

MUHAMMAD SAJJAD, Ph.D.

Assistant Professor (Tenure Track)

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PERSONAL SUMMARY

Father's name: Usman ud Din **Date of birth:** March 31, 1983
Domicile: Karak, Khyber Pakhtunkhwa, Pakistan

EDUCATION

M.Phil. leading Ph.D. (Biological Sciences) (2014)
(CGPA 3.63/4.0 for M.Phil. & 4.0/4.0 in Ph.D. course work, 1st Div.)
School of Biological Sciences, University of the Punjab, Lahore-54590, Pakistan

GRE International (Biochemistry, Cell and Molecular Biology) (2008)
(Score: 670/92 percentile),
Educational Testing Services (ETS), USA

Master of Science / M.Sc. (Biochemistry) (2005)
(CGPA 3.8/4.0, 1st Div., University Gold Medal)
Institute of Biochemistry and Biotechnology,
University of the Punjab, Lahore-54590, Pakistan

Bachelors / B.Sc. (Botany, Zoology, Chemistry) (2003)
Marks: 490/800 (61%), 1st Div.
University of the Punjab, Lahore, Pakistan

F.Sc. / Higher Secondary School Certificate (Pre-Medical) (2000)
Marks: 762/1100 (69%), 1st Div.
FBISE Islamabad, Pakistan

Matriculation / Secondary School Certificate (Science) (1998)
Marks: 602/850 (71%), 1st Div.
FBISE Islamabad, Pakistan

SUBJECTS / AREAS COVERED

Protein structure, function and engineering Enzymology and industrial applications
Fermentor design and applications Microbial Biochemistry

CURRENT RESEARCH INTERESTS

Recombinant production and modification through protein engineering of industrially important microbial carbohydrases including Amylases, Cellulases and Pectinases.

PROFESSIONAL EXPERIENCE

- Assistant Professor (TTS)** (Nov. 2019 – to date)
School of Biological Sciences,
University of the Punjab, Quaid-e-Azam Campus, Lahore
- Assistant Professor** (Oct. 2016 – June 2019)
Institute of Molecular Biology and Biotechnology,
The University of Lahore, Defense Road Campus, Lahore
- Incharge (Store)** (March 2018 – June 2019)
Institute of Molecular Biology and Biotechnology/CRiMM,
The University of Lahore, Defense Road Campus, Lahore
- Assistant Professor (IPFP)** (Oct. 2015 – Sept. 2016)
Department of Biotechnology,
University of Sargodha, Main Campus, Sargodha
- Incharge, (Deptt)** (27 January – 06 Sept. 2016)
Department of Biotechnology,
University of Sargodha, Main Campus, Sargodha
- Post-Doctoral Fellow / Research Associate** (April 2014 – August 2015)
(Also served as Focal Person of the Project)
Atta-ur-Rahman School of Applied Biosciences (ASAB),
National University of Sciences and Technology (NUST), H-12, Islamabad
- Lecturer, Biochemistry** (Sept. 2012 – March 2014)
Institute of Molecular Biology and Biotechnology,
The University of Lahore, Defense Road, Lahore
- Visiting Research Scholar** (July – Dec. 2011)
Molecular Biology and Genetics,
Cornell University, Ithaca, NY, USA
- Research Officer** (July 2006 – August 2012)
In Govt. of Pakistan funded projects at the School of Biological Sciences,
University of the Punjab, Quaid-e-Azam Campus, Lahore

OTHER ACADEMIC / ADMINISTRATIVE ROLES

- Focal Person for the Office of Research, Innovation and Commercialization (ORIC)-PU since 2023
- External Member: Board of Studies (BOS), School of Biochemistry, Minhaj University, Lahore (2021-2023)
- External Member: Faculty of Life Sciences, University of Central Punjab, Lahore for SAR

evaluations of BS programs: Biochemistry, Biotechnology and Microbiology (2022)

- External Member: Faculty of Life Sciences, Gulab Devi Educational Complex, Lahore for SAR evaluations of BS Biotechnology program (2022)
- External Examiner of 01 Ph.D. candidate at the University of Gujrat (in 2021) and numerous M.Phil./MS candidates at various universities including: The University of Gujrat, The University of Sargodha, Virtual University of Pakistan, The University of Lahore, University of Management and Technology, Lahore, University of Central Punjab, Lahore, Minhaj University, Lahore and Lahore Garrison University, Lahore.

