTS

CURRENT ADDRESS

Soil and Water Testing Laboratory
For Research, Bahawalpur
Pakistan
Mob: +923006208789

PERMANENT ADDRESS

M. Umair Riaz s/o M. Riaz
House No. 1, Street No. 9
Qasim Town, Bahawalpur,
Pakistan

ACADEMIC RECORD

Ph. D. (2014-2017)

Thesis Title: Effect of sewage sludge and compost application on soil health and plant growth
Major Courses: Advances in Soil Chemistry, Principles and Applications of Bioremediation, Advances in Soil Fertility, Soil-Plant-Environment Relationship, Applied Crop Ecology, Advances in Irrigation Agronomy, Environmental Biochemistry
Place: University of Agriculture, Faisalabad, Pakistan, PAKISTAN.

M. Sc. (Hons.) (2012-2014)

Subject: Soil Science
Thesis Title: Effect of alkaline pH on potassium release kinetics from biotite and muscovite minerals at 25°C.
Major Courses: Soil Fertility and Plant Nutrition, Soil Chemistry, Soil Microbiology and Biochemistry, Soil Physics, Salt affected and water logged soils, Environmental Biology of Plants, Biological Nitrogen Fixation, Advance Analytical Chemistry, Instrumental analysis and analytical techniques, Experimental Statistics
Place: University of Agriculture, Faisalabad, Pakistan, PAKISTAN.

B. Sc. (Hons.) Agri (2008-2012)

Subject: Agriculture (Soil Science)
Major Courses: Basic Agriculture, Computer Science and Technology, Introduction to Food Science, Designs of Experiments, Environment Pollution and Management, Soil Water and Environment Conservation, Preparation of Research Project and Scientific Writing, Soil Genetics, Advance Botany
Place: Islamia University of Bahawalpur, Bahawalpur. PAKISTAN.

RESEARCH EMPLOYMENT

December 2016 - June-2021	Quality Assurance Officer (ISO/IEC 17025:2017) Soil and Water Testing Laboratory for Research, Bahawalpur-63100, Pakistan
May 2016 - To present	Agricultural Officer (Lab) (BPS-17) Soil and Water Testing Laboratory for Research, Bahawalpur-63100, Pakistan
September 2014 - April 2016	Research Associate (BPS-17) Soil, Water and Environmental Chemistry Lab, Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad, Pakistan, Higher Education Commission funded Project entitled: <i>“Evaluation and management of sludge and compost from different sources for sustainable agriculture”</i> .

HONORS AND AWARDS

2015	Got Laptop from Prime Minister Laptop Scheme on merit based.
2015	Best Poster Award (3rd Prize) International Conference on Soil Sustainability for Food Security. 2015, Institute of Soil and Environmental Sciences, University of Agriculture Faisalabad, Pakistan.
2017	Got Honorarium (Cash prize) from Government of Punjab for Best performance for the year 2016-17.
2017	Appreciation letter with prize for completion of PhD within six semesters (three years) from worthy Vice Chancellor, University of Agriculture Faisalabad
2019	Got Honorarium (Cash prize) from Government of Punjab for Best performance for the year 2019-20.

PROFESSIONAL AFFILIATIONS AND SERVICES

Editor-in-Chief

Journal of Quality Assurance in Agricultural Sciences (DOI)

Ad-hoc Reviewer for Peer-reviewed Journals

- Human and Ecological Risk Assessment: An International Journal
- Pakistan Journal of Agricultural Research
- Asian Journal of Agricultural Sciences
- Frontiers of Plant Sciences
- Journal of Agriculture and Plant Sciences

- Environmental Geochemistry and Health
- Clean-Soil-Air-Water
- International Journal of Phytoremediation
- Journal of hazardous material
- Journal of animal and plant sciences
- Paddy and water
- Journal of Public Health
- Acta Geoderma

Professional Organization Member

- Soil Science Society of Pakistan (SSSP)
- Society of Young Agronomist (SOYA)
- Pakistan Agricultural Scientist Forum (PAS Forum)

Technical Services

- Served as Technical Assessor and Internal Auditor with Pakistan National Accreditation Council (PNAC) to check Quality Assurance for ISO standards (9001, 17025).
- 10 Labs assessment conducted for different products of pesticide and fertilizers
- More than 50 field visits conducted as a technical expert for soil sampling and fertilizer, crop recommendations.

