

DR. WAHEED ANWAR

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RESEARCH INTERESTS:

My research interests are mainly on Biocontrol of plant diseases as well as insect pests and Integrated Pest Management (IPM) using different biological agents.

Professional Experience

- Working as Assistant Professor at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab, Lahore Pakistan since May, 2022.
- Worked as Research Officer at First Fungal Culture Bank of Pakistan, Faculty of Agricultural Sciences, University of the Punjab from January, 2013 to May, 2022.
- Research Trainee at Sanya NanFan Science and Technology Institute, China from Oct 05, 2019 to Oct 26, 2019.
- Worked as Visiting Assistant Professor, Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab since 2014.
- Worked as Research Scholar at Fungal Culture Bank of Pakistan, Institute of Agricultural Sciences, University of the Punjab from April, 2011 to January 2013
- Worked as Visiting Scholar at Brown's Lab, University of Arizona, USA from August 2015 to January, 2016.
- Worked as Internee through National Internship Program in Directorate of Pest Warning and Quality Control of Pesticides, Government of the Punjab, Lahore from Feb, 2007 to Feb 2018.
- Assistant Superintendent, Boys Hostel No. 17 since February, 2011.

EDUCATION:

PhD Agriculture (Plant Pathology)	2017
Institute of Agricultural Sciences, University of the Punjab, Pakistan	
M.Sc. (Hons.) Agriculture (Plant Pathology)	2010
Institute of Agricultural Sciences, University of the Punjab, Pakistan	
B.Sc. (Hons.) Agriculture (Plant Pathology)	2007
Institute of Agricultural Sciences, University of the Punjab, Pakistan	

RESEARCH EXPERTISE:

- Performed field surveys and sample collection for disease incidence and disease severity.
- Conducted laboratory, greenhouse, and field experiments in Plant disease diagnostics.
- Acquired training and practically performed Microscopy, DNA & RNA extraction, Primer designing, PCR, Cloning, VIGS, *Agrobacterium*-Mediated Gene Transformation.
- Experienced in Morphological and primer assisted identification of plant pathogens.
- Experience in microbiomes, metagenomics and plant endophytic microbial communities.
- Experienced in Maintenance of microbial conservatory.
- Expert in Bioinformatics tools and Statistics analysis using Statistix 8.1.
- Accomplished expertise in writing and formatting research grants and manuscripts.

