

Dr. Muhammad Umer

Associate Professor (Tenured)

Department of Biosciences
COMSATS University Islamabad, Chak Shahzad,
Park Road, Islamabad
T:Cell# +92-3315690634
muhammadumer@comsats.edu.pk



Biologist

Creating positive strategic partnership with top global research executives to achieve sustainable development goals

Currently working in academia, research and development in collaboration as Associate Professor in Biosciences Dept. using Advanced Teaching, Research, development and managerial tools. My latest research is focused on "Bioenergy crops looking at their bioenergy and phytoremediation potential and improvement of bioenergy traits with different pretreatments".

Planning, execution and management of Plant Biology/Chemistry research projects as well as policy making. An excellent experience of working with and Supervising my students in research projects. Plant Tissue Assay Developments, Study of bioenergy plants with a special focus on improving their characteristics for energy and phytoremediation. A good experience of working at Imperial College London, UK, Meeting and special event planning with departmental focal persons, farmers, growers, producers, distributors and purchasers; Conducting Surveys, Complex Calendar management, knowledgeable and proven experience in the research and development, and Academia.

Education and other qualifications

- 2007-2011** Division of Biology, Department of Life Sciences, [Imperial College London](#), UK
PhD (Biology)
Thesis title –Developmental Characteristics of *Miscanthus* spp. that influence saccharification and biofuel potential
- 2002-2004** Institute of Soil & Environmental Sciences. The University of Agriculture, Faisalabad, Pakistan,
M.Sc. (Hons) Agriculture (Soil Science)
- 1998-2002** Institute of Soil & Environmental Sciences The University of Agriculture, Faisalabad, Pakistan
B.Sc. (Hons) Agriculture (Soil Science)

Work Experience

March 2021 to present (44 Months)

Associate Professor (Tenured), COMSATS University Islamabad, Pakistan

Key Tasks

- Plan, execute and supervise different biofuels lab and field basis research projects.
- Supervise local microbial plant interaction projects with special focus on biofuel production.

- Develop close contacts with industrialists and manager for running field projects.
- Supervise research project “Comparative Study of different biochemical treatments and their impact on biofuel yield from different biomass”.

Achievements

- Successfully designed and got approval of three novel courses on Biofuels at university level.
- Generated one PhD, 18 MS and 18 BS students under my full supervision.
- Published Research articles.
- Organized successful collaboration with other research and field institutes at national as well as international levels.
- Planned and organized field visits to research institutes at national level.

August 2013 to Mar2021 (103 Months)

Assistant Professor, COMSATS University Islamabad, Pakistan

August 2011-August 2012 (12 months)

Assistant Professor, PMAS-Arid Agriculture University, Rawalpindi, Pakistan

January 2007-June 2011(53 months)

PhD Research Scholar, Department of Life Sciences, Faculty of Natural Science, [Imperial College London](#), South Kensington Campus, **London**, SW7 2AZ, UK

August 2005 to January 2007 (18 months)

Research Fellow under ALP project (NIBGE)

Professional skills/training and capabilities

- EU-Asia Link Project Short Course on Livestock Ecology, Sustainable Land Use, organized by University of Agriculture, Faisalabad, in collaborations with Humboldt University, Berlin Germany
- Short training courses on gases using at [Imperial College London](#), UK.
- Implementation of Research project in the Agricultural field of Rothamsted Research Institute, UK.

MS word, MS Power point, MS Excel, M Stat. SPSS, R, Bio edit and Clustal X

Participated in Organizing Conference

- “**15th congress of soil science**” on 18th-20th March 2014 at National Agriculture Research Council, Park road, Islamabad.

Attended:

- Strategic “Dialogues on current fertilizer policy” by FAO, Ramada Hotel, Islamabad on 26th June, 2016.
- 7th One Day workshop on Significance of Bioinformatics in Life Sciences –Next Generation Sequencing on May 7, 2016 organized by Capital University of Science and Technology, Islamabad, Pakistan.