TEACHING EXPERIENCE _____

INSTRUCTOR OF RECORD

Fall 2015

Spring 2016

Advances in Soil Chemistry

Salt-Affected Soils and Their Management, Institute of Soil and Environmental Sciences, University of Agriculture Faisalabad, Pakistan

EXTERNAL EXAMINER

1. Mirza Waleed. (Reg No. CIIT/SP17-BES-012/VHR). Evaluating the efficiency of coarser to finer resolution multispectral satellites (using GEE implementation) in mapping paddy rice fields for the Southern Punjab region. COMSATS University Islamabad, Vehari Campus
2. Hina Tariq. (Reg No. CIIT/FA17-BES-020/VHR). Biodegradation of Polyethylene Bag Using Bacteria-Biochar Compost. COMSATS University Islamabad, Vehari Campus
3. Ayesha Younas. (Reg No. CIIT/FA17-BES-017/VHR). Removal Potential of Zero Valent Bismuth, Copper and its Composites with Almond Biochar for the Removal Chromium. COMSATS University Islamabad, Vehari Campus

PUBLICATIONS

INTERNATIONAL BOOK EDITORSHIP

Umair Riaz, Shazia Iqbal, Moazzam Jamil, 2021, Waste Management in Developing Countries, Apple Academic Press, CRC press, Taylor and Francis Group, Florida, USA (*In production*)

Umair Riaz, Khalid Rehman Hakeem, 2021, Locust Outbreak, Management and World's Economy, Apple Academic Press, CRC press, Taylor and Francis Group, Florida, USA (*In production*)

Umair Riaz, Qamar-uz-Zaman, 2020. Rice production: Knowledge practices for ensuring food security. Austin Publishing Group. ISBN: 978-93-87500-51-8 (pages 1-129). (<https://austinpublishinggroup.com/ebooks/food-security/index.php>)

BOOK CHAPTERS

PUBLISHED

1. **Umair Riaz**, Mehdi, S. M., Iqbal, S., Khalid, H. I., Qadir, A. A., Anum, W., ... & Murtaza, G. (2020). Bio-fertilizers: Eco-Friendly Approach for Plant and Soil Environment. In Bioremediation and Biotechnology (pp. 189-213). Springer, Cham. (ISBN 978-3-030-35690-3)
2. **Umair Riaz**, Aziz H, Anum W, Mehdi, S. M, Murtaza, G, and Jamil M, Biofortification Technologies Used in Agriculture in Relation to Micronutrients. T. Aftab, K. R. Hakeem (eds.), Plant Micronutrients, Springer Nature Switzerland AG 2020 225 (pp. 225-237) (https://doi.org/10.1007/978-3-030-49856-6_9)
3. **Umair Riaz**, Faizan R, Naveed M, Mehdi S. M. Murtaza G, Niazi A.G. Mehmood H. 2019. Pesticide Pollution in an aquatic Environment. Freshwater Pollution and Aquatic Ecosystems
4. Environmental Impact and Sustainable Management. Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781771889582)
5. **Umair Riaz**, G Murtaza, A A Qadir, F Rafi, M A Qazi, S Javid M Tuseef, M Shakir. 2020. Biofertilizers: A Viable Tool for Future Organic Agriculture. (ed) Microbiota and Biofertilizers: a sustainable continuum for plant and soil health" Springer Nature Switzerland AG.
6. Iqbal S, **Umair Riaz**, G Murtaza, M Jamil, M Ahmed, A Hussain, Z Abbas. 2020. Chemical Fertilizers, Formulation, and their Influence on Soil Health. (ed) Microbiota and Biofertilizers: a sustainable continuum for plant and soil health" Springer Nature Switzerland AG.
7. **Umair Riaz**, G Murtaza, W Anum, T Samreen, M Sarfraz, M Z Nazir. 2020. Plant Growth-Promoting Rhizobacteria (PGPR) As Biofertilizers And Biopesticides. (ed) Microbiota and Biofertilizers: a sustainable continuum for plant and soil health" Springer Nature Switzerland AG.