PROFESSIONAL TRAININGS/WORKSHOPS

- Participated in 6th International conference on “Emerging Trends in Bioinformatics & Biosciences Urban Horticulture for sustainable Future” held on September, 12-14, 2024 at Faculty of Agricultural Sciences, University of the Punjab, Lahore, Pakistan.
- Participated in International Seminar on “Urban Horticulture for sustainable Future” held on October, 10, 2024 at Hazara University, Mansehra, Pakistan.
- Participated as an organizer for an seminar on ‘Invited talk on Allelopathy, themed as Allelopathy, a nature based solution and eco-friendly approach for the management of weeds, held at Department of Plant Pathology, University of the Punjab Lahore, Pakistan (25th of October, 2024)
- Participated in Two days’ Workshop on Nanotech Essentials held at Department of Plant Pathology, University of the Punjab Lahore, Pakistan (21-22nd of October, 2024)
- Participated in 9th Invention to Innovation Summit to Buy and Sell Technology held at University of the Punjab Lahore (Participated and represented the research work of Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab Lahore). (27-28th of February, 2024)
- Participated in Training Workshop of NAEAC Program Evaluators, organized by National Agriculture Education Accreditation Council, HEC Islamabad. (14th of February, 2024)
- Participated in training workshop on Smart Agriculture Transformations at Department of Plant Pathology, FAS, University of the Punjab Lahore. (2nd of November, 2023)
- Two days training on “Outcome Based Education” held on 07-08 June, 2023 at Department of Plant Pathology, Faculty of Agricultural Sciences, University of the Punjab organized by Punjab Higher Education Commission.
- Three-days training workshop on “Kazakhstan-Pakistan-Turkey Youth Forum on Biotechnology” held on 13th to 15th September, 2022 at Comstech Secretariat, Islamabad.
- One month *Plant Hazard Protection Course* Presented by the Office of Radiation, Chemical & Biological Safety, The University of Arizona, Tucson, Arizona from August, 14, 2015 to September, 14, 2016.
- One month *General Laboratory Chemical Safety Course* Presented by the Office of Radiation, Chemical & Biological Safety, the University of Arizona, Tucson, Arizona from August, 14, 2015 to September, 14, 2016.
- Three-days training workshop on “*Cotton Leaf Curl Disease (CLCuD) Diagnostics & Resistance*” held from August 26-28, 2013 at Institute of Agricultural Sciences (IAGS), University of the Punjab, Lahore Pakistan.
- Two days workshop on *Faculty Professional Training on the core modules: Teaching as a profession & Communication skills* organized by Institute of Agricultural Sciences, University of the Punjab, Lahore in collaboration with Learning Innovation Division HEC, Pakistan during June 19-20, 2013.
- International Workshop entitled “*Pak-US Productivity Enhancement Workshop, 2012*” organized by International Centre for Agriculture Research in the Dry Areas (ICARDA), held on 03-04 September 2012 at National Agriculture Research Centre (NARC), Islamabad, Pakistan.
- National Workshop entitled “*2nd one day Workshop on young researchers Skill Development*” organized by national Academy of Young Scientist (NAYS), Pakistan held on 7 January, 2012 at Islamic Centre, University of the Punjab, Lahore, Pakistan.

- The International Workshop on “*Promotion of Farmer Field School based Integrated Pest Management Approach for OIC member states*” organized by COMSTech and NARC, PARC, Islamabad, Pakistan held from 4 to 6 July, 2011 at COMSTech Islamabad, Pakistan.
- Short training course on “*Land Resource Surveys using GIS/RS Techniques*” from 07-12-2009 to 02-01-2010 under the project “National Institute of research in Soils and Geomatics. Soil Survey of Pakistan, Ministry of Food & Agriculture.

RESEARCH PROJECTS

1. **Principal Investigator** of the research project entitled “Development of Biopesticides using indigenous entomopathogenic fungi”. Award of Joint Project-Industry participatory R&D (Duration 1.5 years), 2024-25, amounting Rs. 2.115 million Funded by Arrow International Lahore.
2. **Principal Investigator** of the research project entitled “Elucidating the Role of Epiphytic Microbial Community in the Establishment of Anthracnose Leaf Blight in Maize”. Research project grant for the fiscal year 2024-2025, amounting Rs. 200,000/-. Funded by University of the Punjab Lahore.
3. Completed a Research Project (2023-2024) as “**Principal Investigator**” entitled “Whole Genome sequencing of culture-able indigenous Bacteria” sponsored by GetGenome the Sainsbury Laboratory Norwich Research Park Norwich NR4 7UH UK.
4. Principal Investigator of the research project entitled “Chitinase of *Trichoderma longibrachiatum* for the control of *Aphis gossypii*”. Research project grant for the fiscal year 2022-2023, amounting Rs. 200,000/-. Funded by University of the Punjab Lahore.
5. Completed a bilateral project (*Assessment of biocontrol efficiency of entomopathogenic fungi against Spider Mites*) of 1.5 million as **Principal Investigator** in collaboration with the Plant Protection Department, Ankara University, Turkey, under “2019-2020 Project Based Mevlana Programme”.
6. Completed a project (*Control of Whitefly through Entomopathogenic fungi*) of 3 million in 2017 under the supervision of Prof. Dr. Muhammad Saleem Haider **as Researcher**. Working on this project, an insectary for the homogenous culture of whitefly has been developed. Insect cages, clip cages, aspirator and complete infrastructure has been designed scientifically.
7. Completed a Project (*Biopesticide formulation for Pythium and Phytophthora diseases of tomato and chilli*) of 6 million in 2019 **as Researcher**, sponsored by Pakistan Agriculture Research Council (PARB) under the supervision of Prof. Dr. Muhammad Saleem Haider and Dr. Ahmad Ali Shahid.

