

CURRICULUM VITAE

Dr. Fazal Akbar

Assistant Professor/Coordinator M. Phill/PhD

Program, Center for Biotechnology and
Microbiology, University of Swat, Pakistan.



Personal Information

Postal Address: Center for Biotechnology and
Microbiology, Township campus 1, Sector C, House
No. 397, Kanju Township Swat, KP, Pakistan.

Email: fazalakbar@uswat.edu.pk

Marital Status: Married

Cell: +92-3339697135

Qualifications

Doctor of Philosophy (PhD): Biotechnology/Molecular Plant Virology

1. PhD research conducted at Institute of Botany, University of Basel, Switzerland.

Research Title: Transcript analysis of *Cotton leaf curl Burewala virus* and role of C2 in pathogenesis

National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, an affiliated institute of
Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, Pakistan.

CGPA: 3.93/4

2. **Post doctorate:** Molecular Plant Virology lab, NIBGE, Faisalabad Pakistan (2012-2013).

- **HEC recognized Ph. D. supervisor**
- **Throughout First Division**
- **Impact Factor: 90**
- **Name in the lists of productive scientists of Pakistan for the year 2016 and year 2017 issued by Pakistan Council of Science and Technology (PCST)**

AWARDS, SCHOLARSHIPS & DISTINCTIONS

- Awarded Research Productivity Award 2017 by Pakistan Council of Science and Technology (PCST).
- Awarded Best University Teacher Award 2016 by Higher Education Commission (HEC) of Pakistan.
- Awarded the 1st prize in Regional Science Olympiad/ Fair organized by Directorate of Science & Technology (DoST), Government of Khyber Pakhtunkhwa.
- Awarded 6 months fellowship (January 2011-July 2011) for Switzerland under International research support initiative program (IRSIP) by Higher Education Commission of Pakistan.
- Awarded Indigenous PhD fellowship (2008-2012) by Higher Education Commission of Pakistan.

RESUME OF WORKING EXPERIENCE

- Currently working as Assistant Professor in Center for Biotechnology and Microbiology, University of Swat (from July 2013 till date).
- Engaged as a Visiting Professor in Institute of Cotton Research of Chinese Academy of Agriculture Sciences (CAAS), China from July 17, 2019 till October 22, 2019.
- Worked as a Researcher (Post-doc) in a project entitled “Pak-US Cotton Productivity Enhancement Project” Analysis of the diversity of cotton leaf curl begomovirus complex and its whitefly vector in Pakistan- Component, funded by the United States Department of Agriculture (USDA), managed by the International Center for Agricultural Research in the Dry Areas (ICARDA, Islamabad office) (from May, 2012 to April, 2013) at National Institute for Biotechnology and Genetic Engineering, Faisalabad/Principal investigator (PI) of the project, Prof. Dr. Rob W. Briddon.
- Six months training experience in Institute of Botany, University of Basel, Switzerland (from January, 2011 to July, 2011).
- Worked as a Lecturer in Govt. Degree College Daggar, District Buner (from August, 2007 to September, 2008).
- Worked as a PhD Scholar in HEC funded project (from 2008 to 2012) at National Institute for Biotechnology and Genetic Engineering, Faisalabad/Principal investigator (PI) of the project, Dr. Muhammad Saeed (Principal Scientist).

Additional responsibilities:

- Coordinator M. Phill/PhD Program, Center for Biotechnology and Microbiology, University of Swat, Pakistan.

Projects awarded:

PI:

- Analysis of the diversity of begomovirus-complex and its whitefly vector in Khyber Pakhtunkhwa (funded by Higher Education Commission Pakistan, worth 4.7 million).
- Analysis of a unidirectional plant promoter from cotton associated begomoviruses (funded by Higher Education Commission Pakistan, worth 2.3 million).
- Investigation of resistance breakdown of cotton leaf curl disease (funded by Pakistan Science Foundation, worth 3.0 million).
- Exploration of geminiviruses and satellites in Swat valley (funded by Higher Education Commission Pakistan, worth 0.5 million).

Co-PI:

- Designing biological control strategies against peach leaf curl disease (funded by Higher Education Commission Pakistan, worth 2.9 million).
- Molecular characterization and prevalence of hepatitis C virus infection in mentally disabled persons in

District Swat (funded by Higher Education Commission Pakistan, worth 0.5 million).

- Demographic and phylogenetic analysis of *Helicoverpa armigera* pyrethroids resistant strain in Pakistan (funded by Higher Education Commission Pakistan, worth 0.5 million).
- Degraded DNA studies through non codis STRs (funded by Higher Education Commission Pakistan, worth 0.5 million).