8. Samreen T, **Umair Riaz**, M Sarfraz, M Z Nazir, Z A Zaheer, S Kanwal, S Muntaha.2020. Understanding the Role of Bacterial Fertilizers in Stressed Agriculture: Actions, Mechanisms and Future Prospects. Plant Growth Regulators: Signalling under Stress Conditions. (ed) Springer Nature Switzerland AG.
9. Umair Riaz et al. (2021) Genomics of Mustard Crops. In: Tombuloglu H., Unver T., Tombuloglu G., Hakeem K.R. (eds) Oil Crop Genomics. Springer, Cham. https://doi.org/10.1007/978-3-030-70420-9_12.
10. **Umair Riaz**, Tariq Mehmood, Muhammad Irfan Sohail, Fatima Akmal, and Natasha Erum, 2021. Role of Rhizobacteria in Phytoremediation of Metal Contaminated Lands. (eds) Junaid Ahmad Malik, Megh R. Goyal. Bioremediation and Phytoremediation Technologies in Sustainable Soil Management, Volume 2, Microbial Approaches and Recent Trends. (ISBN: 9781774637197).
11. **Umair Riaz**, Ghulam Murtaza, Shazia Iqbal, and Tabinda Athar. 2021. Soil Bioremediation Strategies Based on Fungal Enzymes. (eds) Junaid Ahmad Malik, Megh R. Goyal. Bioremediation and Phytoremediation Technologies in Sustainable Soil Management, Volume 2, Microbial Approaches and Recent Trends. Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781774637197).
12. Wajiha Anum, **Umair Riaz**, Ghulam Murtaza, Muhammad Umair Raza, and Asad-Ur-Rahman. 2021. Sustainable Agro-Ecosystems: Recent Trends and Approaches in Phytoremediation and Rhizoremediation. (eds) Junaid Ahmad Malik, Megh R. Goyal. Bioremediation and Phytoremediation Technologies in Sustainable Soil Management, Volume 2, Microbial Approaches and Recent Trends Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781774637197).
13. Laila Shahzad, **Umair Riaz**, and Faiza Sharif 2021. Assessment of Remediation Efficiency: Microbial Indicators of Soil Health. (eds) Junaid Ahmad Malik, Megh R. Goyal. Bioremediation and Phytoremediation Technologies in Sustainable Soil Management, Volume 2, Microbial Approaches and Recent Trends Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781774637197).
14. Zeenat Javeed, **Umair Riaz**, Ghulam Murtaza, Shahzada Munawar Mehdi, Muhammad Idrees, Qamar Uz Zaman, and Waqas Khalid. 2021. Nano-Fertilizers and Nano-Pesticides: Application and Impact on Agriculture, (eds) Khalid Rehman Hakeem, Majid Rasool Kamli, Jamal S. M. Sabir, Hesham F. Alharby, Diverse Applications of Nanotechnology in the Biological Sciences An Essential Tool in Agri-Business and Health Care Systems. Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781774638408).
15. Syed Ali Zulqadar, Mohammad Ali Kharal, **Umair Riaz**, Rashid Iqbal, Behzad Murtaza, Ghulam Murtaza, and Shahzada Munawar Mehdi. 2021. Toxicity of Nanoparticles in Plants. (eds) Khalid Rehman Hakeem, Majid Rasool Kamli, Jamal S. M. Sabir, Hesham F. Alharby, Diverse Applications of Nanotechnology in the Biological Sciences An Essential Tool in Agri-Business and Health Care Systems. Apple Academic Press (AAP), CRC Press, a Taylor & Francis Group (ISBN: 9781774638408).

SUBMITTED

1. U Riaz, Tayyaba S, Muhammad S S, Humera A, Laila S, Muhammad Z N, Nimra R, Tariq M, Ghulam H J. 2021. Nanotechnology and use of nanoparticles in developing environmental stress-tolerant plants. (Eds) A. R. Choudary. In Book: Biology and Biotechnology of Environmental Stress Tolerance in Plants (Volume-II). CRC Press, Apple Academic Press.
2. U. Riaz, Ayesha H, Madiha F, Humera A, Madiha R, Ghulam M, 2021, Plant Secondary Metabolites and Environmental Stress – An Overview, (Eds) A. R. Choudary. In Book: Biology and Biotechnology of Environmental Stress Tolerance in Plants. CRC Press, Apple Academic Press.