RESEARCH SUPERVISION

I have supervised/assisted 19 research students of B.Sc. (Hons), M.Sc. (Hons) and PhD. so far. I am enlisting herewith their Research topics alongwith Names of students and their sessions.

Sr. No	Class	Name of Student	Title of Research
01	M.Sc. (Hons)	Rahat Ghaffar (2104)	Morphological and Molecular Characterization of Genera <i>Fusarium</i> from Pakistan
02	M.Sc.	Khateeja Imtiaz	Morphological and Molecular Characterization of Genera <i>Alternaria</i>

	(Hons)	(2014)	from Pakistan
03	B.Sc. (Hons)	Zohaib Ijaz (2014)	Fungal and bacterial flora associated with <i>Oeniculum vulgare</i>
04	B.Sc. (Hons)	Hamid Mushtaq (2015)	Infectious process of <i>Fusarium</i> and <i>Aspergillus</i> against <i>Bemisia tabaci</i>
05	M.Sc. (Hons)	Qamar Yousif (2016)	Isolation and Identification of <i>Phthophthora palmivora</i> from Chinese Fan Palm and analysis of chemical and biological control
06	M.Sc. (Hons)	Imran Bashir (2016)	Isolation and identification of <i>Fusarium</i> from Gladiolus and analysis of biological and chemical control.
07	B.Sc. (Hons)	Wajeeha Aslam (2017)	Chitinase activity of entomopathogenic fungi against <i>Alternaria</i> and <i>Fusarium</i> pathogens
08	B.Sc. (Hons)	Sahaab Masood (2017)	Coat Protein detection of Begomoviruses in weeds
09	M.Sc. (Hons)	Hamid Mushtaq (2017)	Fungal diseases of Strawberry and their Biological Control
10	M.Sc. (Hons)	Yousif Ali Abdulli (2017)	Fungal Diseases of Mango and their Biological Control
11	Ph.D UVAS	Huma Naeem (2017)	Distribution and In vitro biological control of bovine Tick fauna
12	M.Sc. (Hons)	Iqra Asharaf (2018)	Isolation and Purification of <i>Coriolus versicolor</i> against early blight of Tomato
13	M.Sc. (Hons)	Hafeez Ul Haq (2019)	Evaluation of the effect of Biochar and compost as soil organic amendment against early blight (<i>Alternaria solani</i>) in Tomato
14	M.Sc. (Hons)	Huma Amin (2019)	Evaluation of Fungal Chitinases for the control of <i>Aphis gossypii</i>
15	M.Sc. (Hons)	M. Asim Javed (2019)	Assessment of Wheat (<i>Triticum aestivum</i> L.) associated Microbimes and their Impact on Plant Health.
15	M.Sc. (Hons)	Haleema Saeed (2020)	Effect of low Temperature Preservation on different Bacterial Strains
16	M.Sc. (Hons)	Ramsha Basit (2020)	Production of total secondary metabolites of <i>Trichoderma</i> spp. and their evaluation against different plant pathogens
17	M.Sc. (Hons)	Habiba Sarwar (2020)	Effect of low Temperature Preservation on different species of <i>Penicillium</i>
18	M.Sc. (Hons)	Anam Rashid (2020)	Enhancement Oyster Mushrooms Production through different substrates
19	M.Sc. (Hons)	Aniqa Ahmad (2020)	Effect of low Temperature Preservation on different species of <i>Fusarium</i>
20	M.Sc. (Hons)	Muhammad Faizan Sajid (2022)	Assessment of Microbiomes associated with Soyabean Germplasm
21	M.Sc. (Hons)	Habiba Shahid (2022)	Determination of Fungicidal Resistance in different Field Crops Plant Pathogens
22	M.Sc.	Mah-e- Zahra	Determining Transgene Flow of Herbicide and CLCuV Resistance in