Collaborating Research Projects:

- A collaborator with Professor Liu Chuan Liang, State Key Laboratory of Cotton Biology, Institute of Cotton Research of CAAS, China in a research project entitled “Investigating the virus carrying whitefly vector in the Yellow River Basin, China” submitted to Asian Regional International Cooperation Special Project program.

Committee membership:

- Member of Graduate Studies Committee, Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Member Board of Studies, Department of Biological Sciences, Women University, Mardan, Pakistan.
- Member Board of Studies, Center for Animal Sciences and Fisheries, University of Swat, Pakistan.
- Member Board of Studies, Department of Forensic Sciences, University of Swat, Pakistan.
- Member of Departmental Semester Committee, Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Member of Departmental Semester Committee, Department of Forensic Sciences, University of Swat, Pakistan.
- Focal person of the program team (PT), Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Focal person for Prime Minister National Laptop Scheme, Higher Education Commission, Islamabad Pakistan.
- Seminar Organizer, Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Member of the Assessment team (AT) for Department of Animal Sciences and Fisheries, University of Swat, Pakistan.
- Focal person of Admission Committee, Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Focal person of the Departmental Semester coordinators for the selection of visiting faculty, Center for Biotechnology and Microbiology, University of Swat, Pakistan.
- Member of the Committee on Research, University of Swat, Pakistan.

TEACHING ACTIVITIES

- Offering various courses of Biotechnology & Microbiology to M. Phil and Ph. D. Scholars since last seven years.
- Teaching various courses of Biotechnology, Genetics, and Microbiology to Bachelor and Master level students at Centre for Biotechnology and Microbiology, University of Swat since last seven years.

CONFERENCES, WORKSHOPS and SEMINARS

- Presented a research paper in 1st National Symposium on “Recent advances in Biotechnology” University of Malakand, May 21-24, 2007.
- Participated in a conference on “micro RNA by Professor Dr. David Baulcombe from USA” in University of Basel, Switzerland, June 2011.
- Presented a PhD research seminar at NIBGE, Faisalabad, May 2012.
- Presented a research paper in “International conference on Biotechnology: Prospects and Challenges in Agriculture, Industry, Health & Environment” at NIBGE, Faisalabad, April 22-26, 2013.
- Participated in a workshop on "Scientific Writing" 20 and 21 October 2015, organized by Hassan Ibrahim Jamal (HEJ) Institute Karachi.
- Participated in talk session by Professor Dr. Atta-Ur-Rehman on "Building a knowledge economy: Imperative for socio-economic development" organized by HEC, Pakistan dated September 2, 2015.
- Delivered a talk on the scope of Biotechnology at Govt. Degree College Daggar, Buner dated November 17, 2015.
- Participated in a workshop on writing effective post-doctoral research proposal relevant to national needs on December 17, 2015 at University of Malakand, Chakdara.
- Participated in a seminar on Cancer prevention and treatment dated February 4, 2016 at SINOR, Saidu Sharif Swat.
- Presented a poster on “Phylogenetic and biogeographic analyses of *Cotton leaf curl Kokhran virus*-Burewala ” in the International conference on advancement in Biotechnology organized by Government college women university Faisalabad and Akhuwat-FIRST on March 30 to 31, 2016.
- Participated in a conference on "7th one day conference on the significance of Bioinformatics in Biosciences" at the Department of Bioinformatics and Biosciences, Capital University of Science and Technology, Islamabad.
- Presented a research paper on “First symptomatic evidences of geminiviruse in Swat valley" in 13th National conference on weed sciences, dated August 19-21, 2016, at Shaheed Benazir Bhatto University, Sheringal Dir upper, KP, Pakistan.
- Participated in National Symposium on economic development though medicinal plants and conservation cultivation, dated May 5-6, 2016, organized by Center for Plant Sciences and Biodiversity, University of Swat, Pakistan.

