

Dr. Zill-e-Huma (**Gold medalist**) IF: **122.883**

Assistant Professor

Department of Plant Pathology, Faculty of Agricultural Sciences, Quaid-e-Azam Campus, University of the Punjab, Lahore-54900, Pakistan.

E-mail: huma.dpp@pu.edu.pk

huma_mpp1@yahoo.com;

Contact numbers: Office: 0092-42-99231846-7; 0092-42-99231187 (Fax);

Mobile: 0322-8446658, 0333-8446658; 0092-42-32084752(Res.)



ACADEMIC RECORD:

Certificate/ Degree	Passing Year	Major group/subjects	Board/University
Ph. D.	2015	Agricultural Sciences (Plant Pathology)	University of the Punjab, Lahore.
M. Phil	2006	Industrial Biotechnology	Government college University Lahore.
M. Sc.	2003	Botany	University of the Punjab, Lahore.
B. Sc.	2000	Botany, Zoology, Chemistry	University of the Punjab, Lahore.
F. Sc.	1998	Biology, Chemistry, Physics.	BI&SE, Lahore.
Matriculation	1995	Biology, chemistry, physics, Mathematics.	BI&SE, Lahore.

DISTINCTIONS:

- ✓ 1st position in Botany in B.Sc. from University of the Punjab, Lahore, Pakistan.
- ✓ First Class First (2 Gold Medals) in M.Sc. Botany from University of the Punjab, Lahore, Pakistan.
- ✓ 3rd position in M. Phil. (Bronze Medal) Industrial Biotechnology from Govt. College University, Lahore, Pakistan.
- ✓ Merit Scholarship awarded during M.Sc. (I & II) Botany from University of the Punjab, Lahore, Pakistan.
- ✓ HEC Scholarship awarded during M. Phil. Industrial Biotechnology from Govt. College University Lahore.
- ✓ First Position Ph. D Course work (18 Credit Hours)
- ✓ Award of Travel Grant (including accommodation and Registration fee) won to attend Biovision Alexandria (TWAS/BVA. NXT 2012) at the Bibliotheca Alexandria 21st-22nd April 2012. Alexandria, **Egypt**.
- ✓ Best presentation Award for Oral Presentation in 6th International Conference on Healthcare, Environment, Food and Biological Sciences (CABES 17) 08th-10th September, 2017, Istanbul, **Turkey**.

RESEARCH EXPERIENCES:

1. **M. Sc. Thesis:**

Protein Changes Associated with Differentiation and Dedifferentiation in Callus Cultures of Sugarcane (*Saccharum* spp. hybrid cv. cp 43/33).

Supervisor:

Prof. Dr. Faheem Aftab (Professor, Department of Botany, University of the Punjab, Lahore, Pakistan).

2. **M. Phil. Thesis:**

Optimization of Cultural Conditions for Invertases Biosynthesis in Shake Flasks through *Saccharomyces cerevisiae*.

Supervisor:

Prof. Dr. Mohsin Javed (Assistant Professor, Industrial Biotechnology Centre GCU Lahore).

3. **Ph. D Thesis:**

Purification and Characterization of Laccase from some wood rotting fungi.

Supervisor:

Prof. Dr. Shakil Ahmed (Associate Professor, Department of Botany, University of the Punjab, Lahore, Pakistan).

TEACHING EXPERIENCES:

CONTRACTUAL APPOINTMENTS:

- ❖ January 2004 – June 2004: 01 semester teaching of “Principles of Genetics” to B.Sc. Hons. 3rd semester, Department of Mycology and Plant Pathology University of the Punjab, Lahore, Pakistan.
- ❖ August 2004 – July 2005: 01 year experience as Research Assistant/Lecturer in HEC project for “Biosynthesis of Invertases by *Saccharomyces cerevisiae*” at Government College University, Lahore, Pakistan.

PERMANENT:

- ❖ **Lecturer:** 2006-2015.
- ❖ **Assistant Professor:** 2015, till date.

COURSES TAUGHT

✓ **Ph. D**

1. Advances in Food Biotechnology
2. Epidemiology and Ecology of Plant Diseases
3. Integrated Plant Disease Management
4. Plant Tissue Culture

✓ **M.Sc. (Hons.)**

1. Host – Pathogens Interactions.
2. Disease Resistance.
3. Genetics of Plant Pathogens.
4. Fermentation Biotechnology
5. Fungal Plant Pathology
6. Epidemiology and Disease Forecasting
7. Research Methods and Techniques
8. Plant Microbial Interactions

✓ **B.Sc. (Hons.)**

1. Principles of Genetics.
2. Genetics and Plant Breeding.
3. Diseases of Vegetables, Fruit Crops and Ornamentals.
4. Water Resources and their Management
5. Introductory Food Biotechnology
6. Introductory Plant Pathology
7. Introduction to Plant Prokaryotes
8. Agribusiness Management
9. Research projects and scientific writing
10. Applications of Biotechnology in Plant Pathology
11. Seed and Post Harvest Pathology

THESES SUPERVISED:

Ph. D:

- Misbah Batool Zahra (2021). Effect of cow manure biochar and compost on soil, water productivity and diseases of maize crop under field conditions.
- Umar Khalid (2022). On Going
- Saniya Sattar (2023). On Going
- Muhammad Asad Nawaz
- Iqra Shakeel

- Sahar Mansha

M. Sc. (Hons.):

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- Muhammad Umair (2021-2023) Apple Peel Extract Mediated Synthesis of Fe₃O₄, Fe₂S, GO and TiO₂ Nanoparticles for Management of Early Blight of Potato
- Komal Habib (2021-2023) On Going
- Muhammad Iqbal (2021-2023) Application of green designed Fe₃O₄ Nanoparticles for Callogenesis and Differentiation in *Curcuma longa* for harnessing of curcuminoids against selected phytopathogens.
- Saddam Hussain (2020-2022). Fight against bacterial pathogens in storage of corn seeds through some plant essential oils
- Faisal Shafiq (2020-2022). Green synthesis and characterization of ZnO, NiO and GO Nanoparticles from *Nigella sativa* seed extract for their antimicrobial potential against cercospora leaf spot of Mung Bean
- Waqar Aslam (2018-2020). Nano-biochar induced defense response against bacterial leaf spot (*Xanthomonas campestris* pv. vesicatoria) of chilies.
- Faheem Rafique (2018-2020). Combined effect of different potato associated Pseudomonas strains for improved Bio control of Rhizoctonia solani
- Muhammad Shahar Yar Asif (2018-2020). Biochar induced defense response against bacterial leaf spot (*Xanthomonas campestris* pv. vesicatoria) of chilies
- Hafsa Saleem. (2017-2019). Molecular characterization of rice mycoflora causing grain discoloration disease.
- Bakhtawar Fayyaz. (2017-2019). Extraction of iron nanoparticles from spinach leaves and their antimicrobial efficacy.
- Adeeba Mehboob Qureshi. (2017-2019). Assessment of partial resistance in carrot through in-vitro techniques against *Alternaria alternata*.
- Nabeel Ur Rehman. (2016-2018) Assessment of Residual pesticides in some seasonal vegetables and fruits from Local markets of Lahore
- Husnain Yaseen. (2015-2017) Chemical management of *colletotrichum acutatum* causing anthracnose fruit rot of strawberry
- Hina Ashraf (2010). Optimization of cultural conditions for the biosynthesis, partial purification and characterization of Invertases by *Aspergillus* species.
- Adila Yousaf (2009). Strain improvement of *Aspergillus* and *Acremonium* species for enhanced cephalosporin C biosynthesis.
- Saira Banaras (2008). In Vitro selection of variants resistant to basal rot disease in garlic (*Allium sativum*) using induced mutations.