- Workshop on 4R nutrient stewardship by FAO, Serena Hotel, Islamabad, Pakistan on April 2016.
- Symposium “**Public-private Partnership to Manage Soil Fertility**” on 3rd February 2015 at Serena Hotel, Islamabad.
- Workshop on “**Current status of fertilizer use in Pakistan**”with Institute of Soil & Environmental Sciences, University of Agriculture Faisalabad, ICARDA and International Potash Institute (IPI).
- Workshop on “**Safety Awareness Training – Liquid Nitrogen Practical Decanting**” at Imperial College London, UK organized by Gas Safe Consultants Ltd on June 17, 2009.
- Interactive Workshop on “**Using Liquid Nitrogen safely within Universities**” at Imperial College London, UK organized by Gas Safe Consultants Ltd on June 07, 2009.
- Training Workshop on “**Practical Compressed Gases Safety Awareness – Connecting Regulators & Cylinder Set-up**” at Imperial College London, UK organized by Gas Safe Consultants Ltd on April 22, 2009.
- Interactive Workshop on “**Using Gas Cylinders Safely within Universities**” at Imperial College London, UK organized by Gas Safe Consultants Ltd on April 21, 2009.
- Carbon offsetting this conference. Building a low carbon world conference (2007). Organized by Royal geographical Society. London. UK. 2007.

Prizes, Awards & Scholarships

2013

Senior Researcher Award (For Post-doctoral studies) Crop species and physiology, Cambridge (Did not avail)

2010

HEC prestigious scholarship (2007-2011)

HEC prestigious scholarship, for the award of PhD scholarship.

Professional Membership

Member Biochemical Society, UK. Membership No. 20008293

- **Member**, Soil Science Society of Pakistan

Research Publications

1. Iqbal, Z., Akhtar, H.M.S., Aslam, F., Randhawa, M.A., Afzal, M.I., **Umer, M.**, Imran, M., Hussain, M., Alomar, T.S., AlMasoud, N., Ghoneim, M.M., Ebrahim, H.A., JBawi, E.A., and Mujtaba, A. (2023). Characterization of wheat flour millstreams for friabilin prevalence and nutrient composition. *International Journal of Food Properties*. 26(1): 1711-1723.
DOI: [10.1080/10942912.2023.2227360](https://doi.org/10.1080/10942912.2023.2227360)
2. Naz, A., Razaq, K., Raza, N., Hussain, M., Mujtaba, A., Afzal, M.I., **Umer, M.**, Alsuhaibani, A.M., Al-Shawi, A.H., Umar, M., Mushtaq, Z., Imran M., and JBawi, E.A. (2023). Evaluation of enzymatic and non-enzymatic antioxidant potential of sprouted indigenous legumes from Pakistan, *International Journal of Food Properties*, 26(1): 1230-1243.
DOI: [10.1080/10942912.2023.2207778](https://doi.org/10.1080/10942912.2023.2207778)