- Participated in 5 days training workshop on Biorisk management, dated September 5-9, 2016, organized by Relief International (RI) at Center for Biotechnology and Microbiology, University of Swat.
- Participated in one day workshop on Leadership, Motivation and Rule of law, dated October 21, 2016, organized by Center for Animal Sciences and Fisheries and Department of Forensic Sciences, University of Swat.
- Participated in one day workshop on "Quality Assurance through promoting Anti-plagiarism culture" dated January 5, 2017 organized by Quality Enhancement Cell, University of Swat.
- Participated in one day seminar on "Self-assessment report writing" dated March 9, 2017 organized by Quality Enhancement Cell, University of Swat.
- Presented a research paper on "Bibliometric analysis of worldwide publications on Cotton leaf curl disease research" in Conference on Computational Biology and Genomics, dated September 27-29, 2017 at Hazara University Masehra, KP, Pakistan.
- Presented a research paper on "Transcript mapping of cotton associated begomoviruses" in Conference on Computational Biology and Genomics, dated September 27-29, 2017 at Hazara University Masehra, KP, Pakistan.
- Performed as Ambassador/ participant in Innovative Youth Awards 2017 held on December 30, 2017 at Wadoodia Hall, Swat.
- Participated in one day workshop on "Anti-plagiarism and use of Turnitin" dated April 11, 2018 organized by the Quality Enhancement Cell, University of Swat.
- Participated in one day seminar on "Writing a winning grant proposal and scholarship application" dated July 3, 2018 organized by the Department of Forensic Sciences, University of Swat.
- Participated in three days training workshop on "Research Methodology" dated August 8-10, 2018 at PTCL Campus, University of Swat, jointly organized by Learning Innovation Division (LID), HEC, and Quality Enhancement Cell (QEC). University of Swat.
- Presented a research paper on "Investigation of plants single stranded DNA viruses infecting medicinal and aromatic plants in Swat valley" in 2nd International conference on Conservation of Medicinal and Aromatic Plants (MAPs) for Improving the Livelihood of Mountain Communities through Industrial Linkages, dated September 3-5, 2018, organized by Center for Plant Sciences, University of Swat, KP, Pakistan.
- Presented a research paper on " Biosynthesis of Iron oxide nanoparticles via *Skimmia laureola* and their antimicrobial efficiency against bacterial rot pathogen *Erwinina carotavora*" in 2nd International conference on Conservation of Medicinal and Aromatic Plants (MAPs) for Improving the Livelihood of Mountain Communities through Industrial Linkages, dated September 3-5, 2018, organized by Center for Plant Sciences, University of Swat, KP, Pakistan.
- Participated in one day hands on training workshop " Principles of Biosafety and Biosecurity" at Department of Zoology, University of Buner, dated October 23, 2018, organized by Department of Zoology, University of Buner in collaboration with Pakistan Biological Safety Association (PBSA) & Fogarty International Center, NIH USA.

- Participated in 1st National Workshop on Molecular Biology: Tools & Techniques, dated November 12-14, 2018, organized by Department of Botany, University of Malakand, KP, Pakistan.
- Presented a research paper on “The threat of begomovirus and satellites is spreading into Khyber Pakhtunkhwa” in 1st National conference on Microbiology of Infectious diseases and health safety ” dated April 4-5, 2019, organized by Department of Microbiology, University of Sawabi, KP, Pakistan.
- Presented a research paper and awarded a best oral presenter award on “Isolation, identification and molecular characterization of causative agent of peach leaf curl disease in Swat” in 1st National conference on Microbiology of Infectious diseases and health safety” dated April 4-5, 2019, organized by Department of Microbiology, University of Sawabi, KP, Pakistan.
- Participated in International Workshop on “Use of Genome Editing & other New Breeding Technologies for Global Food Security” jointly organized by ICGEB, COMSTECH and NIBGE on April 8-10, 2019, COMSTECH Islamabad, Pakistan.
- Presented a research paper on “Molecular characterization of begomovirus and associated satellites infecting important crops in Khyber Pakhtunkhwa, Pakistan” in “3rd International Conference; Empowering nation through sciences” held on 24th -25th April, 2019, Islamabad, Pakistan.
- Participated in one day seminar on “O-GlcNAcylation in cervical cancer metastasis in cell death” held on April 26, 2019, organized by Institute of Chemical Sciences, University of Swat.
- Participated in three days conference “The 40th anniversary of the cotton branch of the Chinese agricultural society and 2019 annual meeting” held on August 7-9, 2019 organized by China National University of Development and China Cotton Society of Chinese Academy of Agriculture Sciences at Friendship hotel, Beijing China.
- Invited as a speaker on the topic “Plant viruses with special emphasis on the Status of Cotton leaf curl disease in Pakistan” dated September 19, 2019 at Institute of Cotton Research of CAAS, Anyang, China.
- Invited as a speaker on the topic “Status of peach leaf curl disease in Pakistan” dated September 10, 2019 at Zhengzhou Fruit Research Institute (ZFRI), CAAS, P.R. China.