B. Sc. (Hons.):

- Namra Inam (2003-2008). Quality control measures applied during corn hybrid seed production.
- Sumera Naz (2004-2009). Optimization of culture conditions for the production of Proteases enzyme from *Bacillus* spp.

- Faheem Mian (2004-2009). Soil analysis as control measures of Mango (*Mangifera indica*) die back.
- Madeeha Kahn (2009-2013). Isolation, purification and identification of fungi from *Rosa indica* and their biocontrol.
- Iqra Asghar (2009-2013). Isolation, purification and identification of fungal pathogens from *Gerbura jamesonii* and their biocontrol.
- Tayyaba Chaudhry (2010-2014). Cotton leaf Curl virus detection through PCR and Southern Blotting as **Co-Supervisor**.
- Muaz Arif (2015-2019) Evaluation of Different doses of Orthodox 60% WG (dimethomorph 40% + Azoxystrobin 20%) with standard Revus 250 SC (Mandipropamid) against Late Blight (*Phytophthora infestans*) of potato *In Vivo*
- Ali Raza
- Saman Shabbir
- Komal HABib (2017-2021) Soil and water analysis of different samples collected from Lahore
- Rida Ali (2017-2021) Nanotechnology as an emergent field in Plant Pathology
- Muhammad Noman (2017-2021) The future of Nanotechnology in modern Phytopathology
- Sohab Sagheer (2018-2022) *Trichoderma koningi* as a biocontrol agent of *Aspergillus* Spp.
- Hafiz Hamza Shahid (2018-2022) Serological Identification of Potato Virus in Potato Plants
- Usama Zaib (2018-2022) Exploratory Research on the role of Agriculture Extension Department in Lahore Division.
- Muhammad Nasir Ali (2019-2023)
- Muhammad Haseeb (2019-2023)

THESES EVALUATED AS EXTERNAL EXAMINER:

Saba Riaz (BS-Botany, 4 years **2011**). Investigation of antifungal activity of Puthkanda (*Achyranthus aspera* Linn.). Lahore College for Women University, Lahore.

Laiba Tehreem (BS-Botany, 4 years **2011**). Investigation of antimicrobial activity of Gul-e-Baqoli (*Eichhirnia crassipes* Mart. Solms.). Lahore College for Women University, Lahore.

Nimra Amjad (BS-Botany, 4 years **2011**). Effect of pretreatment of H₂O₂ on seed germination and vegetative growth of chickpea (*Cicer arietinum*). Lahore College for Women University, Lahore.

Qurat-ul-ain (BS-Botany, 4 years **2011**). Effect of chromium toxicity on germination and vegetative growth of chick pea (*Cicer arietinum*). Lahore College for Women University, Lahore.

Sadia sadiq (BS-Botany, 4 years **2011**). Antifungal activity of *Berberis aristata* DC. Shoot exudates. Lahore College for Women University, Lahore.

- Sara Sadaf (BS-Botany, 4 years **2011**). Influence of Salinity and drought stress on seed germination and seedling growth of four selected medicinal plants. Lahore College for Women University, Lahore.
- Asba Ramzan (BS Botany, 4 years **2013**). Evaluation of conventional and modern extraction methods for *Nigella sativa*: A Medicinal Plant.
- Faiza Mudassar. (BS Botany, 4 years **2013**). To estimate the Alkaloid content of in Vitro and In Vivo grown *Catharanthus roseus*.
- Shehrish Javed. (BS Botany, 4 years **2013**). Microwave assisted extraction from *Glycyrrhiza glabra*: An extraction tool for future.
- Hafiza Saqiba Tariq (BS. Botany, 4 years **2014**). Taxonomic profiling of Drumstick buds and Caralluma based on their nutritional value.
- Habiba Ramzan (BS. Botany, 4 years **2014**). Antifungal activity of *Oryza sativa* (L.) on wheat fungus. Lahore College for Women University, Lahore.
- Rabia Hanif (BS. Botany, 4 years **2014**). Ethnobotanical assessments in Burj Attari. Lahore College for Women University, Lahore.
- Hamna Yasin (BS. Botany, 4 years **2014**). Karyological study of *Solanum lycopersicum* (Linn.). Lahore College for Women University, Lahore.
- Summaya Mushtaq (BS. Botany, 4 years **2014**). Antifungal activity of plants collected from Burj Attari. Lahore College for Women University, Lahore.
- Ayesha Ateeq (BS. Botany, 4 years **2014**). Evaluation of allelopathic potential of anti-cancerous plant species collected from Burj Attari. Lahore College for Women University, Lahore.

BOOKS PUBLISHED:

- Bilal, ZH; Banaras, S & Siddiqui I . 2011 Induction of Resistance in Garlic against Basal Rot. VDM Verlag Dr. Muller Germany.
- Bilal, ZH; Yousaf, A & Siddique I. 2011 Biosynthesis of cephalosporin C by *Aspergillus* and *Acremonium* species. VDM Verlag Dr. Muller Germany.
- Ashraf, H; Bilal, ZH. 2012. Biosynthesis, Partial Purification and Characterization of Invertase. Lambert Academic Publishing. Germany.

PAPERS PUBLISHED:

1. Aftab F., **Aftab Z-e-H.** and Iqbal J. 2004. Protein changes associated with dedifferentiation and differentiation in *in vitro* callus cultures of sugarcane (*Saccharum spp. hybrid* cv. CP- 43/33). *Pakistan Journal of Biochemistry and Molecular Biology*. 37 (2): 67-73.
2. Siddiqui I., Bajwa R., **Huma Z.E.** and Javaid A. 2010. Effect of six problematic weeds on Growth and yield of wheat. *Pakistan Journal of Botany*. 42(4): 2461-2471. (IF 1.036)
3. **Aftab Z-e-H.** and Banarus S. (2013). In vitro selection of variants resistant to basal rot of garlic (*Allium sativum* L.) using induced mutations. *Mycopath*. 11(2): 65-70.
4. **Aftab Z-e-H.** and Shakil A. 2015. *Ganoderma lucidum*: A case study for laccase biosynthesis. *Pakistan Journal of Phytopathology*. 27 (1): 95-103. (Y Category)
5. Ashraf H. and **Aftab Z-e-H.** (2015). Biosynthesis, partial purification and characterization of invertase through Carrot (*Daucus carota* L.) Peels. *Academia Journal of Biotechnology* 3(2): 015-025.
6. Bashir S, Aftab A. and **Aftab Z-e-H.** 2016. In vitro optimization of cultural condition for laccase biosynthesis by using *Ganoderma lucidum*. *Mycopath* (2015) 13(2):117-120.
7. **Aftab Z-e-H.**, Yousaf A, Siddique I and Aftab A (2016). Comparative Studies on Cephalosporin C biosynthesis by *Aspergillus* and *Acremonium* Species. *International Journal of Environment, Agriculture and Biotechnology*. Vol-1, Issue-4, Nov-Dec- 2016. <http://dx.doi.org/10.22161/ijeab/1.4.43> ISSN: 2456-1878.
8. Aftab A., Khan ZD., Yousaf Z., **Aftab Z-e-H.**, Javad S., Bushra Shamsheer B., Zahoor M., Riaz N., Javed S., Yasin H. and Ramzan H. (2017). Exploration of Ethnopharmacological Potential of Antimicrobial, Antioxidant, Anthelmintic and Phytochemical Analysis of Medicinally Important Plant *Centella asiatica* (L.) Urban in Mart. and Eichl. *American Journal of Plant Sciences*. 8(2): 201-211.
9. Aftab A., H. Chaudhary, Z. Yousaf, **Aftab Z-e-H.**, F. Khan and H. Yasin. (2017). Antimicrobial potential of *catharanthus roseus* extracts against pathogenic bacterial and fungal strains. *Pakistan Journal of Sciences*. 69 (2) 179-184. (Y Category)
10. Aftab A., **Aftab Z-e-H.**, Z. Khan, Z. Yousaf, H. Yasin and F. Khan. Ethnomedicinal Exploration of *Buxus papillosa* K. Schneid (Antioxidant, Antimicrobial and Anthelmintic activities). *International Journal of Biology and Biotechnology*. 15(4): 773-782, 2018. (Y Category)
11. Anam F., Aftab A., Tahir A., Khalid A., Yousaf Z., **Aftab Z-e-H.**, Jabeen K., Alam A., Saleem M.A. and Raza S. (2019). Phytochemical analysis and antifungal potential

evaluation of *Phyllanthus emblica* L. Pakistan Journal of Science. 71(2): 89-95 (**Y Category**)

12. Aftab M., M.Z. Butt, D. Ali, F. Bashir, **Z-e-H. Aftab**, Impact of copper doping in NiO thin films on their structure, morphology, and antibacterial activity against *Escherichia coli*, Ceramics International (2019), doi: <https://doi.org/10.1016/j.ceramint.2019.10.247>.
(**IF 4.527**)
13. A. Aftab, Yousaf Z., **Aftab Z-e-H.**, Younas A., Riaz N., Rashid M., Shamsheer H.B., Razzaq Z. and Javaid A. 2020. Pharmacological screening and GC-MS analysis of Vegetative and Reproductive parts of *Nigella sativa*. Pakistan Journal of Pharmaceutical Sciences. doi.org/10.36721/PJPS.2020.33.5.REG.2013-211.1. (**HEC Recognized Y category**)
14. **Aftab, Z-e-H.**, Ahmed, S., Aftab, A., Siddique, I., Aftab, M. (2020). Wood degrading mushrooms potentially strong towards laccase biosynthesis in Pakistan. Wood Research. 809. <http://doi.org/10.37763/wr.1336-4561/65.5.809818> (**IF 1.139**)
15. Zahra M.B., **Aftab Z-e-H.** and Haider M.S. (2021). Water productivity, yield and agronomic attributes of maize crop in response to varied irrigation levels and biochar-compost application. Journal of the Science of Food and Agriculture. 101(11). 4591-4604. <http://doi.org/10.1002/jsfa.11102> (**IF 3.638**)
16. Zahra M.B., **Aftab Z-e-H.**, Akhtar A. and Haider M.S. (2021). Cumulative effect of biochar and compost on nutritional profile of soil and maize productivity. Journal of Plant Nutrition. 44:11, 1664-1676 <https://doi.org/10.1080/01904167.2021.1871743>. (**IF 1.707**)
17. Aftab M, M.Z. Butt, D. Ali, F. Bashir, **Z-e-H. Aftab**. (2021). Corrigendum to “Impact of copper doping in NiO thin films on their structure, morphology, and antibacterial activity against *Escherichia Coli*.” [Ceram. Int. 46 (2020) 5037-5049]. Ceramics International. 47(6): 8740-8742. <https://doi.org/10.1016/j.ceramint.2020.11.178> (**IF 4.527**)
18. Zahra M.B., Fayyaz B., **Aftab Z-e-H.**, Haider M.S. (2021). Mitigation of Degraded Soils by using Biochar and Compost: A systematic Review. Journal of soil Science and Plant Nutrition. (21):2718-2738. <https://doi.org/10.1007/s42729-021-00558-1> (**IF 3.872**)
19. M. Aftab, M.Z. Butt, D. Ali, **Z-e-H. Aftab**, Tanveer M.U, Fayyaz B. (2021) Investigation of antifungal response of NiO and copper-doped NiO thin films against *Aspergillus niger* and *Macrophomina phaseolina* fungi. Environmental Science and Pollution Research, 13. <http://doi.org/10.1007/s11356-021-15945-5> (**IF 4.223**)
20. **Aftab Z-e-H.**, Aslam W., Ali M.D., Akhtar A., Majid F., Ahmed W., Aftab A., Fakhar U., Siddiqui I., Ahmed M.A.A., Kalaji H.M., Wrobel J., Abbas A., Shah A.N. and Khalid U. 2022. Incorporation of Engineered Nanoparticles of Biochar and Fly ash against Bacterial Leaf Spot of Pepper. Scientific Reports <http://doi.org/10.1038/s41598-022-10795-8> (**IF 4.996**)