	(Hons)	(2022)	Cotton
23	M.Sc. (Hons)	Muhammad Rizwan Khan (2022)	Impact of Population Densities and Rearing Media on the Demography of <i>Rhizopertha dominica</i>
24	B.Sc. (Hons)	Umara Mushtaq (2022)	Fungal flora associated with <i>Grewia asiatica</i>
25	B.Sc. (Hons)	Hira Saeed (2022)	Mycobiomes associated with Strawberry
26	B.Sc. (Hons)	Beenish Rasheed (2022)	Mycobiota associated with <i>Solanum lycopersicum</i>
29	B.Sc. (Hons)	Laiba Akmal (2023)	Evaluation of Varietal Characteristics of Maize (DK6321) & Approval Mechanism for Commercialization
30	B.Sc. (Hons)	Noor Ul Ain (2023)	Efficacy of new fungicide against common Leaf spot and common gray mold of Strawberry
31	M.Sc. (Hons)	Amna Arshad (2023)	Isolation and Screening of potential Lignocellulytic Fungi from cropping Management Scenarios
32	M.Sc. (Hons)	Sumbal Fatima (2023)	Synergistic effect of <i>Trichoderma hamatum</i> and PGPR to control <i>Colletotrichum graminicola</i> in Sorghum Plant
33	PhD	Umar Khalid. (2024)	Role of Indigenous Plant Growth Promoting Rhizobacteria as Inducers of Resistance against Charcoal Rot of Soybean.
34	M.Sc. (Hons)	Nimra Nadeem (2024)	Determination of synergistic effect of biochar and <i>Bacillus subtilis</i> on maize anthracnose.
35	M.Sc. (Hons)	Mehwish Batool (2024)	Characterization and Utilization of Maize Biochar as soil amendment to suppress <i>Macrophomina phaseolina</i> development in Maize
36	M.Sc. (Hons)	Umara Mushtaq (2024)	Elucidating the role of epiphytic microbial community in the establishment of anthracnose leaf blight in maize
37	M.Sc. (Hons)	Tuba Ashraf (2024)	Exploring the influence of microbiomes on the severity of <i>Colletotrichum graminicola</i> in sorghum
38	B.Sc. (Hons)	Umair Ahmad (2024)	Enzyme production from fungi at Pakistan Council of Scientific and Industrial Research Centre (PCSIR)
39	B.Sc. (Hons)	Javeria Yasin (2024)	Seed processing, analysis and its treatment at Guard Agricultural Research and Services Private Limited

TEACHING ASSISTANCE TO THE POSTGRAD/UNDERGRAD STUDENTS

I have taught approx 15 different courses (Individual/combine with senior teacher) related to Agriculture/Plant pathology. Herby, I am enlisting the courses according to the years.

- B.Sc (Hons) 7th semester (Plant Pathology), (Morning) in 2024. Diseases of Fruits and Ornamentals (Lab).
- B.Sc (Hons) 5th semester (Plant Pathology), (Morning) in 2024. Introductory Mycology (Theory + Lab).
- B.Sc (Hons) 4th semester (Agriculture), (Morning) in 2024. Introduction to Plant Pathology (Lab).
- B.Sc (Hons) 4th semester (Agriculture), (Morning) in 2024. Crop Physiology (Theory).
- B.Sc (Hons) 5th semester (Plant Pathology), (Morning) in 2023. Introductory Mycology (Theory + Lab).
- PhD. Agriculture (Plant Pathology) in 2023. Post-Harvest Pathology (Lab)