Workshops/ Conferences/ Seminars organized:

- Organized one day seminar entitled “ Genome Re-sequencing: Technology & Applications ” on October 16, 2018 at the PTCL hall, University of Swat.
- Organized one day seminar entitled “ Studies on advanced materials” held on December 28, 2018 at the PTCL hall, University of Swat.
- Organized an awareness seminar entitled “ Prevention and control of mosquito-borne diseases ” on April 25, 2018 at the PTCL hall, University of Swat.
- Organized one day workshop entitled “ Biosafety and Biosecurity for Scientists ” on November 14, 2017 at the PTCL hall, University of Swat.
- Organized one day seminar entitled “ Biotechnology Driven Socio-economic Development” on September 3, 2015 at the Video Conference Room, Main Campus Odigram.

Membership of Scientific Societies

- Life member Biotechnology Society of Pakistan
 - Ambassador of Innovative Youth Forum
- Member of International Society for Development and Sustainability, Japan.

Editor/ Reviewer (Journals)

- Bioengineering and Biosciences, Horizon Research Publishing, USA.
- Journal of Advances in Microbiology and Biotechnology (JAMB), UAE.
- Trends in Clinical Microbiology, Gratis Open Access Publishers, USA.
- Cellular and Molecular Biology, CMB-ASSOCIATION 34, Boulevard Solferino 86000 POLITIERS France.
 - Pakistan Journal of Zoology, Pakistan.
 - The International Journal of Global Sciences, Pakistan.
 - American Journal of Biochemistry and Molecular Biology.
 - Biotechnology.
 - International Journal of Virology.
 - Singapore Journal of Scientific Research.
 - Asian Journal of Biotechnology.
 - International Journal of Tropical Insect Science.

Publications and Manuscripts

- Ali, M., Ahmad, N., Khan, H., Ali, S., **Akbar, F.**, Hussain, Z., 2019. Polio vaccination controversy in Pakistan. *The Lancet*. 394 (10202), 915-916.
- **Akbar, F.**, Ali, S., Jalil, F., Rahman, AU., Ali, M., Hassan, I., 2019. Dengue epidemics in Pakistan: its future management and treatment strategies. Accepted in *Polish Journal of Microbiology*.
- Hussain, F., Hadi, F., **Akbar, F.**, 2019. Magnetium oxide nanoparticles and thidiazuron enhance lead phytoaccumulation and antioxidative response in *Raphanus sativus* L. *Environmental Science and Pollution Research*, <https://doi.org/10.1007/s11356-019-06206-7>
- Rukh, G., Ahmad, N., Rab, A., Ahmad, N. Fazal, H., **Akbar, F.**, Ullah, I., Mukhtar, S., Samad, N., 2019. Photo-dependent somatic embryogenesis from non-embryogenic calli and its polyphenolics content in high-valued medicinal plant of *Ajuga bracteosa*. *Journal of photochemistry and photobiology, B: Biology*. 190, 59-65.
- Jan, AU., Hadi, F., **Akbar, F.**, Shah, A, 2019. Role of Potassium, Zinc and Gibberellic acid in increasing drought stress tolerance in sunflower (*Helianthus annus* L.). *Pakistan Journal of Botany*, 51 (3). 809-815. DOI: 10.30848/PJB2019-3(4)
- Saeed S., Yujun S, Beckline M, Chen L, Lai Z, Mannan A, Ahmad A, Shah S, Amir M, Ullah T, **Akbar, F.**, 2019. Altitudinal gradients and forest edge effect on

soil organic carbon in Chinese Fir (*Cunninghamia lanceolata*): a study from Southeastern China. *Applied Ecology and Environmental Research*, 17 (1), 745-757.