21. Aslam A., Ali M.D., **Aftab Z-e-H.**, Fakhar U., Din S.Z. Ahmad A. Khalid U., Amami M., Dahshan A., (2022). Electrical, dielectric, I-V and antimicrobial behavior of cobalt incapacitated Prussian blue graphene ferrites composite. *Inorganic Chemistry Communications.* (141): 109548. <https://doi.org/10.1016/j.inoche.2022.109548> (IF 2.495)
22. Zahra M.B., Fayyaz B., **Aftab Z-e-H.**, Akhter, A., Bahar, T., Anwar, W. Haider M.S. (2022). Characterization and utilization of cow manure biochar as soil amendment for the management of Northern corn leaf blight. *Journal of Soil Science and Plant Nutrition.* 1-16. <https://doi.org/10.1007/s42729-022-00891-z> (IF 3.872)
23. Ali M.D., Aslam A., Haider M.A., **Aftab Z-e-H.**, Fakhar U., Din S.Z., Ezzine S., Farhat L.B., Somaily H.B. (2022). I-V, dielectric, antibacterial, and robust EMI shielding effectiveness properties of graphene/Fe₃O₄. *Inorganic Chemistry Communications.* (146): 110039. <https://doi.org/10.1016/j.inoche.2022.110039> (IF 2.495)
24. Mirza F.S., **Aftab Z-e-H.**, Ali M.D., Aftab A., Anjum T., Rafiq H and Li G. 2022. Green synthesis and application of GO nanoparticles to augment growth parameters and yield in mungbean (*Vigna radiata* L.). *Frontiers in Plant Science.* <https://doi.org/10.3389/fpls.2022.1040037> (IF 6.627)
25. Rafiq H., **Aftab Z-e-H.**, Anjum T., Akram W., Bashir U., Mirza F.S., Aftab M., Ali M.D and Li G. 2022. Bio-fabrication of Zinc Oxide nanoparticles to rescue Mung Bean (*Vigna radiata* L.). against *Cercospora* leaf spot disease. *Frontiers in Plant Science.* <https://doi.org/10.3389/fpls.2022.1052984> (IF 6.627)
26. Aftab A, Ali M., Yousaf Z., Binjawhar D.N., Hyder S., **Aftab Z-e-H.**, Maqbool Z., Shahzadi Z., Eldin S.M., Iqbal R., and Ali I. **2023.** Shelf-life extension of *Fragaria ananassa* Duch. using selenium nanoparticles synthesized from *Cassia fistula* Linn. Leaves. *Food Science and Nutrition.* <https://doi.org/10.1002/fsn3.3336> (IF 3.553)
27. Rafiq H., **Aftab Z-e-H.**, Akram W., Anjum T., Mirza F.S., Yousaf Z., Li G. **2023.** A biological evaluation and molecular insight on green synthesized grapheme oxide nanoparticles mediated growth promotion of Mung Bean. *Scientia Horticulturae.* 318: 112097. <https://doi.org/10.1016/j.scienta.2023.112097> (IF 4.342)
28. Akhter A., Asif, M.S., Anwar, W. **Aftab, Z-e-H.** Khurshid, M. Hashem, A. Avela-Quezada, G. D. Abd-Allah, E. F. **2023.** Biochemical and physiological elucidation of biochar induced defense response activation against bacterial leaf spot in chilies. *Applied Ecology and Environmental Research.* 21(4):3057-3074. http://dx.doi.org/10.15666/aeer/2104_30573074 (IF 0.816)
29. Tahir W., Zeeshan T., Waseem S., Ali M. D., Kayani Z., **Aftab Z-e-H.**, Mehtab S.M. T. & Ezzine S. **2023.** Impact of silver substitution on the structural, magnetic, optical, and antibacterial properties of cobalt ferrite. *Scientific Reports.* 13:15730. <https://doi.org/10.1038/s41598-023-41729-7>. (IF 4.995)
30. Hassan A., Akram W., Rizwana H., **Aftab Z-e-H.**, Hanif S., Anjum T., Alwahibi M.S. **2023.** The imperative use of *Bacillus* consortium and quercetin contributes to suppress

- Fusarium wilt disease by direct antagonism and induce resistance. *Microorganisms*. 21;11(10):2603. [doi: 10.3390/microorganisms11102603](https://doi.org/10.3390/microorganisms11102603). (IF: 4.926)
31. Shabir s., **Aftab Z-e-H.**, Anjum T., Akram W., Hussain S., Rafiq H, Guihua L. **2023**. Biological evaluation, GC-MS profiling and molecular docking studies of some essential oils against postharvest pathogens of maize. *Arabian Journal of Chemistry*. <https://doi.org/10.1016/j.arabjc.2023.105339> (IF: 6.212)
 32. Raza A., Hassan A., Akram W., Anjum T., **Aftab Z-e-H.**, Ali B. **2023**. Seed Coating with the synergistic consortium of beneficial *Bacillus* microbes improves seedling growth and manages Fusarium wilt disease. *Scientia Horticulturae*. 325: 112645 <http://doi.org/10.1016/j.scienta.2023.112645> (IF 4.342)
 33. Khalid U, **Aftab Z-e-H.**, Anjum T., Bokhari N.A., Akram W., Anwar W. **2024**. Harnessing the biocontrol potential of *Bradyrhizobium japonicum* FCBP-SB-406 to manage charcoal rot of soybean with increased yield response for the development of sustainable agriculture. *Microorganism*. 12(2): 304. <http://doi.org/10.3390/microorganism12020304> (IF 4.5)
 34. Naeem N., Aftab A., Bokhari N.A., **Aftab Z-e-H.**, Yousaf Z., Maqbool Z., Rizwana H. **2024**. Nutritional enhancement in black seed (*Nigella sativa*) using bacteria based biofertilizers. *Journal of Food Science and Nutrition*. 2048-7177. DOI: [10.1002/fsn3.3982](https://doi.org/10.1002/fsn3.3982) (IF 4.32)
 35. Akram W., Waqar S., Hanif S., Anjum T., **Aftab Z-e-H.**, Li G., Ali B., Rizwana H., Hassan A., Rehman A., Munir B., Umer M. **2024**. Comparative Effect of Seed Coating and Biopriming of *Bacillus aryabhattai* Z-48 on Seedling Growth, Growth Promotion, and Suppression of Fusarium Wilt Disease of Tomato Plant. *Microorganisms*. 12(4), 792; <https://doi.org/10.3390/microorganisms12040792> (IF 4.1)
 36. Iqbal M., **Aftab Z-e-H.**, Anjum T., Rizwana H., Akram W., Aftab A., Sajid Z.A., Li G. **2024**. Nano integrated plant tissue culture to increase the rate of callus induction, growth and, Curcumenoid production in *curcuma longa*. *Plants* 13(13), 1819; <https://doi.org/10.3390/plants13131819> (IF 4.658)
 37. Ahmad G.N., Anjum T., **Aftab Z-e-H.**, Rizwana H., Akram W. **2024**. TiO₂ nanoparticles: green synthesis and their role in lessening the damage of *Colletotrichum graminicola* in Sorghum". *Journal of Food Science and Nutrition*. <https://doi.org/10.1002/fsn3.4297> (IF 4.32)
 38. Sharif S., **Aftab Z-e-H.**, Anjum T., Siddique M., Akram W. **2024**. Assimilated evaluation of plant growth-promoting rhizobacteria on seed-borne mycoflora and seed vigour associated with commercial varieties of wheat (*Triticum aestivum* L.). *Journal Plantarum*, 6(1): 102-129. (Y Category)
 39. Akram W., Sharif S., Rehman A., Anjum T., Ali B., **Aftab Z-e-H.**, Shafqat A., Afzal L., Munir B., Rizwana H., Li G. **2024**. Exploring the Potential of *Bacillus subtilis* IS1 and *B. amyloliquificans* IS6 to Manage Salinity Stress and Fusarium Wilt Disease in Tomato