AWARDS / FELLOWSHIPS

1. **Merit scholarship** during M.Sc. Biochemistry
2. **University Gold Medal** for 1st Position in M.Sc. Biochemistry
3. **ASBMB/IUBMB Fellowship** to attend Advanced School on Biochemistry of Biofuels, Sao Paulo, Brazil (Sept. 2010)
4. **Keystone Symposia Future of Science Fund Fellowship** Winner to attend symposium on Biofuels in Singapore (March 2011)
5. **HEC-IRSIP Fellowship** to visit Department of Molecular Biology and Genetics, Cornell University, USA (July-December 2011)

PROFESSIONAL MEMBERSHIPS

Life Member **Khwarizmi Science Society** since 2007

Life Member **Pakistan Society for Biochemistry and Molecular Biology** since 2008

Life Member **Pakistan Proteomics Society** since 2009

RESEARCH PROJECTS

Submitted/Approved: 03

As Principal Investigator (PI)

1. Development of proactive bacterial amylase with improved activity and stability for industrial applications (5.0 million rupees) under **NSLP of Pakistan Science Foundation (PSF), Pakistan**
2. Development of Indigenously Produced Pectinase for Applications in Juice Processing (5.2 million rupees) under **RSP of Pakistan Science Foundation (PSF), Pakistan**

As Co-Principal Investigator (co-PI)

1. Development of prototype Platform for Production of Proteases Involved in Ecofriendly Leather Processing in Pakistan (5.2 million rupees) under CRP (2019) of **Pakistan Science Foundation (PSF), Pakistan**. PI: Dr. Nadia Zeeshan (UoG)

Completed: 02

As Principal Investigator (PI)

1. Development of a reliable, economical and high-throughput serodiagnostic method for early

detection of COVID-19 (13.4 million rupees) funded by **The Higher Education Commission (HEC), Pakistan** under Rapid Research Grant 2020.

2. Engineering of cellulolytic enzymes of *Clostridium thermocellum* through random mutagenesis (0.5 million rupees) under Start Up research Grant for Ph.Ds (2015), **The Higher Education Commission (HEC), Pakistan**

PATENTS

Submitted: 02

1. **Development of a novel multiepitope vaccine candidate against SARS-CoV-2** (Submitted on 05 June 2024 and under review in IPO, Pakistan)
Inventors: Hafiz Muzzammel Rehman, **Muhammad Sajjad**, Muhammad Shahbaz Aslam, Asif Ali, Kinza Qureshi, Munir Ahmad Bhinder, Roquyya Gul, Mahjabeen Saleem (School of Biochemistry and Biotechnology, University of the Punjab, Lahore)
2. **Novel fusion protein NSFu1 with enhanced sensitivity for serodiagnostic tests of COVID-19** (Submitted on 14 June 2024 and under review in IPO, Pakistan)
Inventors: Shaista Arif, Mohsina Akhter, Mohsin Shad, Sania Javaid, **Muhammad Sajjad**, M. Waheed Akhtar (School of Biological Sciences, University of the Punjab, Lahore)

PUBLICATIONS

1. Ahmad, S., Ahmad, S., **Sajjad M.**, Ali, A., Rehman, H. M., & Fiaz, M. (2024). Prevalence of Methicillin resistance *Staphylococcus aureus* strains in nosocomial infection of Lahore population; Hospitals based study. *Advancements in Life Sciences*. (Under review)
2. Muneer, B., Basit, A., Ali, A., **Sajjad, M.**, Iqbal, M., Alessa, A., Bruck, W, M., & Abbas, S. Z. (2024). Molecular evaluation, modeling and docking studies of uricase from *Bacillus subtilis* Isolated from Lahore, Pakistan. *Process Biochemistry*. (Under review) (IF: 3.00, 2023)
3. Jahangir, R., ... **Sajjad, M.**, & Iqbal, R., (2024). Polymorphic association of mitochondrial targeting superoxide dismutase gene (SOD₂) in relation to oxidative stress in hypertensive patients. *Biological Trace Element Research*. (Under review) (IF: 3.90, 2023)
4. Shad, M., Liaqat, A., Nazir, A., Hussain, N., Yaqoob, K., Akhtar, M. W. & **Sajjad, M.** (2024). Exploration of detailed structural and functional potential of recombinant proteins using cutting-edge bioinformatics tools. *Biotechnology and Bioengineering*. (Under review) (IF: 3.80, 2023)
5. Nazir, A., & **Sajjad, M.** (2024). Review: Recent perspectives on biotechnological production, modulation and applications of glycerophosphodiesterases. *Applied Biochemistry and Biotechnology*. (Under review) (IF: 3.00, 2023)
6. Nazir, A., & **Sajjad, M.** (2024). A Review: Recent trends in biotechnological production, engineering and applications of lysophospholipases. *Biotechnology Progress*. (Under review) (IF: 2.90, 2023)