- Abbas, N., Suleman, M., Zahur, AB., Ghafoor, A., Rashid, A., Jan, AU., **Akbar, F.**, Ali, S., Aziz, A., Islam, Z., Shah, A., 2019. Molecular analysis of Leptin gene polymorphism in Achai, Sahiwal cattle and Nili-ravi buffalo breeds of Pakistan. *International Journal of Genetics and Genomics*, 7(3), 75-79.
- Ullah, S., Khan, M.A., Rehman, S.U., Khan, I., **Akbar, F.**, Babbar, A., 2018. Molecular characterization and clinical epidemiology of HCV in District Dir (Lower), Pakistan. *VirusDisease*. 29 (2), 1-6.
- Idrees, M., Sania, B., Hafsa, B., Kumari, S., Khan, H., Fazal, H., Ahmad, I., Khan, H., **Akbar, F.**, Ahmad, N., Ali, S., Ahmad, N., 2018. Spectral lights trigger biomass accumulation and production of antioxidant secondary metabolites in adventitious root cultures of *Stevia rebaudiana* (Bert.) *Comptes Rendus Biologies*, 341, 334-342.
- Iqbal, M., Akbar,F., Ullah, S., Anwar, I., Khan, M.T., Nawab, A., Bacha, M.S., Rashid, W.(2018). The effects of marble industries effluents on water quality in Swat, Northern Pakistan. *J. Bio. Env. Sci.* 13(1), 34-42.
- Ullah, R., Akhtar, K.P., Moffett, P., **Akbar, F.**, Hassan, I., Mansoor, S., Briddon, R.W., Mumtaz H., Saeed, M., 2017. Examination by grafting of the extreme resistance to Cotton leaf curl disease in two wild *Gossypium hirsutum* L. cultivars. *Journal of Plant Pathology*, 99 (3), 627-633.
- Jalil, F., Arshad, M., Bhatti, A., Jamal, M., Ahmed, M., Malik, J.M., Ali, S., **Akbar, F.**, John, P., 2017. Progression pattern of rheumatoid arthritis: A study of 500 Pakistani patients. *Pakistan Journal of pharmaceutical Sciences*, 30 (4), 1219-1223.
- **Akbar, F.**, Iqbal, Z., Briddon, R.W., Vazquez, F., Saeed, M., 2016. The 35 amino acid C2 protein of *Cotton leaf curl Kokhran virus* – Burewala, implicated in resistance breaking in cotton, retains some activities of the full-length protein. *Virus Genes*, 52, 688-697.
- Khan, I. A., Akhar, K. P., **Akbar, F.**, Hassan, I., Amin, I., Saeed, M., Mansoor, S., 2016. Diversity in betasatellites associated with cotton leaf curl disease during source-to-sink movement through a resistant host. *The Plant Pathology Journal*, 32 (1) 1-6.
- Fazal, H., Abbasi, BH., Ahmad, N., Akbar, F., Ali, SS., Kanwal, F., 2016. Correlation of different spectral lights with biomass accumulation and production of antioxidant secondary metabolites in callus cultures of medicinally important *Prunella vulgaris* L. *Journal of photochemistry and photobiology, B: Biology*. 159, 1-7.
- Rahman, S. U., Adhikari, A., Ismail, M., Shah, M.R., Khurram, M., Shahid, M., Ali, F., Haseeb, A., **Akbar, F.**, Iriti, M., 2016. Beneficial effects of *Trillium govanianum* rhizomes in pain and inflammation. *Molecules*, 21, 1095.
- Jalil, S. F., Arshad, M., Bhatti, A., Ahmad, J., **Akbar, F.**, Ali, S., John, P., 2016. Rheumatoid Arthritis: what have we learned about the causing factors? *Pakistan Journal of pharmaceutical Sciences*. 29, 629-645.
- Qureshi, R., **Akbar, F.**, Karim, S., Neelab., Ahmad, S., Rashid, W., Sanaullah., 2015. Effects of pesticides on haematology, thyroid stimulating hormone (TSH) and Tri-iodothyronine (T3) hormone of agriculture workers in Swat, Pakistan. *Journal of Biology and Life Sciences* 6 (1).