- Plants by Induced Physiological Responses. *Microorganisms*, 12, 2092. <https://doi.org/10.3390/microorganisms12102092> (IF 4.1)
40. Anjum T., Umair A., Aftab Z.e.H. Akram W., Saleem M.S. & Akram S. 2024. Impact of vital urea (sulfur-coated urea) and plain urea with sulfur on growth and yield of wheat. *Journal Plantarum*, 6(2): 79-87. (Y Category)
 41. Aftab Z-e-H., Mirza F.S., Anjum T., Rizwana H., Akram W., Aftab M., Ali M.D. & Li G. 2025. Antifungal Potentail of Biogenic Zinc Oxide Nanoparticles for controlling cercospora Leaf spot in Mung Bean. *Nanomaterials*, 15(2), 143; <https://doi.org/10.3390/nano15020143> (IF 4.4)
 42. Khan I., Rehman A., Akram A., Anjum T., Yasin N.A., **Aftab ZeH.**, Munir B., Khan W.U., Li G. 2025. Unlockong salinity stress resilience in Turnip plants by *Bacillus subtilis* Z-12 and *Bacillus aryabhattai* Z-48. *Microorganisms*, 13(2), 359; <https://doi.org/10.3390/microorganisms13020359> (IF 4.2)
 43. Fatima M., Anjum T., Manzoor M., Aftab M., **Aftab ZeH.**, Akram W., Bokhari N.A., Rizwana H., Nabi G & Li G. 2025. Green Synthesis and characterization of TiO₂ nanoparticles from latex of *Calatropis procera* against dusky cotton bug. *Scientific Reports*. 15, 11102. <https://doi.org/10.1038/s41598-024-82841-6> (IF 3.9)
 44. Saeed R., Aftab A., Maqbool Z., Youaf Z., Khalid A., **Aftab ZeH.** 2025. Impact of Leaf growth stages on essential oil composition and bioactivity in Lemongrass (*Cymbogon citratus*). *Journal of Applied Botany and Food Quality*. 98: 53-65. <https://doi.org/10.5073/JABFQ.2025.098.006> (IF 1.2)
 45. Ashraf H., Anjum T., Ahmed I.S., Ahmed R., **Aftab ZeH.**, Rizwana H. 2025. Phytofabricated silver nanoparticles unlock new potential in tomato plants by combating wilt infection and enhancing plant growth. *Scientific Reports*. 15, 10527. <https://doi.org/10.1038/s41598-025-89724-4> (IF 3.9)
 46. Islam S., Aftab A., Maqbool Z., Yousaf Z., **Aftab ZeH.** 2025. Nutraceutical *Rumex nervosus* as a natural drug candidate: its metabolic profiling and pharmacological estimation for health Applications. *Current Pharmaceutical Design*, <https://doi.org/10.2174/0113816128360594250725110421> (IF 2.8)

BOOK CHAPTERS:

1. Aftab, ZeH., Anjum, T., Akram, W., Shafiq, M.F., Rafiq, H. (2024). Carbon-Based Nanoparticles: Graphene Oxide (GO)-Biotic Stress Minimizers in Plants. In: Khan, M., Chen, JT. (eds) *Nanoparticles in Plant Biotic Stress Management*. Springer, Singapore. https://doi.org/10.1007/978-981-97-0851-2_14
2. Aftab, ZeH., Anjum, T., Akram, W., Bokhari N.A., Rehman A., Sharif S., Rizwana H., Munir B. (2024). Biological Pest Control and sustainable Agroecosystem. In: *Sustainable Agroecosystems: Principle and Practices*. Intechopen, London, W1W 5PF, United Kingdom. <http://doi.org/10.5772/intechopen.1006693>

3. Rehman A., Akram W., Anjum T., Yasin N.A., Aftab ZeH. (2025). Elements that Control Plant Growth and Development include Light and Hydrogen Peroxide. In Mohd Tanveer Alam Khan, Taiba Saeed, Aqeel ahmed, Qazi Fariduddin Mohammad Yusuf (eds) Hydrogen Peroxide Signaling Mechanisms and Crosstalk in Plant Development and Stress Responses. 1st Edition. CRC Press. Boca Raton. eBook. ISBN9781032647692. <https://doi.org/10.1201/9781032647692>

CONFERENCES, SEMINARS AND WORKSHOPS:

- **Oral Presentation** in 6th Global Webinar Summit on Agriculture & Organic Farming on **Propiconazole conjugated biogenic ZnO Nanoparticles as disease Manager of leaf spot in *Lagenaria scienaria*** held on Oct., 23-24, 2025, Paris., **France**.
- Abstract accepted for **Oral Presentation** entitled **Development of Biogenic Nano-based Formulations for Increased Callogenesis in *Curcuma longa*** for **3rd International Conference on Recent Approaches in Plant Sciences (RAPS-2025)** to be held on November 12-13, 2025, at Department of Botany, Division of Science and Technology, University of Education, Lahore, **Pakistan**.
- Abstract accepted for **Oral Presentation** entitled **Tilt Coated Green synthesized ZnO Nanoparticles for management of Leaf Spot of Bottle Gourd** for **9th International conference Combating Plant Pathogens in changing climate for sustainable Food Security**, to be held on November 16-18, 2025, at PMAS-Arid Agriculture University, Rawalpindi, **Pakistan**.
- Attended **One Day Seminar on Entrepreneurial Botany: Opportunities and Challenges** held on 19th Feb., 2025 at Department of Botany, Lahore College for Women University, Lahore, **Pakistan**.
- Attended **The Scientists Convention 2025** organized by **Pakistan Science Foundation** held on April 30th 2025, at Al Razi Hall, University of the Punjab, Lahore, **Pakistan**.
- Organized and attended and “**Awareness seminar on Innovations on Higher Productivity and Quality**” on 30th Jan, 2024, at Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- Participated “**6th Region wise One Day Training Workshop for Program Evaluators of NAEAC**” on 14th Feb, 2024, at Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- Attended “**Awareness seminar on Mitigating the Emerging issue of Pesticide Residues in Vegetables and Rice**” on 16th Feb, 2024, at Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- Participated as Oral Presenter in “**International Symposium on Nanotechnology: Integrating Nanotechnology and Microbiology for a sustainable future**” held at Institute of Microbiology,

- Organized “**Two days Workshop on Molecular Docking**” on 23rd April, 2024, at the Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- Organized “**One Day Seminar on Environment Sustainability and Agriculture**” on 27th May, 2024, at the Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- Participated in “2nd International Conference on Recent Innovations in Plant Sciences and Natural Products (ICRIPSNP)” on 15-16th Feb. 2024, organized by Department of Botany, University of Okara, Okara, **Pakistan**.
- Participated in “Training Workshop for NAEAC Program Evaluators” organized by National Agriculture Accreditation Council, HEC, Islamabad on February 14th, 2024, at the Faculty of Agricultural Sciences, University of the Punjab, Lahore, **Pakistan**.
- Oral Presentation in 1st UMT international Conference on Life Sciences: “Exploring the Frontiers in Biological Research”, December 13-14, 2023 organized by Department of Life Sciences, School of Science, UMT, Lahore, **Pakistan**.
- Oral Presentation in 8th International Conference of Pakistan Phytopathological Society on “Sustainable Agriculture & Food Security: A nexus of Plant Pathogens, Climate Change and Water Challenges” November 26th-28th, 2023, at Department of Plant Pathology, Faculty of Agriculture and Environment, The Islamia University of Bahawalpur, **Pakistan**.
- Oral Presentation in International Conference on Ecology, Agriculture and Forestry (ICEAF-2023), organized by South Asia Institute for Research and Publications (SAIRAP) on 9th November, 2023 at Abu Dhabi, **UAE**.
- Online Presentation in 34th world Nano Conference (Webinar) on “Bio fabrication of graphene oxide nanoparticles from *Nigella sativa* seed extract and their incorporation for plant growth in *Vigna radiata*” held during 16-17 October, 2023, Vancouver, **Canada**.
- Organized and Participated in An Awareness Seminar on “Patent Filing and Registration”, Intellectual Property Rights, on 25th July, 2023 at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, **Pakistan**.
- Organized and Participated in 2 days Workshop on “Spying Bioactive Molecules” on 11th-12th July, 2023 at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, **Pakistan**.
- Participated in 2 days Workshop on “Outcome Based Education (OBE)” on 7th- 8th June, 2023, hosted by Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, **Pakistan**.
- Organized and Participated One Day Seminar/ Invited Lecture on “Challenges and Opportunities in Agriculture Sector” on 6th Feb., 2023, at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, **Pakistan**.
- Attended and Participated in One Day Workshop on Online Learning Module System LMS organized by IT center Punjab University on 1st Feb., 2023, at Department of Plant Pathology, University of the Punjab, Lahore, **Pakistan**.