3. Zafar, U., Hameed, A., Amjad, A., Javed, M.S., Afzal, M.I., **Umer, M.**, Al-Serwi, R.H., Qaisarani, T.B., Imran, M., Hussain, M., Anwar, M.J., Siddique, F., Suleman, R., and JBawi, E.A. (2023). Potential of barley enriched yogurt to improve probiotic growth for the management of hypercholesterolemia. *International Journal of Food Properties*, 26(1): 1177-1189.
DOI: [10.1080/10942912.2023.2206064](https://doi.org/10.1080/10942912.2023.2206064)
4. Ahmad, M., Ali, S. W., Hameed, A., Amir, M., Ashraf, J., Afzal, M. I., **Umer, M.**, Alsagaby, S. A., Awais, M., Imran, M., Iqbal, S., Ahmed, A., & Riaz, M. (2023). Functional potential of Aloe vera juice against CCl₄ induced hepatotoxicity in animal model. *Food Science and Technology (Campinas)*, 43, e110321.
<http://dx.doi.org/10.1590/fst.11032>
5. Akhlaq M., Farooq, M.U., Ali, S.W., Amir, M., Siddique, F., Javed, M.A., Afzal, M.I., **Umer, M.**, Mujtaba, A., Iqbal, M., Ahmad, M. (2022). Characterization of quinoa-wheat flour blend for the preparation of dry cake. *Food Science and Technology*. 28;43.
<https://doi.org/10.1590/fst.14722>
6. Chang, D., Riaz, N., Maan, A.A., Iqbal, M.K., Ahmad, I., Alsagaby, S.A., El-Ghorab, A., Ali, M., Imran, M., Ullah, A., Mehmood, T., Hyder, M.Z., Sajjad, M., **Umer, M.**, Shabbir, A., & Afzal, M.I.*. (2021). In-vitro stress stability, digestibility and bioaccessibility of curcumin-loaded polymeric nanocapsules. *Journal of Experimental Nanoscience*. 16, 230-246.
<http://dx.doi.org/10.1080/17458080.2021.1952185>
7. Shahbaz, M., Arshad, R., Zahoor, T., Liaqat, A., Qaisrani, T.B., Rafiq, S., Javed, M.S., Raza, N., Murtaza, S., Farooq, U., Imran, M., El-Ghorab, A., Bacha, U., Ahmad, I., Gulzar, N., Mehmood, Z., Muzaffar, R., Gondal T.A., Perveen, R., Rehman, H., Shah, S.A.M., Shah, A.S., Akhtar, M., Afzal, M.I., & **Umer, M.** (2021). Preventive role of propolis against hyperglycemia and hyperlipidemia in Sprague dawley rats (*Rattus norvegicus*) animal modelling system. *Cellular and Molecular Biology*. 67(1):32-39.
Doi: <http://dx.doi.org/10.14715/cmb/2021.67.1.5>
8. Shahbaz, M., Zahoor, T., Arshad, R., Rafiq, S., Qaisrani, T.B., Liaqat, A., Javed, M.S., Akbar, Z., Raza, N., Murtaza, S., Farooq, U., Imran, M., El-Ghorab, A., Bacha, U., Ahmad, I., Mehmood, Z., Muzaffar, R., Gondal, T.A., Shah, S.A.M., Shah, A.S., Akhtar, M., Afzal, M.I., & **Umer, M.** (2021). Chemical profiling, HPLC characterization and in-vitro antioxidant potential of Pakistani propolis collected from peripheral region of Faisalabad. *Cellular and Molecular Biology*. 67(1):40-44.
Doi: <http://dx.doi.org/10.14715/cmb/2021.67.1.6>
9. Majeed, S., Hafeez, F.Y., Li, X., Salama, E., Ji, J., Mailk K., & **Umer, M***. (2020). [Evaluation of Fungal and Sonication Pretreatments to Improve Saccharification Yield Of *Arundo Donax*](#). *International Journal of Agriculture and Biology*. 24:1449-1456. doi: [10.17957/IJAB/15.1582](https://doi.org/10.17957/IJAB/15.1582)