PEER-REVIEWED JOURNAL ARTICLES

1. **Umair Riaz**, Ghulam Murtaza, Saifullah, and Muhammad. Farooq. 2018. Influence of various sewage sludges and composts on growth, yield and trace element contents in rice and wheat. *Land Degradation and Development*. 29 (5): 1343-1352. **(IF = 8.73)**
2. **Umair Riaz**, Ghulam Murtaza, Saifullah, and Muhammad. Farooq. 2018. Comparable effect of commercial composts on chemical properties of sandy clay loam soil and accumulation of trace elements in the soil-plant system. *International Journal of Agriculture and Biology*. 20(1): 85–92. **(IF = 0.82)**
3. **Umair Riaz**, Ghulam Murtaza, Saifullah, Humera Aziz, Ayesha Abdul Qadir, Qamar-uz-Zaman, Shahzada Munawar Mehdi and Muhammad Akram Qazi. 2020. Chemical fractionation and risk assessment of trace elements in various sewage sludge produced and marketed in developing countries. *Environmental Science and Pollution Research*. 27:39742–39752 (Accepted). **(IF = 2.914)**
4. **Umair Riaz**, Zafar Abbas, Qamar uz Zaman, M. Mubashir, M. Jabeen, S.A. Zulqadar, Z. Javeed, S. Rehman, M. Ashraf, and J. Qamar. 2018. Evaluation of groundwater quality for irrigation purposes and effect on crop yields: A GIS-based study of Bahawalpur. *Pakistan Journal of Agricultural Research*, 31(1): 29-36. (Y-category).
5. Umair Riaz, Aslam, A., uz Zaman, Q., Javeid, S., Gul, R., Iqbal, S., Javid, S., Murtaza, G. and Jamil, M., 2021. Cadmium contamination, bioavailability, uptake mechanism and remediation strategies in soil-plant-environment system: a critical review. *Current Analytical Chemistry*, 17(1), pp.49-60. **(IF = 1.242)**
6. Saleem F, **Umair Riaz**, Aziz H, Murtaza G, Saifullah, Naveed M, Shahid M & Murtaza B, 2018. Health risk assessment of trace metals from spinach grown on compost-amended soil, *International Journal of Phytoremediation*, 20 (13), 1330-1336. **(IF = 1.886)**.
7. Naveed M, Saifullah, **Umair Riaz**, Murtaza G, Bibi S, Arooj A, Zaman Q. 2018. Strategic use of water: a step toward cadmium-free basmati rice (*Oryza sativa* L.). *Paddy and Water Environment Volume 16* (4) 867–873. **(IF = 1.264)**.