- Attended and Participated in 17th National Conference of Pakistan Weed Science Society being hosted by Faculty of Agricultural Sciences on Oct. 27th -28th 2022 at University of the Punjab, Lahore, **Pakistan**.
- Invited speaker at an International Seminar on “Role of Chinese and Pakistani Scientists in Life Science” on 19th May 2022 held at Department of Botany, Lahore College Women University in Collaboration with Chinese National Rice Research Institute (CNRRI) **China**.
- Participated at “1st International Conference on Sustainable Development Goals (ICS DG 2022)” held on 29th -31st March 2022, at Lahore College for Women University, Lahore, Pakistan.
- Attended and Participated in 7th International Conference of Pakistan Phytopathological Society “Current scenario and Future Prospects” held at Department of Plant Pathology, University of agriculture Faisalabad, **Pakistan** on 21st -23rd Nov. 2021.
- Organized an International Webinar on “Agricultural Nanotechnology” influencing the future of Farming Sustainability, at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, Pakistan, on July, 29th 2021.
- Participated and attended an International Webinar “Mushrooms a future Diet” organized by First Fungal Culture Bank of Pakistan and Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore, Pakistan, on July, 7th 2021.
- Attended an International conference on “Smart Plant Protection” held at Muhammad Nawaz Sharif Agriculture University, Multan, Pakistan, on 27th-28th Jan. 2021.
- Attended “New trends in Natural Sciences, emerging infectious diseases, communicable diseases insight, Zoonoses and strategies” held at LCW University Lahore, 21st -22nd Dec 2020.
- 1st International symposium on current trends and future perspectives in botanical research 2020. Nov.10, 2020 (Online webinar).
- 7th international Horticulture Research conference held at Department of Horticulture, Beijing, Shanghai. July 07-August 07-2020. (Online webinar).
- Participation in “International Horticulture Conference 2020”, held at SA Gardens in Collaboration with Institute of Agricultural Sciences, University of the Punjab, 26-28 Feb. 2020.
- Attended a Lecture and Hands-On Training on “Application of Bioinformatics tools in biological research” in Institute of Agricultural Sciences, University of the Punjab, 11th Feb. 2020.
- Participated in a Seminar on “The Association of Dairy product and Cancer” held at Institute of Agricultural Sciences, University of the Punjab, 10th Feb. 2020.
- Attended a Seminar on “Quality Assurance & Accreditation” held at Institute of Agricultural Sciences, University of the Punjab, 7th Feb. 2020.
- Participated in a seminar on “Kitchen Gardening & Urban Farming” conducted at Institute of Agricultural Sciences, University of the Punjab, 4th Feb. 2020.

- Oral Presentation and Participation in ICPU 2019 “Recent Innovations in Molecular Sciences”, University of the Punjab (Quaid-e-Azam Campus), Lahore during November 06th -08th, 2019.
- 3rd International Conference on “Biosciences”, May 9-11, 2018, GC University Lahore, Pakistan.
- One-day National Seminar on “Looming Water Crisis in Pakistan, Impact & Solution” at LCCI on 12.07.2018.
- A national seminar on “Future Outlook & Challenges for the Sustainable Management of Insect Pests: Progress & Prospects” at IAGS on 02.05.2018.
- One-day training on —Current Trends in Halal Food Safety Assurance (Issues/Challenges) in collaboration with different organizations like Halal Food & Minhaj University, at IAGS on 26.04.2018.
- An International Seminar on —Resource Conservation for Sustainable Agriculture and Food Security at IAGS on 19.04.2018.
- An International Seminar on —Floriculture Industry and Business Opportunities in Pakistan at IAGS on 06.04.2018.
- 4th International conference on “Role of Botanical Gardens in Climate Change Adaptation and Mitigation” held at GCU Lahore. Feb. 21-23, 2018.
- Participated in Conference on Microbiology & Molecular Genetics, on 07.02.2018 organized by the Department of Microbiology & Molecular Genetics, P.U. Lahore.
- 1st International Conference on New Trends in Natural Sciences from Basic to Applied, October 25-27, 2017, Lahore College for Women University, Lahore, Pakistan.
- One Day National Seminar on “Kitchen Gardening and seed distribution” organized by Institute of Agricultural Sciences, University of the Punjab, on September, 21st, 2017.
- Participated in 5th International Congress of the Molecular Biology Association of Turkey, 08th-10th September, 2017, Istanbul, **Turkey**.
- Participated in 6th International Conference on Healthcare, Environment, Food and Biological Sciences (CABES 17) 08th-10th September, 2017, Istanbul, **Turkey**.
- Participated in International Seminar on “Prospects of Agricultural Research (Current & Future)” organized by Institute of Agricultural Sciences, University of the Punjab, on 23rd August, 2017 at Institute of Agricultural Sciences, University of the Punjab, Lahore, Pakistan.
- Participated in one day national conference on “Green Punjab and CPEC”, organized by Institute of Agricultural Sciences, University of the Punjab, at PC Hotel Lahore on 10th May, 2017.
- Presented Paper in First International conference on “Plants: their Chemical and biological Applications for Today and Tomorrow” organized by Department of Botany, University of Gujrat, Pakistan on 12-14 April, 2017.