10. **Umer, M***, Shabbir, S., Chaudhary, N., Hussain, Q., Abbas, S., Afzal, M.I., & Sajjad, M. (2020). Influence of Biochemical treatments on consortium of rhizobacteria and soil fertility. *Bangladesh Journal of Botany* 49(3):437-444.
11. Hameed, A., Hussain, S.A., Ijaz, M.U., & **Umer, M***. (2020). Deletions of the *Idh1*, *Eco1*, *Rom2*, and *Taf10* Genes Differently Control the Hyphal Growth, Drug Tolerance, and Virulence of *Candida albicans*. *Folia Biologica* 66:91-103.
12. Cecilia MK., Abrha AH., Hlengilizwe N., Hints AT., **Umer, M***, Nixwell MF., Ali SW., Afzal MI., Martorell M., Salehi B., Setzer WN., Sattar MU., Imran M., & Rad JS. (2020). Untargeted profiling of field cultivated bush tea (*Athrixia phylloides* DC.) based on metabolite analysis. *Cellular and Molecular Biology*. 66(4):104-109.
doi: <http://dx.doi.org/10.14715/cmb/2020.66.4.14>
13. Andrade JC., Dos Santos ATL., Da Silva ARP., Freitas MA., Afzal MI., Gonalo MIP., Fonseca VJA., Costa MDS., Carneiro JNP., Sousa EO., De Matos YMLS., De Freitas TS., De Sousa AK., Morais-Braga MFB., Coutinho HDM., Ali SW., Salehi B., Imran M., **Umer M.**, Ul-Haque E., Setzer WN., Sharifi-Rad J. (2020). Phytochemical characterization of the *Ziziphus joazeiro* Mart. metabolites by UPLC-QTOF and antifungal activity evaluation. *Cellular and Molecular Biology*. 66(4):127-132.
a. doi: <http://dx.doi.org/10.14715/cmb/2020.66.4.17>
14. Sher, M., Sajjad, M., Khan, S.H., Shahid, M., Zubair, M., Mubarak, M.S., Tahir, A., **Umer, M.**, Kyani, R., Afzal, M.I., Manzoor, I., Watoo, J.I., & Rehman, A. (2020). Genome wide association analysis for stripe rust resistance in spring Wheat (*Triticum aestivum* L.) germplasm. *Journal of Integrative Agriculture*. 19(8): 2035-2043.
doi: [https://doi.org/10.1016/S2095-3119\(19\)62841-8](https://doi.org/10.1016/S2095-3119(19)62841-8)
15. Pinheiro REE., Chaves TP., Melo ES., Ali S., Ali SW., **Umer M.**, Gama GSP., Lira DNS., Souza JSN., Soares MJDS., Santos AS., Mota RA., Freitas PR., Afzal MI., Salehi B., Coutinho HDM., Setzer WN., Imran M., Sharifi-Rad J. (2020). Modulatory-antibiotic activity of the essential oil from *Eucalyptus citriodora* against MDR bacterial strains. *Cellular and Molecular Biology*. 66(4):60-64. doi: <http://dx.doi.org/10.14715/cmb/2020.66.4.10>
16. Filho JWGO., Dos Santos Andrade TJA., De Lima RMT., Dos Reis AC., Hameed A., Santos JVO., Afzal MI., De Menezes APM., De Alencar MVOB., Silva DHS., Dias ACS., Ferreira JRO., Islam MT., Ferreira PMP., Salehi B., Qamar M., **Umer M.**, Imran M., Sharifi-Rad J., Martins N., De Castro E Sousa JM., Melo Cavalcante AAC. (2020). Antitumor effects of citrinin in an animal model of Sarcoma 180 via cytogenetic mechanisms. *Cellular and Molecular Biology*. 66(4):120-126. doi: <http://dx.doi.org/10.14715/cmb/2020.66.4.16>