7. Nazir, A., Irfan, M., Rashid, N., & **Sajjad, M.** (2024). Optimized production, purification and biochemical characterization of a novel glycerophosphodiesterase from a hyperthermophilic archaeon *Pyrococcus abyssi*. *Process Biochemistry*. (Under review) (IF: 4.4, 2023)
8. Nazir, A., Ijaz, M., Rehman, H. M., & **Sajjad, M.** (2024). Rigidifying flexible sites: a promising strategy to improve thermostability of lysophospholipase from *Pyrococcus abyssi*. *Proteins: Structure, Function and Bioinformatics*. DOI: [10.1002/prot.26748](https://doi.org/10.1002/prot.26748) (IF: 2.90, 2023).
9. Ijaz, M., Shad, M., Nazir, A., Azim, N., & **Sajjad, M.** (2024). Production of an asparaginase-like domain of AnsA from *Methanocaldococcus jannaschii* in *Escherchia coli*, its purification and *in silico* analysis. *Pakistan Journal of Zoology*. pp. 1-9, 2024 (IF: 0.60, 2022).
10. Aftab, S., Kalsoom, A., Altaf, A., Sattar, H., Maqbool, T., **Sajjad, M.**, Jilani, M. I., & Shabbir, G. (2024). Gene expression and anticancer evaluation of *Kigelia africana* (Lam.) Benth. extracts using MDA-MB-231 and MCF-7 cell lines. *PLoS One*. 19(6), e0303134 (IF: 3.7, 2023).
11. Nazir, A., Shad, M., Rehman, H. M., Azim, N., & **Sajjad, M.** (2024). Application of SUMO fusion technology for the enhancement of stability and activity of Lysophospholipase from *Pyrococcus abyssi*. *World Journal of Microbiology and Biotechnology*. 40(6), 183. (IF: 4.1, 2023)
12. Shad, M., Rehman, H. M., Akhtar, M. W. & **Sajjad, M.** (2024). Structural and functional insights of starch processing α -amylase from hyperthermophilic archaeon *Pyrococcus abyssi*. *Carbohydrate Research*. 539, 109122. (IF: 3.1, 2023)
13. Shad, M., Nazir, A., Usman, M., Akhtar, M. W. & **Sajjad, M.** (2024). Investigating the effect of SUMO fusion on solubility and stability of amylase-catalytic domain from *Pyrococcus abyssi*. *International Journal of Biological Macromolecules*. 266, Part 2, 131310. (IF: 8.20; 2022).
14. Sheikh, M. A. A., Butt, M. Q. S., Afroz, A., Rasul, F., Irfan, M., **Khattak, M. S.**, & Nadia, Z. (2024). Approach towards sustainable leather: Characterization and effective industrial application of proteases from *Bacillus* sps. for ecofriendly dehairing of leather hide. *International Journal of Biological Macromolecules*. 266, Part 1. 131154 (IF: 8.20; 2022)
15. Sikander, M., Qureshi, J. A., **Khattak, M. S.**, Khan, M. S. G., Mubeen, B., Mubeen, S., Badar, S., & Qasim, M. M. (2024). Association of MTHFR 677CT, 1298AC polymorphisms and folic acid with spina bifida in Pakistani population. *Journal of Population Therapeutics and Clinical Pharmacology*. 31(2), 424-434. (IF: Nil, ISI Indexed)
16. Nazir, A., Shad, M., Rashid, N., Azim, N., & **Sajjad, M.** (2024). Recombinant production and characterization of a metal ion-independent Lysophospholipase from a hyperthermophilic archaeon *Pyrococcus abyssi* DSM25543. *International Journal of Biological Macromolecules*. 259, Part 2, 129345. (IF: 8.20; 2022)
17. Shad, M., **Sajjad, M.**, Gardner, Q. A., Ahmad, S., & Akhtar, M. W. (2024). Structural engineering and truncation of α -amylase from the hyperthermophilic archaeon *Methanocaldococcus jannaschii*. *International Journal of Biological Macromolecules*. 256, Part 1, 128387. (IF: 8.20; 2022)