- Presented paper in the First International conference on “Emerging Trends in Earth and Environmental Sciences” organized by College of Earth and Environmental sciences, on March 09-10, 2017.
- Participated in International conference on “Significance of Potash use in Pakistan Agriculture” organized by International Potash Institute and Institute of Agricultural sciences, University of the Punjab, 24-25 November, 2016.
- Participated in two days training workshop on “DNA fingerprinting – A tool to explore genetic diversity” held in Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore during 25th and 26th May, 2016.
- Participated in workshop on core techniques of Biotechnology held in Department of Molecular Biology and Biotechnology, The University of Lahore between 15th-19th February, 2016.
- 5th International/10th National conference of Pakistan Phytopathological Society “Crop Protection for Sustainable Agriculture” November 23-25, 2015. Institute of Agricultural Sciences University of the Punjab, Lahore, **Pakistan**.
- XIVth International Congress of Bacteriology and Applied Microbiology organized by International Union of Microbiological Societies (IUMS), 27th July-1st August, 2014. Montreal, **Canada**.
- XIVth International Congress of Mycology and Eukaryotic Microbiology organized by International Union of Microbiological Societies (IUMS), 27th July-1st August, 2014. Montreal, **Canada**.
- XIVth International Congress of Virology organized by International Union of Microbiological Societies (IUMS), 27th July-1st August, 2014. Montreal, **Canada**.
- One day Workshop on western Blotting. 5th May, 2015. Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, **Pakistan**.
- International Conference on “Stress Biology and Biotechnology: Challenges & Management”. May 21st -23rd, 2014. Institute of agricultural Sciences, University of the Punjab, Lahore, **Pakistan**
- One Day Seminar and walk on “World Forest Day”. March 21st, 2014. Jallo Park Forest, Punjab Forest Department, Lahore, **Pakistan**.
- 9th International conference of Pakistan Phytopathological Society “Climate changes and Plant Diseases: Challenges and Opportunities”. January 23rd-25th, 2014. University of Karachi, Karachi, **Pakistan**.
- 2nd International conference on Microbial Diversity “Microbial interactions in complex ecosystems” MD 2013 held on 23rd - 25th October, 2013 Turin, **Italy**.
- National UIP Seminar on “Developing Local Food Additives/Preservatives”. November 22nd 2012. University of the Punjab, Lahore, **Pakistan**.
- 23rd International ICFMH symposium Food Micro 2012, Global Issues in Food Microbiology held on 03rd -07th September Istanbul, **Turkey**.
- Biovision Alexandria (TWAS/BVA. NXT 2012) at the Bibliotheca Alexandria 21st - 22nd April 2012 Alexandria **Egypt**.

- International Conference on Antimicrobial Research ICAR 2010, on November 3rd - 5th, 2010 held at Valladolid, **Spain**.
- Seminar on Infrastructure of Parks & Horticulture Authority. By Director General PHA, Lahore, November 5th, 2009, held at Institute of Mycology & Plant Pathology, Punjab University Lahore, **Pakistan**.
- 35th All Pakistan Science Conference, December 20th – 23rd, 2008, University of Karachi, Karachi, **Pakistan**.
- Third International Conference on Plant Pathology: Future Food Security. November, 19th – 21st, 2007. Department of Mycology & Plant Pathology, Punjab University Lahore, **Pakistan**.
- International Symposium on “Nano-Chemistry: Chemistry, Biochemistry, Molecular Biology and Bioinformatics of Enzymes” September 20th - 21st, 2006 held at School of Biological Sciences, University of the Punjab, New Campus, Lahore, **Pakistan**.
- International seminar on ‘Biofertilizer & Bio control Technology’ 25th – 27th July, 2005 being held at Biochemistry & Biotechnology Institute Auditorium, organized by Department of Mycology & Plant Pathology, University of the Punjab, Quaid-e-Azam Campus, Lahore, **Pakistan**.
- The 2nd National Conference of Biology April 22nd – 24th, 2004, at Biology Block, G.C. University, Lahore, **Pakistan**.
- HEC Symposium on "Awareness of Parthenium weed" on 6th – 7th August 2004. Department of Mycology & Plant Pathology, University of the Punjab, Lahore, **Pakistan**.
- HEC Workshop on “Identification & Conservation of Micromycetes” on 23rd- 28th August 2004. First fungal culture Bank of Pakistan, University of The Punjab, Lahore, **Pakistan**.
- Seminar on ‘Sustainable Use of Water Resources’ and launching of book ‘Water and New Technologies on March 26, 2003 being held at the Bukhari Auditorium G. C. University, Lahore, **Pakistan**.
- The 1st National Symposium on “Frontiers of Chemistry” October 31st, 2002, at Department of Chemistry, Government College University, Lahore, **Pakistan**.
- The 1st National Conference of Biology March 28th - 30th, 2002, at Biology Block, G.C. University, Lahore, **Pakistan**.
- The 7th National Conference of Plant Scientists November 14th - 16th, 2000, at Department of Botany, University of the Punjab, Sheikh Zayed Islamic Centre Auditorium, Quaid-e-Azam Campus, Lahore, **Pakistan**.

PRESENTATIONS:

POSTER PRESENTATIONS:

- ❖ “Comparative Studies on Cephalosporin C biosynthesis by *Aspergillus* and *Acremonium* Species”, 5th International Congress of the Molecular Biology Association of **Turkey**.
- ❖ “*Ganoderma lucidum*: A Case Study for Laccase Biosynthesis”. 5th International/10th National conference of Pakistan Phytopathological Society

- “Crop Protection for Sustainable Agriculture” November 23rd-25th, 2015. Institute of Agricultural Sciences University of the Punjab, Lahore, **Pakistan**.
- ❖ “Optimization of growth conditions for biosynthesis of Laccase enzyme by *Coriolus versicolor*”. XIVth International Congress of Mycology and Eukaryotic Microbiology organized by International Union of Microbiological Societies (IUMS) 2014 Congresses, July 27th - August 1st, 2014. Montreal, **Canada**.
 - ❖ “Purification and characterization of Invertases from *Aspergillus* spp. Grown on potato and carrot peels” in 2nd International conference on Microbial Diversity “Microbial interactions in Complex Ecosystems” **MD 2013** held in Turin, **Italy**. 23rd – 25th October 2013.
 - ❖ “Studies on invertase biosynthesis by *Saccharomyces cerevisiae* in shake flask” in Biovision Alexandria (TWAS/BVA. NXT 2012) at the Bibliotheca Alexandria 21st-22nd, April 2012, Alexandria, **Egypt**.
 - ❖ 23rd International Symposium Food-Micro 2012, Global Issues in Food Microbiology held on 03rd-07th September, Istanbul, **Turkey**.
 - ❖ “HPLC analysis of cephalosporin C biosynthesized by mutated and non mutated strains of *Aspergillus* and *Acremonium* species” displayed within the scientific program of International conference on Antimicrobial Research ICAR 2010, held on November 3rd -5th, 2010, Valladolid, **Spain**.
 - ❖ “*In Vitro* selection of variants resistant to basal rot disease in garlic (*Allium sativum*) using induced mutations” displayed in 3rd International Conference on Plant Pathology: Future Food Security. November 19-21, 2007. Department of Mycology & Plant Pathology, Punjab University Lahore, **Pakistan**.