8. **Umair Riaz.**, I Bibi, N. K, Niazi G, Murtaza H, Aziz 2018. Potassium release kinetics from dioctahedral and trioctahedral minerals under alkaline conditions, *Global Journal of Science Frontier Research: D Agriculture and Veterinary*. 18(2): 61-71. (Y-category).
9. Javeed Z, M Ahmed, SM Mehdi, **Umair Riaz**, A Sardar, M Ehsan, A Saleem, W Anum, SA Zulqadar, and Z Ahmed. 2018. *Food Science and Nutrition Technology*. 3(2): 1-12. (Y-category).
10. Sardar A, Z Javeed, **Umair Riaz**, A Saleem, M Ehsan, M Naveed, S A Zulqadar, M A Kharal. 2018. *Journal of Environmental and Agricultural Sciences*. 14: 39-45
11. **Umair Riaz.**, M.A. Kharal, G. Murtaza, Q. Zaman, S. Javaid, H.A. Malik, H. Aziz, and Z. Abbas. 2019. Prospective roles and mechanisms of caffeic acid in counter plant stress: A mini review. *Pakistan Journal of Agricultural Research*, 32(1): 8-19. (Y-category).
12. Tabassum, F., Q. Zaman, Y. Chen, **Umair Riaz**, W. Ashraf, A. Aslam, N. Ehsan, R. Nawaz, H. Aziz and S.S. Shah. 2018. Exogenous application of proline improved salt tolerance in rice through modulation of antioxidant activities. *Pakistan Journal of Agricultural Research*, 32(1): 140-151. (Y-category).
13. Ijaz, F., **Umair Riaz**, S. Iqbal, Q. Zaman, M.F. Ijaz, H. Javed, M.A. Qureshi, Z. Mazhar, A.H. Khan, H. Mehmood, and I. Ahmad. 2019. Potential of Rhizobium and PGPR to enhance growth and fodder yield of berseem (*Trifolium alexandrinum* L.) in the presence and absence of tryptamine. *Pakistan Journal of Agricultural Research*, 32(2): 398-406. (Y-category).
14. Zaman Q, Z Aslam, M Rashid, A Aslam, N Ehsan, **Umair Riaz**, R N Abbas, A Iqbal, M S Naeem, S Bashir, Z A Saqib, M Yaseen. 2020. Zinc nutrition application augments morpho-physiological attributes, productivity and grain zinc bioavailability of Paddy Rice. *Journal of Applied Botany and Food Quality* 93, 11 – 19. **(IF = 1.106)**
15. Anum W, L Ali, **Umair Riaz**, A Ali, N Manzoor, L H Akhter, A Rehman, N Maan, I Ahmad. 2020. Envisaging the response of wheat (*Triticum aestivum* L.) under different phosphorus doses and methods of application. *Pakistan Journal of Agricultural Research*. 33(2):395-405. (Y-category).
16. Iqbal, R., Raza, M.A.S., Toleikiene, M., Ayaz, M., Hashemi, F., Habib-ur-Rahman, M., Zaheer, M.S., Ahmad, S., **Umair Riaz.**, Ali, M. and Aslam, M.U., 2020. Partial root-zone drying (PRD), its effects and agricultural significance: a review. *Bulletin of the National Research Centre*, 44(1).1-15.
17. Iqbal S, J Akhtar, T Naz, **Umair Riaz**, S Hussain, Z Mazhar, M M Iqbal. 2020. Root morphological adjustments of crops to improve nutrient use efficiency in limited environments. *Communications in Soil Science and Plant Analysis* (Under Review). **(IF = 0.68)** (Accept)
18. **Umair Riaz**, Shazia Iqbal, Muhammad Irfan Sohail, Tayyaba Samreen, Muhammad Ashraf, Fatima Akmal, Ayesha Siddiqui, Ijaz Ahmad, Muhammad Naveed, Naveed Iqbal Khan and Rao Masood Akhter. 2021. A Comprehensive Review on Emerging Importance and Economical Potential of Medicinal and Aromatic Plants (MAPs) in Current Scenario. *Pakistan Journal of Agricultural Research*, 34(2): 381-392. (Y-category).

MANUSCRIPTS IN PREPARATION/SUBMITTED FOR REVIEW

1. **Umair Riaz.**, G. Murtaza, Saifullah, and M. Farooq. 2021. Reuse of Solid Wastes to Agricultural Lands for Improving Soil Health and Plant Growth; A Two Years Field Experiment to Assess Prospective Benefits and Risks. *Land Degradation and Development*.
2. Sami ul Haq, Abid Hussain, **Umair Riaz**, Muhammad Baqir Hussain, Nabeel Ahmad. 2021. Combined Sulfur and Organic Compost Treatment Influences Nutrient uptake and Photosynthetic Activity to Improve Growth and Yield of Sunflower. *Communications in Soil Science and Plant Analysis*.

Citations	111
h-index	7
i10-index	4

Completed MSc. (Hons.)/M.Phil. Thesis
Co-Supervision

Sr. No.	Name	Regd. No. of student	Title of thesis	University	Degree year
01	Muhammad Anwar ul Hassan	PENSCI01171011	Assessment of heavy metals in irrigation Water, soil and wheat around the Manka Canal, D.G. Khan, Pakistan	Department of Environmental sciences. The University of Lahore Lahore-Pakistan	2019
02	Muhammad Rashid	PENSCI01183009	Association between Ground Water Quality and Cotton Yield in Tehsil Fort Abbas, Pakistan: A Model Based Approach	Department of Environmental sciences. The University of Lahore Lahore-Pakistan	2020

CONFERENCE PRESENTATIONS**TALKS**

1. **Umair Riaz.**, G. Murtaza, Saifullah, H. Aziz, and M. M. Din. (2016). Natural attenuation of Cd, Cu Pb and Zn in two sewage sludge-amended soils of contrasting texture measured using rhizon pore water samplers. *16th Int. Congr Soil Science on Healthy Soils for Food Security*. March 15-17, 2016 Rawalpindi, Pakistan. P. 129
2. **Umair Riaz.**, Aziz, H., G. Murtaza, F. Saleem. (2016). Transfer of metal contaminants to spinach crop from two commercial composts applied in light textured soil. *Third International Conference on Global Environmental Changes*. March 21-22, 2016. Government College University Faisalabad. P 41.