- Briddon, R.W., **Akbar, F.**, Iqbal, Z., Amrao, L., Amin, I., Saeed, M., Mansoor, S., 2014. Effects of genetic changes to the begomovirus/betasatellite complex causing cotton leaf curl disease in South Asia post-resistance breaking. *Virus Research* 186, 114-119.
- Hassan, F., **Akbar, F.**, Roomi, S., Rashid, F., Ghafoor, A., Suleman, M., 2014. Assessment of biodegradability of PVC containing cellulose by white-rot fungus. *Malaysian Journal of Microbiology* 10, 119-125.
- Kalsoom., Akbar, F., Younas, M., Tasneem, U., Suleman, M., Ali, S.S., Ali, S., Roohi, A., 2014. Prevalence of typhoid fever in five Southern districts of Khyber Pakhtunkhwa, Pakistan. *International Journal of Biosciences* 4, 325-330.
- **Akbar, F.**, Farooqi, A., Khan, T.N., Suleman, M., Ali, S.S., Khan, I., Ali, S., 2013. Characterization of seed storage proteins of different varieties of *Brassica napus* seeds. *International Journal of Biosciences* 3, 1-7.
- **Akbar, F.**, Briddon, R.W., Vazquez, F., Saeed, M., 2012. Transcript mapping of *Cotton leaf curl Burewala virus* and its cognate betasatellite, Cotton leaf curl Multan betasatellite. *Virology Journal* 9, 249.
- Zia, A. M., Hadi, F., Akbar, H., **Akbar, F.**, Ullah, Z., Khan, I., 2008. Physiochemical and molecular analysis of *Brassica napus* seeds of different varieties. *Asian Journal of Plant Sciences*. 7, 85-89.
- **Akbar, F.**, Hadi, F., Ullah, Z., Zia, M. A., 2007. Effect of marble industry effluent on seed germination, post germinative growth and productivity of *Zea mays*. *Pakistan Journal of Bio Sciences* 10, 4148-4151.
- **Akbar, F.**, Briddon, R.W., Vazquez, F., Mansoor, S., Amin, I., Windel, D., Saeed, M., 2019. Effect of betasatellite on transcription of its helper begomovirus and host micro RNAs (Under review in *Journal of Plant Pathology*).
- **Akbar, F.**, Vazquez, F., Briddon, R. W and Saeed, M., 2019. Mapping the transcripts of *Cotton leaf curl Kokhran virus* (Manuscript in preparation).

Research Supervision:

PhD (under supervision):

1. Mr. Asadullah for his Thesis “Analysis of unidirectional plant promoter from cotton associated begomoviruses”.
2. Miss Chand Bibi for her Thesis “Analysis of the diversity of begomoviruses-complex in Khyber Pakhtunkhwa using next generation sequencing.
3. Mr. Fazal Hussain for his thesis “The impact of biologically synthesized nanoparticles on lead phytoextraction and growth of selected plants”.
4. Mr. Ataur Rehman for his thesis “Morphological, biochemical and molecular characterization of the causative agents of peach leaf curl disease in Northern areas of Pakistan”.
5. Mr. Syed Rizwan Ali Shah for his thesis “Population dynamics of whitefly *Bemisia tabacci* and evaluation of begomovirus resistance in tomato ”.

M. Phil Supervised

1. Miss Kalsoom Bibi: Thesis title “Phylogenetic and biogeographic analysis of begomovirus complex in Pakistan”.
2. Mr. Akhtar Hamid: Exploration of begomoviruses and associated satellites infecting different crops in Buner region.
3. Mr. Rashid Sultan: Epidemiology of scabies in Buner region.
4. Mr. Ishaq Khan: Molecular characterization of begomovirus and associated satellites infecting vegetable crops in Swat valley.
5. Mr. Darya Khan: Evaluation of resistance in local peach cultivars and antifungal activity of different plant extracts against *Taphrina* species of peach leaf curl disease.
6. Mr. Ali Shah: Molecular characterization of begomovirus associated satellites infecting *Spanacia oleracea* and *Capsicum annum* plants in Kohat.

M. Phil (under supervision):

1. Mr. Azhar Ullah Khan: Thesis title “Bibliometric analysis of worldwide publications on antibiotic resistance and the efficacy of locally used antibiotics in Pakistan”.
2. Sumaira Noor: Determination of multidrug resistant bacteria, isolated from patients with respiratory tract infection, admitted in tertiary care hospitals at Peshawar
3. Fawad Rahman: Evaluation of antifungal activity of nanoparticles and plant extracts against the peach leaf curl disease causing fungi
4. Kiran: Genetic diversity analysis of *Bemisia tabaci* in Swat region
5. Hayam: Phylogenetic and biogeographic analyses of *Bemisia tabacci* in Pakistan
6. Shah Hassan: Analysis of multi-drug resistant tuberculosis patients in Swat
7. Sami Ullah: Phylogenetic and biogeographic analyses of mastreviruses in Pakistan.
8. Saifullah Khan: Isolation and characterization of Rhizospheric and endophytic bacteria of *Barberis lycium* and their screening against plant fungal pathogens.
9. Gulrukh Ahmad: Biogenic synthesis of silver nanoparticles using callus and *in vitro* shoots of *Ajuga bractosa* for antimicrobial activities

M.Sc. (Completed)

1. Asif Mehmood: Thesis title “Effect of hepatitis C virus (HCV) infection on human haematology and SGPT level in District Swat” (2015).
2. Fazal Rahman: Thesis title “Incidence and characterization of urinary tract infection in pregnant women in District Swat” (2015).
3. Sabir Ali: Thesis title “Phylogenetic and biogeographic analysis of begomoviruses in Pakistan” (2015).