ORAL PRESENTATIONS:

- ❖ Online Presentation in 34th world Nano Conference (Webinar) on “Bio fabrication of graphene oxide nanoparticles from *Nigella sativa* seed extract and their incorporation for plant growth in *Vigna radiata*” held during 16-17 October, 2023, Vancouver, **Canada**.
- ❖ “Vegetative part of *Nigella sativa* L. potential antineoplastic sources against Hep 2 and MCF7 human cancer cell lines” at “2nd International conference on Recent Advances in Plant Sciences RAPS 2023, on 4-5 May, 2023 held at Department of Botany, University of Education, Township Campus, Lahore, **Pakistan**.
- ❖ “Nano-biochar induced defense response against bacterial leaf spot (*Xanthomonas campestris* pv. *Vesicatoria*) of chilies” at “International conference on Sustainable Development Goals: Localizing the SDGs through academia” being held in Lahore College For Women University, Lahore, **Pakistan** during March, 29-31, 2022.
- ❖ “Manganese Peroxidase by *Coriolus pubescens* on effluent of pulp and paper industry” in Recent Innovations in Molecular Sciences, November 6th-8th, 2019, Institute of biochemistry and biotechnology, University of the Punjab, Lahore, **Pakistan**.

- ❖ “Quantitative estimation of Laccases by *Coriolus hirsutus* on effluent of Textile Industry” 2nd International Conference “New trends in natural sciences: public health, food nutrition and safety” Department of Biotechnology and Zoology, Lahore College for Women University, 24th – 26th October, 2018, Lahore, **Pakistan**.
- ❖ “Qualitative screening of different fungal strains potentially strong toward Laccase biosynthesis, isolated from different locations of Pakistan” in International Conference on Microbiology and Genetic Engineering, February 7-9, 2018, Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, **Pakistan**.
- ❖ “Characterization of Lignin peroxidase by *Ganoderma applanatum* on Effluent of Pulp and Paper Industry”. 6th International Conference on Healthcare, Environment, Food and Biological Sciences (CABES 17) 08th -10th September, 2017, Istanbul, **Turkey**.
- ❖ “Induction of resistance against Leaf Spot of Rose through Tissue culture technique” presented at First International conference on “Plants: their Chemical and biological Applications for Today and Tomorrow” organized by Department of Botany, University of Gujrat, **Pakistan** on 12-14 April, 2017.
- ❖ “Purification and Characterization of Laccase from *Pleurotus ostreatus* on effluent of Pulp and Paper Industry” presented at First International conference on “Emerging Trends in Earth and Environmental Sciences” organized by College of Earth and Environmental sciences, on March 09-10, 2017, Lahore, **Pakistan**.
- ❖ “Strain improvement of *Aspergillus* and *Acremonium* Species for enhanced biosynthesis of cephalosporin C” presented within the scientific program of International conference on Antimicrobial Research ICAR 2010, held on November 3-5, 2010 in Valladolid, **Spain**.
- ❖ “Induction of resistance in callus cultures of garlic (*Allium sativum*) against basal rot disease” in 35th All Pakistan Science Conference, December 20-23, 2008, University of Karachi, Karachi, **Pakistan**.

MEMBERSHIP OF SCIENTIFIC SOCIETIES:

- Pakistan Phytopathological society
- Mycophytopathological society of Pakistan
- The Pakistan society of Biochemistry and Molecular Biology
- American society of Industrial Microbiologists

RESEARCH PROJECTS:

COMPLETED:

1. *In vitro* selection of variants resistant to basal rot disease in garlic (*Allium sativum*) using induced mutations (2007-2008).

Awarded by: University of the Punjab.

Amount Funded: 0.1 millions rupees.

2. Strain improvement of *Aspergillus* and *Acremonium* species for enhanced cephalosporin C biosynthesis (2008-2009).

Awarded by: University of the Punjab.

Amount funded: 0.1 million rupees.

3. Characterization and purification of Laccases from some wood rotting fungi of Pakistan (2009-2010).

Awarded by: University of the Punjab.

Amount funded: 0.125 million rupees.

4. Partial purification and characterization of Invertases form *Aspergillus* secies using carrot and potato peels as agrowastes.

Awarded by: University of the Punjab.

Amount funded: 0.125 million rupees.

5. Investigation on antimicrobial potential of *Datura stramonium* (L). (2011-2012)

Awarded by: University of the Punjab.

Amount funded: 0.125 million rupees.

6. Studies on ligniolytic enzymes by wood rotting fungi collected from northern areas of Pakistan. (2012-2013).

Awarded by: University of the Punjab.

Amount funded: 0.125 million rupees.

7. Optimization of growth conditions for synthesis of lacasses by *Ganoderma lucidum* from waste water of paper and pulp industry. (2013-2014).

Awarded by: University of the Punjab.

8. Comparative studies on purification of lignin peroxidases isolated from mushrooms collected from different areas of Lahore. (2014-2015).

Awarded by: University of the Punjab.

Amount funded: 0.125 million rupees.

9. Phytochemical analysis of powder of *Ganoderma lucidum* samples collected from different areas of Lahore and its vicinity. (2015-2016).

Awarded by: University of the Punjab.

Amount funded: 0.15 million rupees.

10. Analysis of organophosphates in field crops from Lahore and its surrounding. (2017-2018)

Awarded by: University of the Punjab.

Amount funded: 0.15 million rupees.

11. Screening Antimicrobial Activity of Iron nanoparticles synthesized using *Spinacia oleracea* Extracts. (2018-2019).

Awarded by: University of the Punjab.

Amount funded: 0.20 million rupees.

12. Ag-nano-treated irrigation of *Nigella sativa* L. and its impact on its antimicrobial potential (2020-2021)

Awarded by: University of the Punjab.

Amount funded: 0.20 million rupees.

13. Nano-biochar induced defense response against bacterial leaf spot (*Xanthomonas campestris* pv. *vesicatoria*) of chillies (2021-2022)

Awarded by: University of the Punjab.

Amount funded: 0.20 million rupees.

- 14.** Green synthesis and characterization of ZnO nanoparticles from *Nigella sativa* seeds extract for their antimicrobial potential against cercospora leaf spot of Mung Bean (2022-2023)

Awarded by: University of the Punjab.

Amount funded: 0.20 million rupees.

- 15.** Nano-integrated plant tissue culture to increase the rate of callus induction, growth promotion and reduced impact of pathogen on susceptible plants (2023-2024).

Awarded by: University of the Punjab.

Amount funded: 0.20 million rupees.

INDUSTRIAL RESEARCH PROJECT

- 1.** Principal investigator in one year (2023-2024) project entitled “Evaluating seasonal fungal contamination in stored silage at SoulTech dairy”. Grant = 4,00,000/Rs by SoulTech Pakistan.
- 2.** Principal investigator in one year (Jan – Dec, 2024) project entitled “Exploring the role of Hydrogen Peroxide in managing soil-borne diseases and enhancing plant health. Grant = 5,00,000/Rs by Vital Agri Nutrients (VAN) Pvt (Ltd).
- 3.** Principal investigator in one year (2024-2025) project entitled “Estimation of the glycemic index for multigrain and sugar free flours from VIRSA”. Grant = 5,50,000/Rs by VIRSA.
- 4.** Principal investigator in one year (2024-2025) project entitled “Isolation and identification of fungal contaminants in silage, along with the production of various mycotoxins and their subsequent biodegradation”. Grant = 10,01,000/Rs by SoulTech Pakistan.