- B.Sc (Hons) 1st semester (Agriculture), (Morning) in 2023. Basic Agriculture (Theory + Lab).
- M.Sc. (Hons) 2nd Semester (Plant Pathology), (Morning) in 2023. Mushroom Biology and Technology. (Lab)
- M.Sc. (Hons) 2nd Semester (Plant Pathology), (Morning) in 2023. Plant Bacteriology. (Theory)
- B.Sc (Hons) 7th semester (Agronomy), (Morning) in 2022. Research Method and Techniques (Theory + Lab).
- B.Sc (Hons) 1st semester (Agriculture), (Morning) in 2022. Basic Agriculture (Theory + Lab).
- B.Sc (Hons) 4th semester (Agriculture), (Replica) in 2022. Introduction to Agriculture Extension.
- B.Sc (Hons) 1st semester (Agriculture), (Morning) in 2021. Basic Agriculture (Theory + Lab).
- B.Sc (Hons) 6th semester (Plant Pathology), (Morning + Replica) in 2020. Post Harvest Pathology Lab.
- B.Sc (Hons) 5th semester (Plant Pathology), (Morning + Replica) in 2019. Introductory Mycology.
- Ph.D (Plant pathology) 2nd semester in 2018. Insects in relations to Plant Diseases.
- B.Sc (Hons) 6th semester (Plant Pathology), (Morning + Replica) in 2018. Biotechnology and its applications in Plant Pathology
- B.Sc. (Hons) 7th Semester (Plant Pathology), (Morning+Replica) in 2017; Introductory Molecular Plant Pathology (Theory+ Lab).
- M.Sc. (Hons) 3rd Semester (Plant Pathology), (Morning + Replica) in 2017. Insects in relations to Plant Diseases.
- B.Sc. (Hons) 6th Semester (Plant Pathology), (Morning + Replica) in 2017. Plant Disease Epidemiology.
- B.Sc. (Hons) 7th Semester (Plant Pathology), (Morning+Replica) in 2016; Introductory Molecular Plant Pathology (Theory+ Lab).
- B.Sc. (Hons) 5th Semester (Plant Pathology), (Morning+Replica) in 2016; Abiotic Diseases of Plants (Theory+ Lab).
- B.Sc. (Hons) 6th Semester (Plant Pathology), (Morning) in 2016; Course: Fungal Biotechnology (Theory + Lab).
- B.Sc. (Hons) 6th Semester (Plant Pathology), (Morning) in 2015; Course: Resistance to plant Diseases (theory + lab).
- B.Sc. (Hons) 6th Semester (Plant Pathology), (Replica) in 2015; Course: Resistance to plant Diseases (theory + lab).
- B.Sc. (Hons) 6th Semester (Agriculture), (Morning) in 2014; Course: Introductory Plant Pathology (theory + lab).
- B.Sc. (Hons) 6th Semester (Agriculture), (Replica) in 2014; Course: Introductory Plant Pathology (theory + lab)

PUBLICATIONS:

I have published a total of 03 Books, 05 Book Chapters and 65 research articles in peer reviewed National and international Journals. . Herby, I am enlisting the details.

TEXTS BOOKS

- Bibi A., **Anwar W.**, and Hassan F., (2012). Bacteriocin production from Pseudomonas sp. : Spite and Virulence. **ISBN:** 978-3-659-16306-7, paperback, 95 Pages. **Publisher:** VDM Verlag Dr. Muller GmbH & Co. KG Dudweiler Landstr.99,66123 Saarbrucken, Germany.

- **Anwar W.**, Khan S. N., and Bibi A., (2011). Agroecological Diveristy of Entomopathogens in Pakistan. **ISBN:** 978-3-639-37472-8. **Publisher:** VDM Verlag Dr. Muller GmbH & Co. KG Dudweiler Landstr.99,66123 Saarbrucken, Germany.
- **Anwar W.**, Bibi A., and Manzoor M. T., (2011). Production of Alpha Amylase from *Aspergillus niger*. **ISBN:** 978-3-639-38016-3, paperback, 52 Pages. **Publisher:** VDM Verlag Dr. Muller GmbH & Co. KG Dudweiler Landstr.99,66123 Saarbrucken, Germany.