18. Shad, M., Hussain, N., Usman, M., Akhtar, M. W., & **Sajjad, M.** (2023). Exploration of computational approaches to predict the structural features and recent trends in α -amylase production for industrial applications. *Biotechnology and Bioengineering*. 120(8), 2092-2116. (IF: 3.80; 2022)
19. Rehman, H. M., **Sajjad, M.**, Saleem, M., Gul, R., Aslam, M. S., Shinwari, K., Bhinder, M. A., Ali, M. A., Ghani, M. U., & Alghamdii, H. (2023). Identification of RdRp inhibitors against SARS-CoV-2 through E-pharmacophore-based virtual screening, molecular docking and MD simulations approaches. *International Journal of Biological Macromolecules*. 237, 124169. (IF: 8.20; 2022)
20. Rehman, F., **Sajjad, M.**, & Akhtar, M. W. (2023). Orientation of Cel5A and Xyn10B in a fusion construct is important in facilitating synergistic degradation of plant biomass polysaccharides. *Journal of Bioscience and Bioengineering*. 135(4), 274-281. (IF: 2.80; 2022).
21. Shahid, S., Batool, S., Khaliq, A., Ahmad, S., Batool, H., **Sajjad, M.**, & Akhtar, M.W. (2023). Improved catalytic efficiency of Xylanase 10B of *Thermotoga petrophila* and its synergy with cellulases. *Enzyme and Microbial Technology*. 166, 110213. (IF: 3.40; 2022)
22. Rehman, H. M., **Sajjad, M.**, Ali, M. A., Gul, R., Irfan, M., Naveed, M., Bhinder, M. A., Ghani, M. U., Hussain, N., Said, A. S. A., Al Haddad A. H. I., & Saleem, M. (2023). Identification of NS2B-NS3 protease inhibitors for therapeutic application in ZIKV infection: A pharmacophore-based high-throughput virtual screening and MD simulations approaches. *Vaccines* 2023(11), 131. (IF: 7.80; 2022)
23. Ahmad, S., **Sajjad, M.**, Altayb, H. N., Imam, S. S., Alshehri, S., Ghoneim, M. M., Shahid S., Mirza, M. U., Nadeem, M. N., Kazmi, I., & Akhtar, M. W. (2023). Engineering processive cellulase (CelO) of *Clostridium thermocellum* to divulge the role of carbohydrate binding module. *Biotechnology and Applied Biochemistry*. 70, 290-305. (IF: 2.724)
24. Anwar, A., Younas, M. Z., Shad, M., Akhter, M., Arif, S., Rahman, A., **Sajjad, M.**, & Akhtar, M. W. (2022). Evaluation of immunogenic response of recombinant nucleocapsid protein of SARS-CoV-2. *Pakistan Journal of Biochemistry and Molecular Biology*. 55(4), 242-251.
25. Ashi, Z., Javaid, S., Arif, S., Akhter, M., Anwar, A., Shad, M., **Sajjad, M.**, & Akhtar, M. W. (2022). Potential of an epitope-rich peptide from S2 domain of Spike protein in serodiagnosis of SARS-CoV-2. *Pakistan Journal of Biochemistry and Molecular Biology*. 55(3), 148-155.
26. Javaid, S., Ashi, Z., Anwar, A., Akhter, M., Arif, S., Shad, M., Akhtar, M. W., & **Sajjad, M.** (2022). Recombinant production and validation of immunogenic fragment from RBD of SARS-CoV-2 spike protein. *Pakistan Journal of Biochemistry and Molecular Biology*. 55(2), 138-145.
27. Akram, M., Shafiq, M. I., Malik, A., Khan, F., Ahmad, M., & **Sajjad, M.** (2022). Role of glutathione S transferase polymorphism in the pathogenesis of cardiovascular diseases. a case control study. *Pakistan Journal of Zoology*. 54(6), 2659-2666. (IF: 0.687)
28. Sikander, M., Qureshi, J. A., Malik, A., Gull-e-Faran, **Khattak, M. S.**, Khan, M. S. G., Ghayas, R., & Qurrat-ul-Ain. (2022). Demographic and biochemical parameters in Pakistani families