4. Abdul Basir Khan: Thesis title “ Effect of hepatitis B virus (HBV) infection on human haematology and SGPT level in District Malakand” (2015).
5. Inam Ullah: Thesis title “Phylogeny based Biogeographic analysis of genus *Nitrospira*, family *Nitrospiraceae*” (2015).
6. Tanweer Sattar: Thesis title “Phylogenetic and Phylogeographical analysis of *Aedes aegypti* and *Aedes albopictos*” (2015).
7. Neelab and Alwina Karim: Effect of marble industry effluent on soil quality, growth and productivity of vegetable crop, *Lycopersicum exculentum*” (2015).
8. Rabia Qureshi and Sana Karim: Thesis title “Effect of pesticides on haematology, Throid stimulating hormone (TSH) and Tri – iodothyronine (T3) hormone of agriculture workers in Swat” (2015).
9. Muhamamd Iqbal and Imran Anwar: Thesis title “Analysis of groundwater quality parameters in District Swat” (2015).
10. Jan Khan and Tauqeer Rahman: Thesis title “Investigation of scientifically and economically important top 10 human protozoan in Pakistan ” (2015).
11. Azharullah Khan and Aurangzeb: Thesis title “Investigation of scientifically and medically important top 10 human associated viruses in Pakistan ” (2015).
12. Samiullah Khan and Mehwish Shah: Thesis title “Phylogenetic and biogeographic analysis of alphasatellites ” (2015).
13. Kalsoom Rehman and Husna: Thesis title “Investigation of scientifically and medically important top 10 human associated fungi in Pakistan ” (2015).
14. Uzma Iqbal and Erum: Thesis title “Investigation of scientifically and economically important top 10 human associated bacteria in Pakistan ” (2015).
15. Sidra Erum Ishaq and Hayam: Thesis title “Phylogenetic and biogeographic analyses of *Cotton leaf curl Kokhran virus-Burewala*” (2016).
16. Faisla Shah and Ali Shah: Thesis title “Incidence and clinical epidemiology of bacterial disease in Swat region” (2016).
17. Iftikhar Ahmad: Thesis title “Correlation among HBeAg, ALT and HBV DNA in hepatitis B carrier patients” (2016).
18. Muddasir Khan: Thesis title “Incidence and clinical epidemiology of infectious diseases in Peshawar region” (2017).
19. Mehtab Ali, Irfan Khan and Jaweria Niaz: Thesis title “Screening and incidence of hepatitis C virus infection in mentally disabled patients in Swat region” (2016).
20. Zafran Khan, Shahid Iqbal and Ijaz Ali Mian: Thesis title “Incidence of HCV in general population of District Swat” (2016).
21. Sania Ayub and Mahnoor Hamid: Thesis title “Incidence of Typhoid fever in Swat region” (2016).
22. Ayyaz khan and Darya Khan: Thesis title “Bibliomeric analyses of worldwide publications on cotton leaf curl disease research” (2017).
23. Mr. Muhammad Ayaz and Maria Naseeb: Thesis title “Screening and prevalence of hepatitis B virus infection in mentally disabled population of District Swat” (2017).