BOOK CHAPTERS

- Akhter, A., Abbas, M. T., **Anwar, W.**, Khan, T., & Khan, H. A. A. (2024). Impact of Biochar on Plant Pathogen Control. In Biochar - Solid Carbon for Sustainable Agriculture. (pp. 64-81) Bentham Science Publishers Pte. Ltd. Singapore. DOI: 10.2174/97898152380681240101
- Mushtaq, Z., Muzammil, A., Bellitürk, K., **Anwar, W.**, Akhter, A., Khan, H.A.A., Parnian, A. and Rahman, S.U., (2024). Role of Rhizobacteria in Phytoremediation of Heavy Metal. In Heavy Metal Remediation: Sustainable Nexus Approach (pp. 183-211). Cham: Springer Nature Switzerland.
- **Anwar W.**, Shahid A.A. and Haider M.S. (2017). “**Entomopathogenic Fungi: Introduction, History, Classification, Infection Mechanism, Enzymes, and Toxins**” in a book entitled, “**Biopesticides-and-bioagents-novel-tools-for-pest-management**”. The book is published by Apple Academic Press partnered with CRC Press, a member of the Taylor & Francis Group. Published in September, 2017.
- Nawaz K., Bengyella L., **Anwar W.**, Iftikhar S., Subhani M.N. and Shahid A.A. (2017). Chapter entitled, “ **Comparative analysis of pathogenicity-related proteins of *Cochliobolus*–plant interactions in post-genomic era**” in Book entitled, “**Pathogenicity of *Cochliobolus* species in post-genomic era**” 1st Edition, Studium Press LLC, U.S.A. Published in August, 2017.
- Nawaz K., Bengyella L., **Anwar W.**, Iftikhar S., Subhani M.N. and Shahid A.A. (2017). Chapter entitled, “**Current *Cochliobolus* Metabolites Involved in Plant Disease Development in Post-Genomic era**” in Book entitled, “**Pathogenicity of *Cochliobolus* species in post-genomic era**” 1st Edition, Studium Press LLC, U.S.A. Published in August, 2017.

RESEARCH PAPERS (Impact factors)

- Zohaib, K.A., Bashir, U., Khan, I.H., Javaid, A. and **Anwar, W.** (2024). Synergistic Effect of Plant Growth Promoting Rhizobacteria and *Cirsium arvense* against Black Scurf Disease of Potato. Sains Malaysiana, 53(9), pp.3071-3083. <https://doi.org/10.17576/jsm-2024-5309-13>
- Cobalanglu S., **Anwar W.**, Asim MA. and Khan HAA. (2024). Biocontrol potential of entomopathogenic fungi against *Tetranychus urticae* Koch (Acari: Tetranychidae). Pakistan Journal of Zoology Vol. 56(6), pp 2695-2703.
- Khan, H. A. A., Khan, T., Iqbal, N., **Anwar, W.**, & Ali, M. (2024). Control efficacy of isolates of *Aspergillus nidulans* and *Aspergillus fumigatus* against three destructive insect pests of stored grain. Journal of Stored Products Research, 108, 102357.
- Waheed, Z., **Anwar, W.**, Anjum, T. Akhter, A., et al. (2024). Pyrolysed maize feedstock utilization in combination with *Trichoderma viride* against *Macrophomina phaseolina*. Sci Rep 14, 19762. <https://doi.org/10.1038/s41598-024-70975-6> (impact Factor: 3.8)