- having child with spina bifida. *The Professional Medical Journal*. 29(2), 172-178. (IF: Nil, HEC recognized)
29. Tariq, A., Rehman H. M., Mateen R. M., Ali, M., Mutahir. Z., Afzal, M. S., **Sajjad, M.**, Gul, R., & Saleem, M. (2022). A computer aided drug discovery-based discovery of lead-like compounds against KDM5A for cancers using pharmacophore modeling and high-throughput virtual screening. *Proteins*. 90(3), 645-657. (IF: 4.07)
 30. Al-Amri, A., Khan, J. A., Altayb, H. N., Alsulami, H., **Sajjad, M.**, Baothman, O., & Nadeem, M. S. (2021). *Escherichia coli* expression and characterization of α -amylase from *Geobacillus thermodenitrificans* DSM-465. *Brazilian Journal of Biology*, 82, e239449. (IF: 1.5)
 31. Nadeem, M. S., Shahzadi, I., **Sajjad, M.**, Ali, A., Kazmi, I., & Khan, J. A. (2021). Scale-up fermentation of *Escherichia coli* for the production of recombinant endoglucanase from *Clostridium thermocellum*. *Scientific Reports*, 11, 7145. (IF: 4.996)
 32. Tariq, A., Khurshid S., & **Sajjad M.** (2021). Evaluation of the high resolution melting approach for detection of β -thalassemia gene mutations. *Hemoglobin*, 45(1), 20-24. (IF: 0.822)
 33. Rehman, H. M., Mirza, M. U., Ahmad, M. A., Saleem, M., Froeyen, M., Ahmad, S., Gul, R., Alghamdi, H. A., Aslam, M. S., **Sajjad, M.**, & Bhinder, M. A. (2020). A putative prophylactic solution for COVID-19: Development of novel multiepitope vaccine candidate against SARS-COV-2 by comprehensive immunoinformatic and molecular modelling approach. *Biology-Basel*, 9(9), 296. (IF: 5.079)
 34. Khalil, M., **Khattak, M. S.**, Ali, Q., Qureshi, J. A., & Malik, A. (2020). Isolation and characterization of pectinase producing *Aspergillus niger* from orange. *International Journal of Botany Studies*, 5(2), 45-48. (IF: Nil; ISI indexed)
 35. Nadeem, M. S., **Sajjad, M.**, Nadeem, S. I., Kazmi, I., Zeyadi, M. A., & Muhammad, K. (2020). Polio elimination in North-West Pakistan faces setbacks in war-affected areas. *Asia-Pacific Journal of Public Health*, 32(5), 292-293. (IF: 1.399).
 36. Ahmed, S. S., Akhter, M., **Sajjad, M.**, Gul, R., & Khurshid, S. (2019). Soluble production, characterization, and structural aesthetics of an industrially important thermostable β -glucosidase from *Clostridium thermocellum* in *Escherichia coli*. *BioMed Research International*, 2019, 9308593. (IF: 2.276)
 37. Amanat, F., Yaqoob, A., Ali, A., and **Sajjad, M.** (2019). Extracellular production of pectinase from bacteria isolated from rotten apples from Lahore, Pakistan. *BioScientific Review*, 1(3), 37-45. (IF: Nil, HEC recognized)
 38. Yaqoob, A., Amanat, F., Ali, A., & **Sajjad, M.** (2019). Isolation and screening of pectinolytic bacterial strains using rotten apples from Lahore, Pakistan. *BioScientific Review*, 1(3), 23-36. (IF: Nil, HEC recognized)
 39. Razaq, A., Shamsi, S., Ali, A., Ali, Q, **Sajjad, M.**, Malik, A., & Ashraf, M. (2019). Microbial proteases applications. *Frontiers in Bioengineering and Biotechnology*, 7, 110. (IF: 3.644)

