



Dr. Zill-e-Huma (Gold medalist)

Assistant Professor (Ad. Hoc)

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ACADEMIC RECORD:

Certificate/ Degree	Passing Year	Major group/subjects	Board/University
Ph. D.	2015	Fungal Biotechnology	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**.

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: 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: 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: 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:

✓ Ph.D

1. Advances in Food Biotechnology

✓ M.Sc. (Hons.)

1. Host – Pathogens Interactions.
2. Disease Resistance.
3. Genetics of Plant Pathogens.
4. Fermentation Biotechnology

✓ 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

THESES SUPERVISED:

M. Sc. (Hons.):

- Gul I Rayna (2016). **Co Supervisor**
- 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 *Gerbra jamesonii* and their biocontrol.
- Tayyaba Chaudhry (2010-2014). Cotton leaf curl virus detection through PCR and Southern Blotting as **Co-Supervisor**.

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-Baqali (*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:

Aftab F., Aftab Z.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.

Siddiqui I., Bajwa R., Huma Z.E. and Jaavaid A. 2010. Effect of six problematic weeds on Growth and yield of wheat. *Pakistan Journal of Botany*. 42(4): 2461-2471.

Aftab Z.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.

Aftab Z.H. and Shakil A. 2015. *Ganoderma lucidum*: A case study for laccase biosynthesis. *Pakistan Journal of Phytopathology* . 27 (1): 95-103.

Ashraf H. and Aftab ZH. (2015). Biosynthesis, partial purification and characterization of invertase through Carrot (*Daucus carota* L.) Peels. *Academia Journal of Biotechnology* 3(2): 015-025.

Bashir S, Aftab A. and Aftab ZH. 2016. In vitro optimization of cultural condition for laccase biosynthesis by using *Ganoderma lucidum*. *Mycopath* (2015) 13(2):117-120.

Aftab ZH, 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.

Aftab A., Khan ZD., Yousaf Z., Aftab ZH., 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.

CONFERENCES, SEMINARS AND WORKSHOPS:

- 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 Institute 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:

POSTERS:

- ❖ “*Ganoderma lucidum*: A Case Study for Laccase Biosynthesis”. 5th International/1^{0th} 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:

- ❖ “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* species 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: 0.150 million rupees.