24. Muhammad Ayaz and Riaz Ahmad: Thesis title “Investigation of HBV and HCV co-infection and their clinical epidemiology in garbage scavengers” (2017).
25. Iqbal Hussain, Shahid Ali, and Zakir Ullah: Thesis title “Incidence of hepatitis B Virus infection in garbage pickers of Malakand Division and Bajaur Agency” (2017).
26. Said Jasim Shah & Muhammad Sardar: Thesis title “Evidences of Mysterious Fish disease in River Swat, Pakistan” (2017).
27. Syed Ishfaq Ahmad, Naeem Akhtar, and Zeesahn Nasir for their Thesis “Characterization and quantification of betasatellite research using bibliometric approach” (2018).
28. Sabitullah, Ibrar Khan, and Ayub Khan, for their thesis “Bibliometric analysis of worldwide research on whitefly (*Bemisia tabaci*)” (2018).
29. Ziaur Rehman and Salahuddin for their thesis “Characterization and quantification of alphasatellites research” (2018).
30. Muhammad Naeem and Muhammad Zahid for their thesis “A preliminary study to find the pattern of infectious diseases in Buner” (2018).
31. Maneesha Kour for her thesis “Incidence of Chikungunya infection in Swat region” (2018).
32. Amjad Ali for his thesis “Correlation of different risk factors contributing to cardiac disease in population of District Swat” (2018).
33. Sidra Iqbal and Shehla Gul for their thesis “Incidence of Hepatitis C virus in Tehsil Khwazakheela District Swat” (2018).
34. Khalid Usman, Habibul Wahab and Hazrat Izhar “Prevalence of rabies in Swat and Buner” (2018).
35. Naila Bibi and Hajra Umar “The prevalence of Dengue virus infection in Swat region” (2018).
35. Shamia Rehman “Constraints in insulin therapy for type II diabetes mellitus patients in District Swat” (2018).
36. Imad Khan and Sajad Gul for their thesis “Association of different risk factors contributing to Hepatitis B virus and Hepatitis C virus infections in hospitalized patients of Swat” (2019).
37. Iftekhar Ahmad Khan and Asma Haram “Prevalence of Hepatitis C virus infection in hemodialysis patients of District Swat” (2019).
38. Faiz Ul Haq and Wajahat Ullah “Incidence of malarial infection and response to antimalarial drugs in Swat and Dir Lower” (2019).
39. Sadiq Ahmad and Jamil Bacha for their thesis “Incidence, symptoms severity and distribution of geminivirus diseases in Swat region”.
40. Syed Saad Jan for his thesis “Molecular detection of begomovirus in *Curcubita maxima*”.
41. Atta Ur Rahman, Najla Khadim, and Nihal Khan, for their Thesis “Isolation, identification and characterization of the causative agents of peach leaf curl disease in Swat”.
42. Muhammad Ibrar and Khalid Hussain for their Thesis “Protocol optimization for the isolation of *Taphrina* species from peach plant”.
43. Muhammad Hasham and Zakir Ullah Khan for their Thesis “Evaluation of resistance in local peach cultivars against peach curl disease”.
44. Naila Bibi and Lubna Zeb for their Thesis “Phytochemical screening and antimicrobial potential of leaves and stem of *Artemisia annua* against pathogenic microorganisms”.

M.Sc. (under supervision):

1. Mr. Inam Khan
2. Mr. Imtiaz Khan
3. Mr. Raees
4. Mr. Adnan

Election duty as a Presiding Officer

- Performed Election duty as a Presiding Officer dated May 30, 2015 in Local Government Elections Khyber Pakhtunkhwa, 2015.
-

Live interview with News channels

- Performed a live interview in a program "Research in focus" with Campus Radio University of Swat, dated June 18, 2015 at 1 pm.
- Performed a live interview in a program "Rawane Chare" with Radio Buner, dated March 3, 2018 at 4 pm.

Research Interests

- Molecular characterization of economically important geminiviruses, satellites and satellite-like molecules associated with geminiviruses.
- Development of molecular diagnostic tools for geminivirus detection.
- Characterization of geminivirus gene function.
- Characterization of whitefly biotypes, influence on virus transmission efficiency and their distribution.
- Isolation of strong viral promoters and understanding the function of different viral open reading frames (ORFs).
- Genomics, Transcriptomics and proteomics of plant viruses and understanding molecular basis of resistance phenomenon against viral pathogens (host-Virus-interactions).
- Development of Virus Induced Gene Silencing (VIGS) and micro RNA Induced Gene Silencing (MIGS) technology for heterologous protein expression.
- Role of developmental microRNA and microRNA targets in virus infection.

Research/Project collaboration/ Linkages with National/International organizations

- Developed collaboration with Professor Dr. Liu Chuan Liang, Institute of Cotton Research (ICR) of Chinese Academy of Agricultural Sciences (CAAS), China.
- Developed collaboration with Professor Dr. Zheng Guosoo Cao Ke, Zhengzhou Fruit Research Institute (ZFRI), CAAS, China.
- Developed collaboration with Professor Dr. Judith K, Brown, School of Plant Sciences, University of Arizona, Tucson, USA.
- Developed collaboration with Professor Dr. Hanu Pappu, Department of Plant Pathology, Washington State University, Pullman, WA 99164-6430, USA.
- Developed collaboration with Dr. Imran Amin, Principal Scientist, National Institute for Biotechnology and Genetic Engineering, Faisalabad, Pakistan.
- Developed collaboration with Dr. Malak Bacha, Assistant Professor, Department of Microbiology, Quaide Azam University, Islamabad, Pakistan.
- Developed collaboration with SINOR, Saidu Sharif Swat.
- Developed collaboration with Dr. Haji Akbar, Assistant Professor, COMSAT, Islamabad.

References

References would be provided on request.