3. **Umair Riaz.**, Faheem M, Bibi I, Niazi NK, Murtaza, G, (2014). Phytoavailability of potassium to *Zea mays* L. grown in agricultural soils with contrasting textures and mineralogy. 15th *International Congress of Soil Science*, 18-20 March 2014, Islamabad.

POSTERS

1. Riaz S, Ehsan N, Zaman Q, **Umair Riaz**, Aslam A, Shan A, Heavy metals contamination in drinking water of Sharaqpur tehsil and impact on human health ESCON, 2019: International Conference on Environmental Toxicology and Health, Feb 25-27, 2019.
2. **Umair Riaz**, G Murtaza, H Aziz, M N Khan. 2018. Impact of city waste sewage sludge on trace elements accumulation in tomato (*Lycopersicum esculentum* L.) crop. "Challenges and Opportunities to Boost Agriculture in Changing Climate" March 26-28, 2018 at College of Agriculture, Bahauddin Zakariya University, Bahadur Sub-Campus, Layyah, Punjab, Pakistan.
3. **Umair Riaz**, G Murtaza, S M Mehdi, M Ashraf, M Mubashir and Z Abbas. 2018. Characterization and GIS Mapping of Ground Water Quality for Irrigation Purposes of Tehsil Bahawalpur 17th International Congress of Soil Science, Soil: Ultimate Solution of Food Security and Climate Change, 13-15 March, Sarena Hotel, Faisalabad, Pakistan.
4. Aziz H., **U. Riaz** and Ghulam Murtaza. 2017. Chlorpyrifos degradation in the soil as affected by biochar and compost amendments. *Advances in Agricultural Resource Management*, (ICARM-2017), 5-7 April 2017, Faisalabad. International Conference at the University of Agriculture Faisalabad.
5. **Umair Riaz.**, H. Aziz, F. Ijaz and G. Murtaza. 2016. The relative impact of two different untreated sewage sludges on heavy metals accumulation in maize crop. Third International Conference on Global Environmental Changes. March 21-22, 2016. Government College University Faisalabad. P 128.
6. **Umair Riaz**, Bibi I, Murtaza, G, Niazi NK Sarfraz, RA, Faheem M. 2014. Evaluating the effect of pH on potassium (K) release rate from mica mineral weathering in alkaline solutions at 25°C. 15th International Congress of Soil Science, Islamabad 18-20 March 2014 (Poster).
7. **Umair Riaz.**, H. Aziz, F. Ijaz and G. Murtaza. 2016. Relative impact of two different untreated sewage sludges on heavy metals accumulation in maize crop. Third International Conference on Global Environmental Changes. March 21-22, 2016. Government College University Faisalabad. P 128.
8. Aziz, H., **Umair Riaz.**, Ijaz F., Naveed M., Ameen M. and Murtaza G. 2016. Comparative effect of two types of sewage sludges on heavy metal accumulation in maize. 16th Int. Congr Soil Science on Healthy Soils for Food Security. March 15-17, 2016 Rawalpindi, Pakistan. P. 75.
9. **Umair Riaz.**, G. Murtaza, Saifullah, H. Aziz and M. M. Din. 2016. Natural attenuation of Cd, Cu Pb and Zn in two sewage sludge-amended soils of contrasting texture measured using rhizon pore water samplers. 16th Int. Congr Soil Science on Healthy Soils for Food Security. March 15-17, 2016 Rawalpindi, Pakistan. P. 129.

10. Naveed, M., Saifullah, S. Bibi, G. Murtaza, A. Arooj, and **U. Riaz**. 2016. Altering water regimes effect on cadmium accumulation in rice (*Oryza sativa* L.). 16th Int. Congr Soil Science on Healthy Soils for Food Security. March 15-17, 2016 Rawalpindi, Pakistan. P. 217.