40. Rehman, H. M., Nasir, H., Iqbal, A., Shah, S. Z., Ahad, A., Naseem, M. U., **Sajjad, M.**, Akhtar, M. W., & Ahmad, S. (2019). Protein engineering of endoglucanase CelR of *Clostridium thermocellum* for enhanced expression. *Advancements in Life Sciences*, 6(2), 81-87. (IF: Nil; ISI indexed)
41. Ali, I., Asghar, R., Ahmad, S., **Sajjad, M.**, & Akhtar M.W. (2015). mRNA secondary structure engineering of *Thermobifida fusca* endoglucanase (Cel6A) for enhanced expression in *Escherichia coli*. *World Journal of Microbiology and Biotechnology*, 31(3), 499-506. (IF: 1.78)
42. Khan, M. I. M., **Sajjad, M.**, Sadaf, S., Zafar, R., Niazi, U. H. K., & Akhtar, M. W. (2013). The nature of the carbohydrate binding module determines the catalytic efficiency of xylanase Z of *Clostridium thermocellum*. *Journal of Biotechnology*, 168(4), 403-408. (IF: 2.88)
43. Khan, M. I. M., **Sajjad, M.**, & Akhtar, M. W. (2013). Over-expression of β -1,4 xylanase by auto-induction in *E. coli*. *Pakistan Journal of Biochemistry and Molecular Biology*, 46(2), 47-51.
44. **Sajjad, M.**, Khan, M. I. M., Zafar, R., Ahmad, S., Niazi, U. H. K., & Akhtar, M. W. (2012). Influence of positioning of carbohydrate binding module on the activity of endoglucanase CelA of *Clostridium thermocellum*. *Journal of Biotechnology*, 161(3), 206-212. (IF: 3.18)
45. Shahwar, D., Khan, M. A., Siddique, M., **Sajjad, M.**, Khan, Z. D., Ajaib, M., & Ahmad, N. (2011). An efficient assay to screen β -lactamase inhibitors from plant extracts. *Asian Journal of Chemistry*, 23(7), 3183-3186. (IF: 0.27)
46. Khan, M. I. M., **Sajjad, M.**, Ali, I. Ahmad, S., & Akhtar, M. W. (2010). Influence of transposition and insertion of additional binding domain on expression and characteristics of xylanase C of *Clostridium thermocellum*. *Journal of Biotechnology*, 150(1), 1-5. (IF: 2.97)
47. **Sajjad, M.**, Khan, M.I.M., Akbar, N.S., Ahmad, S., Ali, I., & Akhtar, M.W. (2010). Enhanced expression and activity yields of *Clostridium thermocellum* xylanases without non-catalytic domains. *Journal of Biotechnology*, 145(1), 38-42. (IF: 2.97)
48. Khan, M. A., Sadaf, S., **Sajjad M.**, & Akhtar, M. W. (2009). Production enhancement and refolding of caprine growth hormone expressed in *Escherichia coli*. *Protein Expression and Purification*, 68(1), 85-89. (IF: 1.56)

BOOK CHAPTERS

1. Ahmed, J., **Sajjad, M.**, Shakir, H. A., Khan, M., Franco, M., & Irfan, M. (2024). Magnetic Nanocatalysts for Biofuel Production. In: Srivastava, M., Rai, A. K. (eds) *Agricultural Biomass Nanocatalysts for Green Energy Applications. Clean Energy Production Technologies*. Springer, Singapore. pp. 145-172. https://doi.org/10.1007/978-981-97-1623-4_7
2. Islam, M., Mustafa, G., **Sajjad, M.**, Shakir, H. A., Khan, M., Ali, S., Franco, M., & Irfan, M. (2024). Nanozeolites Synthesis and Their Applications in Biofuel Production. In: Srivastava, M., Rai, A. K. (eds) *Agricultural Biomass Nanocatalysts for Green Energy Applications. Clean Energy Production Technologies*. Springer, Singapore. pp. 173-204. https://doi.org/10.1007/978-981-97-1623-4_8

MEMBER EDITORIAL BOARD FOR FOLLOWING JOURNALS

1. TSF Journal of Biology, Pakistan (HEC recognized)

ARTICLES/PAPERS REVIEWED FOR FOLLOWING JOURNALS

2. Environmental Science and Pollution Research (Springer Nature)
3. Advancements in Life Sciences
4. Forensic Genomics (M.A. Liebert Inc.)
5. Pakistan Journal of Zoology
6. Agricultural Reviews (ARCC Journals)
7. Journal of Gastroenterology and Hepatology Research (ACT Publishing)
8. Pakistan Journal of Agricultural Sciences
9. Biologia (Pakistan)
10. BioScientific Review
11. Scientific Inquiry and Review

CONFERENCES / SEMINARS / SYMPOSIA

Oral/Poster Presentation:

1. Oral presentation in **Seminar on “Protein Engineering Approaches for Efficient Hydrolysis of Plant Polysaccharides”** organized by University of Wah Science Society, Faculty of Basic Sciences, University of Wah, Pakistan. (March 20, 2024)
2. Oral presentation in the **1st UMT International Conference on Life Sciences: Exploring the Frontiers in Biological Research** organized by the Department of Life Sciences, University of Management and Technology, Lahore (Dec. 13-14, 2023). Topic: Protein engineering approaches for efficient hydrolysis of plant polysaccharides
3. Oral presentation at the **International Conference on Advances in Biological Sciences (ICABS-2023)** organized by School of Biological Sciences, University of the Punjab, Lahore (March 6-8, 2023). **Topic:** Protein engineering approaches for alpha amylase production: from tools to applications
4. Oral presentation in **Seminar on "Biotechnology: Trends and Applications"**, Department of Allied Health Sciences, Superior University, Lahore, Pakistan. (March 12, 2020)
5. Oral presentation in **Seminar on “Engineering of Enzymes for Industrial Applications”**, University of Management and Technology, Lahore (Dec. 2018)
6. Oral presentation in **11th Biennial Conference on Molecular Biosciences: Challenges and Opportunities**, University of the Punjab, Lahore (Nov. 2013). **Topic:** Influence of positioning of carbohydrate binding module on the activity of endoglucanase CelA of *Clostridium thermocellum*.
7. Oral presentation in **10th Biennial Conference on Biomolecular Sciences in Development**, University of Karachi, Karachi (Dec. 2010) **Topic:** Influence of translocation of carbohydrate

binding domain of Family 3 from Scaffoldin (CipA) to Endoglucanase A (Cela) of *Clostridium thermocellum* on its expression in *Escherichia coli*, activity and stability

8. Oral presentation in **9th Biennial Conference on Advances in Biochemistry and Molecular Biology**, PMAS-Arid Agriculture University, Rawalpindi (Dec. 2008) **Topic:** Cloning and Over-expression of XynZ of *Clostridium thermocellum* in *Escherichia coli* BL21 (CodonPlus)
9. Poster presentation in **18th FAOBMB Symposium on Genomics and Proteomics in Health and Agriculture**, (International), University of the Punjab, Lahore (Nov. 2005).

Member Organizing Committee:

1. **International Conference on Advances in Biological Sciences (ICABS-2023)** organized by School of Biological Sciences, University of the Punjab, Lahore (March 6-8, 2023)
2. **International Conference on Recent Innovations in Molecular Sciences**, University of the Punjab, Lahore (Nov. 6-8, 2019)
3. **International Symposium on Glycoproteins in Health and Disease**, University of the Punjab, Lahore (May 2008)
4. **18th FAOBMB Symposium on Genomics and Proteomics in Health and Agriculture**, (International), University of the Punjab, Lahore (Nov. 2005).

Attended/Participated:

1. **Seminar on Business Intelligence & Optimisation Solutions** organized by Office of Research, Innovation and Commercialization (ORIC), University of the Punjab, Lahore (May 16, 2024)
2. **International Conference on Current Trends, Prospects & Opportunities in Vaccine Research 2024** organized by Centre of Excellence in Molecular Biology, University of the Punjab, Lahore (Feb. 28-29, 2024)
3. **Seminar on Fundamentals and Modern Trends in Supply Chain Management** organized by Office of Research, Innovation and Commercialization (ORIC), University of the Punjab, Lahore (Jan. 23, 2024)
4. **1st Biennial International Conference on Pharmaceutical and Life Sciences (Hybrid) 2023** organized by the Institute of Life Sciences, Gulab Devi Educational CO plex Lahore (Dec. 09, 2023)
5. **Seminar on Machine Learning Fundamentals & Its Application in Agriculture** organized by Office of Research, Innovation and Commercialization (ORIC), University of the Punjab, Lahore (Oct. 18, 2023)
6. **Seminar on Intellectual Property & Patent Essentials: Basic and Legal Aspects** organized by Office of Research, Innovation and Commercialization (ORIC), University of the Punjab, Lahore (Aug. 28, 2023)
7. **Webinar on Single Cell for Beginners** organized by 10X Genomics, USA (Aug. 10-11, 2023)