17. Islam MT., Molla S., Zihad SMNK., **Umer M.**, Rahman MS., Zaman F., Das AK., Afzal MI., Salehi B., Akter MS., Mubarak MS., Martins N., Imran M., Chaudhary N., Iqbal Z., Sharifi-Rad J. (2020). Ascorbic acid antagonizes the sedative effect of diazepam possibly through inhibition of GABA(A_ρ₁) and GABA(B1) receptors. *Cellular and Molecular Biology*. 66(4):15-19.
doi: <http://dx.doi.org/10.14715/cmb/2020.66.4.3>
18. Ayub R., **Umer M.**, Maan AA., Rasool B., Khan MKI., Younis T., Abbas S., Sajjad M., Kaleem I., Imran M., Ullah A., Afzal MS., Shah ZH., Ahmed S., Aslam F., Chaudhary N., Afzal MI. (2020). Antibiotics, Acid and Heat Tolerance of Honey adapted *Escherichia coli*, *Salmonella Typhi* and *Klebsiella pneumoniae*. *Foods*. 9(3):311. doi: [10.3390/foods9030311](https://doi.org/10.3390/foods9030311).
19. Ahmad I., Khalique A., Shahid MQ., Ahid Rashid A., Faiz F., Ikram MA., Ahmed S., Imran M., Khan MA., Nadeem M., Afzal MI., **Umer M.**, Kaleem I., Shahbaz M., Rasool B. (2020). Studying the Influence of Apple Peel Polyphenol Extract Fortification on the Characteristics of Probiotic Yoghurt. *Plants*. 9(1):77. doi: [10.3390/plants9010077](https://doi.org/10.3390/plants9010077).
20. Riaz, F., Abbas, G., Saqib, M., Amjad, M., Farooq, A., Ahmad, S., Naeem, M.A., **Umer, M.**, Khalid, M.S. & Ahmad, N. (2020). Comparative effect of Salinity on Growth, Ionic and Physiological attributes of two Quinoa genotypes. *Pakistan Journal of Agriculture Sciences*. 56 :2076-0906.
21. Khan, A., Ayaz, R., Mehtab, A., Naz, K., Haider, W., Gondal, M.A., **Umer, M.**, Afzal, M.I. Shah, N.A., Afzal, M.S., Yayi, G., Ahmad, K.S., & Ahmed, H. (2019). Knowledge, attitude & practices (KAPs) regarding rabies endemicity among the community members, Pakistan. *Acta Tropica*. 200:105156.
<https://doi.org/10.1016/j.actatropica.2019.105156>.
22. Ariceaga, C.C.G., Afzal, M.I., **Umer, M.**, Abbas, S., Ahmad, H., Sajjad, M., Parvaiz, F., Imdad, K., Imran, M., Maan, A.A., Khan, M.K.I., Ullah, A., Hernández-Montes, A., Aguirre-Mandujano, E., de Gante, A.V., Jacquot, M., & Cailliez-Grimal, C. (2019). Physicochemical, sensorial and microbiological characterization of Poro cheese, an artisanal Mexican cheese made from raw milk. *Foods*. 8(10):509.
a. doi:[10.3390/foods8100509](https://doi.org/10.3390/foods8100509)
23. Alvi, T., Khan, M.K.I., Maan, A.A., Nazir, A., Ahmad, M.H., Khan, M.I. Sharif, M., Khan, A., Afzal, M.I., **Umer, M.**, Abbas, S., & Qureshi, S. (2019). Modelling and kinetic study of novel and sustainable microwave-assisted dehydration of sugarcane juice. *Processes*. 7(10):712.
a. doi:[10.3390/pr7100712](https://doi.org/10.3390/pr7100712)
24. Khan, A, Khan, S.S., Gondal, M.A., Afzal, M.S., **Umer, M.**, Afzal, M.I., Ali, M.S., Mehmood, M., & Ahmed, H. (2019). An overview of dengue fever in Pakistan. *Asian Pacific Journal of Tropical Medicine*. 12(1): 26.
a. doi: [10.4103/1995-7645.268165](https://doi.org/10.4103/1995-7645.268165)
25. Cui, L., Yin, C., Chen, T., Quan, G., Ippolito, J.A., Liu, B., Yan, J., Ding, C., Hussain, Q., & **Umer, M.** (2019). Remediation of organic halogen- contaminated wetland soils using biochar. *Science of the Total Environment*. 696:134087 <https://doi.org/10.1016/j.scitotenv.2019.134087>
26. Arshad, A., Taj, A., Rehman, A., Bajwa, S.Z., Mujahid, A., Kaleem, A., Iqbal, Z., Riaz, N., **Umer, M***, Afzal, M.I., & Khan, W.S. (2019). In situ synthesis of highly populated CeO₂ nanocubes grown on carbon 3 nanotubes as a synergy hybrid and its electrocatalytic potential. *Journal of Material research and Technology* <https://doi.org/10.1016/j.jmrt.2019.08.054>.
27. Ariceaga, C. C. G., Jacquot, M., Afzal, M. I., **Umer, M.**, Shah, S. M. U., Ahmad, H., Jacquot., & Cailliez-Grimal, C. (2018). Effect of Alginate Beads on Olfactory Sensory Perception of Paraffin-Coated Cheese". *Czech Journal of Food Science*. 36: 255-260.
28. Jadoon, S., Afzal, A., Sultan, T., Tabassum, T., Asad, SA., & **Umer, M.** (2019). Plant growth promoting traits and biocontrol efficacy of indigenous rhizobacteria isolated from potato (*Solanum tuberosum* L.). *Journal of Animal and Plant Sciences*. 29(4):1026-1036.
29. Arif, I., Siddiqui, A.R., Ahmed, H., Afzal, M.I., **Umer, M.**, Maryam, A., Khalid, R.R., Asif, S., Afzal, M.S., Shaheen, S., Rauf, S.A., Ozyalin, O., & Simsek, S. (2018). A computational structural analysis of functional attributes of hypodermin A and B proteins: A way forward for vaccine development. *Pakistan Journal of Pharmaceutical Sciences*. 31(6):2443-2451.
30. Asad, SA., Rehman, M., Ahmad, R., & **Umer, M.** (2018). Differential uptake of Cd and Cr in Brassica oleraceae in response to application of plant growth promoting rhizobacteria. *International Journal of Agriculture and Biology*. 20:1613-1622. doi: [10.17957/ijab/15.0682](https://doi.org/10.17957/ijab/15.0682)
31. Richter, G. M., Murphy, R. J., Riche, A. B., Umer, M. B. and Castle, M. (2009). Modelling the interaction between rhizome and aboveground growth dynamics of *Miscanthus x giganteus*. *Comparative Biochemistry and Physiology, Part A*. 153(2): 229. Society for Experimental Biology Annual Main Meeting. 28th June — 1st July 2009, Glasgow, UK. <https://doi.org/10.1016/j.cbpa.2009.04.636>