PROFESSIONAL TRAININGS

1. Training on Debate by Study Aid Foundation for Excellence at Punjab University, Lahore, 14-15, May-2011.
2. Fourteen (14) Days comprehensive training on:
 - ✓ Requirements and Implementation of ISO 17025 (Accreditation system and requirements)
 - ✓ Internal Audit System
 - ✓ Measurement of Uncertainty in results (basic + advance)
 - ✓ Intermediate Checks
 - ✓ Control Charts
 - ✓ Quality tools
 - ✓ Developing training plan and evaluation of trainings
 - ✓ Quality Assurance Plan and Evaluationat Directorate of Soil Fertility Research Institute, Lahore by AIMS Labs on 26 March to 12 April 2018.
3. Two (02) days training course on ISO/IEC 17025:2005 at Directorate of Rapid Soil Fertility and Research Institute, Lahore, 12-14 April 2018
4. Two (02) days training course on “*Measurement of Uncertainty*” in ISO/IEC 17025:2005 by Pakistan National Accreditation Council at DE Shalimar Hotel, 28-29 October 2017.
5. Two (02) days training course on ISO/IEC 17025:2005 conducted by Pakistan National Accreditation Council at Park Lane Hotel, 13-14 July 2017.
6. Two (02) days training course on ISO/IEC 17025:2017 conducted by Meteorology, Standard, Quality, Testing and Accreditation Multan at Bar B Q Night, Hotel, Bahawalpur, 21-22 Feb 2020.
7. Training session on “*Sulphate analysis in SOP fertilizer*” at Soil and Water Testing Laboratory for Research, Bahawalpur conducted by Soil Fertility Research Institute, Lahore dated 03 December 2020.
8. Training session on “*Elemental Sulphur analysis of SOP fertilizer*” at Soil and Water Testing Laboratory for Research, Bahawalpur conducted by Soil Fertility Research Institute, Lahore dated 04 December 2020.
9. Training session on “*Micronutrient analysis techniques by atomic absorption spectrophotometry*” at Soil and Water Testing Laboratory for Research, Bahawalpur conducted by Soil Fertility Research Institute, Lahore dated 04 December 2020.

TRAININGS/SEMINARS/WORKSHOPS

DELIVERED

- One day training course on Introduction to ISO 17025:2005 (Management + Technical Clauses) at Soil and Water Testing Laboratory for Research, 05 Sep 2018.

One-day seminar/workshop on soil sampling techniques on 22-12-2020 at Office of Senior Scientist Soil Fertility, Bahawalpur

TEACHING INTERESTS _____

Lectures: Introduction to Soil Mineralogy, Soil and environmental Chemistry, Solid Waste Management, Research Methods/Statistics, Trace metals chemistry, compost, and composting.

EQUIPMENT SKILLS _____

Full command on: -

- a) Gas Chromatography-MS
- b) HPLC
- c) Atomic Absorption Spectrophotometer
- d) Spectrophotometer
- e) Flame Photometer
- f) EC Meter
- g) pH Meter
- h) ICP-OES
- i) Reverse osmosis filtration plant
- j) Vapor Generator for trace elements analysis
- k) All equipment used in soil, plant, water, minerals, fertilizer and pesticide analysis.

COMPUTER SKILLS _____

- | | |
|------------------------------|---|
| a. Word processing: | MS-Word, MS-excel, Word Perfect |
| b. Software: | Visual Minteq, PHREEQC, Origin Pro, Sigma |
| c. Graphics: | MS-Power Point, Paint, Corel Draw |
| d. Statistical Package: | Statistics 8.10, Minitab, Origin Lab |
| e. Communication: | Internet (Global World Information) |
| f. Windows Operating System: | Win98, Win XP, Win 7, Win 8, Win 10 |

REFERENCES _____

Prof. Dr. Ghulam Murtaza. Professor, Institute of Soil & Environmental Sciences, University of Agriculture, Faisalabad, Pakistan. Email: gmurtaza@uaf.edu.pk

Dr. Khalid Rehman Hakeem, Professor, King Abdulaziz University, Department of Biological Sciences, Faculty of Science, KAU, Jeddah, Saudi Arabia, kur.hakeem@gmail.com; hakeem.bot@gmail.com; khakim@kau.edu.sa