- Abbas, M. T., Anjum, T., **Anwar, W.**, Khurshid, M., & Akhter, A. (2024). Characterization and Induction of Biochar Induced Capsicum annum Defense Against Bacterial Wilt. J Soil Sci Plant Nutr, 24: 6211–6223. <https://doi.org/10.1007/s42729-024-01991-8> (impact Factor: 3.4)
- 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. Microorganisms, 12(2), 304. (**Impact Factor: 4.5**).
- Nawaz, K., **Anwar, W.**, Subhani, M. N., Akhter, A., Iftikhar, S., Khan, H. A. A., & Shahid, A. A. (2024). Glucanase Gene of *Trichoderma*; New Strategy for the Management of Root Rot Disease in Chili. Journal of Soil Science and Plant Nutrition, 24, 354–370. (**Impact Factor: 3.9**)
- Zahid, A., Ali, S., **Anwar, W.**, Fatima, A., Chattha, M. B., Ayub, A., ... & Siddique, M. (2023). Assessing the air pollution tolerance index (APTI) of trees in residential and roadside sites of Lahore, Pakistan. SN Applied Sciences, 5(11), 294. (**Impact Factor: 2.88**)
- Haider, M. Z., Sami, A., Shafiq, M., **Anwar, W.**, Ali, S., Ali, Q., ... & Alarifi, S. (2023). Genome-wide identification and in-silico expression analysis of carotenoid cleavage oxygenases gene family in *Oryza sativa* (rice) in response to abiotic stress. Frontiers in Plant Science, 14. (**Impact Factor: 5.60**)
- Khan, T., Khan, H. A. A., **Anwar, W.**, Khan, M. R., & Umer, M. (2023). Natural occurrence of fungal species on the rice weevil, *Sitophilus oryzae* (Coleoptera: Curculionidae), in Punjab, Pakistan. International Journal of Tropical Insect Science, 1-8. (**Impact Factor: 1.02**)
- **Anwar, W.**, Amin, H., Khan, H. A. A., Akhter, A., Bashir, U., Anjum, T., & Zohaib, K. A. (2023). Chitinase of *Trichoderma longibrachiatum* for control of *Aphis gossypii* in cotton plants. Scientific Reports, 13(1), 13181. (**Impact Factor: 4.60**)
- Mushtaq, Z., Akhter, A., Khan, H. A. A., **Anwar, W.**, Hashem, A., Avila-Quezada, G. D., & Abd_Allah, E. F. (2023). Impact Assessment of Lead-Tolerant Rhizobacteria to Improve Soil Health Using Indian Mustard (*Brassica juncea*) as an Indicator Plant. Plants, 12(16), 3005. (**Impact Factor: 4.8**)
- Akhter, A., Asif, M. S., **Anwar, W.**, Aftab, Z. E. H., Khurshid, M., Hashem, A., Avela-Quezada, G. D. and 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. 2023;21(4):3057-74. DOI: http://dx.doi.org/10.15666/aeer/2104_30573074. (**Impact Factor: 0.816**)
- Cobalanglu S., **Anwar W.**, Asim MA. and Khan HAA. (2023). Biocontrol potential of entomopathogenic fungi against *Tetranychus urticae* Koch (Acari: *Tetranychidae*). Pakistan J. Zool., pp 1-9, 2023. DOI: <https://dx.doi.org/10.17582/journal.pjz/20210717200728>. (**Impact Factor: 0.831**).
- Khan, T., Khan H.A.A., Haider M.S., **Anwar W.**, Akhter A. (2023). Selection for resistance to pirimiphos-methyl, permethrin and spinosad in a field strain of *Sitophilus oryzae*: resistance risk assessment, cross-resistance potential and synergism of insecticides. Environmental Science and Pollution Research (2023) 30:29921–29928 doi: 10.1007/s11356-022-24325-6 (HEC-W category;**Impact Factor: 5.053**)
- Mushtaq, Z., Liaquat, M., Nazir, A., Liaquat, R., Iftikhar, H., **Anwar, W.**, & Itrat, N. (2022). Potential of plant growth promoting rhizobacteria to mitigate chromium contamination. Environmental Technology & Innovation, 102826. (**Impact Factor 7.45**)

- Iftikhar S., Bengyella L., Shahid AA., Nawaz K., **Anwar W** and Khan HAA. (2022). Discovery of succinate dehydrogenase candidate fungicides via lead optimization for effective resistance management of *Fusarium oxysporum* f. sp. *capsici*. *3Biotech.* (2022) 12:102. <https://doi.org/10.1007/s13205-022-03157-8>. **(Impact Factor: 2.406)**
- Zahra MB., Fayyaz B., Huma ZHA., Akhter A., Bahar T., **Anwar W** and Haider MS. (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.* 22, pages3348–3363 (2022).. **(Impact Factor: 3.872)**.
- **Anwar W**, Nawaz K, Javed MA, Akhter A, Shahid AA, Haider MS, Rehman MZU & Ali S. (2020). Characterization of fungal flora associated with *Sternorrhyncha* insects of cotton plants. *Biologia* (2021). <https://doi.org/10.2478/s11756-020-00549-0> **(Impact Factor: 0.875)**.
- **Anwar, W.**, Javed M.A., Shahid A.A., Nawaz K., Akhter A., Rehman M.Z.U., Hameed U., Iftikhar S. and Haider M.S., (2019). Chitinase genes from *Metarhizium anisopliae* for the control of whitefly in cotton. *Royal. Society. open science.*6 :190412. <http://dx.doi.org/10.1098/rsos.190412>. **(Impact Factor: 2.50)**.
- Akhtar N., Hanif K., Shafiq M and **Anwar W**. (2018). New report of *Aspergillus awamori* fruit rot of guava in Pakistan. *Journal of Animal and Plant Sciences* 28(5):1537-1541. **(Impact Factor:0.50)**.
- **Anwar, W.**, Ali, S., Nawaz, K., Iftikhar, S., Javed, M. A., Hashem, A., & Akhter, A. (2018). Entomopathogenic fungus *Clonostachys rosea* as a biocontrol agent against whitefly (*Bemisia tabaci*). *Biocontrol Science and Technology*, 1-11. **(Impact Factor: 0.919)**.
- Nawaz K., Shahid A.A., Bengyella L., Subhani M.N. , Ali M. , **Anwar W.**, Iftikhar S., Ali S.W. (2018). Evidence of genetically diverse virulent mating types of *Phytophthora capsici* from *Capsicum annum* L. *World Journal of Microbiology and Biotechnology* (2018) 34:130. **(Impact Factor 2.10)**.
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ABSTRACTS/ARTICLES PUBLISHED IN CONFERENCE PROCEEDINGS

I have shared my research work in different National and international conferences/symposium with scientific community. I have presented in approx 44 international and 12 National Conferences. The details are shared below.

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SERVICES TO THE SCIENTIFIC COMMUNITY

- **Serving as Reviewer for following peer reviewed Journal;** Applied Sciences (MPDI), International Journal of Molecular Sciences – MDPI, Scientific African, Life-MDPI, Plosone, sustainability-MDPI, Plant Disease, Turkish Journal of Entomology, Journal of Economic entomology, African Journal of Microbiology Research, African Journal of Agricultural Research, Microbial Ecology, Springer-Verlag New York Inc, Pakistan Journal of Phytopathology.
- **Editor**, International Journal of Plant Sciences and Phytomedicines (IJPSP)
- **Sub-Editor, Agri News.** An official Publication of First Fungal Culture Bank of Pakistan, Faculty of Agricultural Sciences, University of the Punjab, Lahore, Pakistan.
- **Member**, Student Alumni Committee, Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- **Member**, Seminar/Webinar Committee, Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- **Convener**, Department Website Management Committee, Department of Plant Pathology, University of the Punjab, Lahore, Pakistan.
- **Member**, Placement Bureau Committee, Faculty of Agricultural Sciences, University of the Punjab, Lahore.