8. **Seminar on Patent Filing and Registration** organized by Department of Plant Pathology, University of the Punjab, Lahore (July 25, 2023)
9. **Seminar on Academic Creativity to Accelerate Technological Transfer for a COVID-19 Vaccine** organized by Sartorius and John Wiley & Sons Inc. (Nov 22, 2022)
10. **International Virtual Symposium on Drug Discovery 2022** organized by LUMS, Lahore (Sept. 16, 2022)
11. **Seminar on Food Safety: our National Responsibility** organized by Department of Food Sciences, University of the Punjab, Lahore (Sept. 08, 2022)
12. **Webinar on Systems and Synthetic Biology: Constructing Smart and Programmable Microbes to Address Global Problems** organized by Integrated DNA Technologies (IDT), USA (Aug. 18, 2022)
13. **Elsevier's webinar on "Empowering knowledge on ethical publishing: Mastering the art of identifying predatory, fake and cloned journals"** by Elsevier and Researcher Academy (June 08, 2022)
14. **ProQuest webinar on "The Art of Academic Honesty: Plagiarism unpacked"** in partnership with HEC, Pakistan (Jan. 15, 2022)
15. **ProQuest webinar on "5 Tips for Getting Published"** in partnership with HEC, Pakistan (Oct. 27, 2020)
16. **ProQuest webinar on "How to manage Your References Using RefWorks"** in partnership with HEC, Pakistan (Oct. 26, 2020)
17. **ProQuest webinar on "Ebook Central Advanced Training"** in partnership with HEC, Pakistan (Sept. 16, 2020)
18. **Seminar on Genetic Disorders from Awareness to Diagnosis**, National University of Science and Technology, Islamabad (Nov. 2014)

TRAININGS / WORKSHOPS

Resource Person/Member Organizing Committee:

1. Keynote Speaker and Resource Person at the **Workshop on Experimental Methods in Molecular Biology**, University of Management and Technology, Lahore (May 31 - June 1, 2024)
2. Resource Person at the **National Workshop on the Production and Purification of Recombinant Proteins**, School of Biological Sciences, University of the Punjab, Lahore (Nov. 13-17, 2023)
3. Jury Member for the **7th Molecular Models and Bioinformatics Posters Competition** organized by Department of Biotechnology, University of Central Punjab, Lahore (July 06, 2023)
4. Resource Person at the **Workshop on Experimental Methods in Molecular Biology**, University of Management and Technology, Lahore (June 2-3, 2023)

5. Resource Person at the **1st Training Workshop in Life Sciences: Techniques in Molecular Biology**, University of Management and Technology, Lahore (Nov. 23-24, 2019)
6. Resource Person for the **Workshop on Primer to Recombinant DNA Technology**, The University of Lahore, Lahore (Sept. 2012)
7. Member organizing committee of the **International Workshop on Separation Science and the Omics**, University of the Punjab, Lahore (April 2009)

Attended/Participated:

1. **Training of ASTM COMPASS Database** organized by ASTM International and Higher Education Commission of Pakistan (Oct. 25, 2022)
2. **Capacity Building of Principal Investigators (PIs): (Project Management)** jointly organized by HEC and British Council in Marriott, Islamabad (Feb 28 – Mar 04, 2022)
3. **Elsevier-HEC Workshop on Journal indexing in Scopus** in partnership with HEC, Pakistan (Jan. 21, 2021)
4. **Hands-on Training/Workshop on Next Generation Sequencing (NGS) Data Analysis** organized by Department of Bioinformatics and Computational Biology, Virtual University of Pakistan, Lahore, Pakistan (Nov. 25, 2020)
5. **Workshop on Citation Management using Mendeley Software**, organized by PASTIC at the University of Lahore, Lahore (March 2019)
6. **Workshop on Project Formulation**, organized by Pakistan Science Foundation, Islamabad at the University of Lahore, Lahore (Jan. 2019)
7. **International Workshop on Applications of Computational Biology in Biotechnology**, National Institute of Biotechnology and Genetic Engineering, Faisalabad (July 2017)
8. **Workshop on Computational Resources for Protein Modelling**, Institute of Biochemistry and Biotechnology, University of the Punjab, Lahore (March 2011)
9. **International Course on Advanced School on Biochemistry of Biofuels**, jointly organized by IUBMB, ASBMB and SBBq, Sao Paulo, Brazil (Oct. 2010)
10. **Workshop on Enhanced Production of Recombinant Biomolecules of Commercial Importance**, University of Karachi, Karachi (July 2009)
11. **Workshop on Crystal Structure Determination using Powder XRD**, University of the Punjab, Lahore (August 2007)
12. **Workshop on Biochemical Engineering and Fermenter Applications**, University of the Punjab, Lahore (August 2006)

STUDENTS/RESEARCHERS SUPERVISED

Post-doctorates	01	
Ph.D.	04 completed;	05 in progress (02 as 1 st Supervisor)
M.Phil. / M.S.	33 completed	02 in progress
M.Sc. / BS (Hons):	19 completed	

Post-doctorate

Dr. Mohsina Akhter (21 April 2021 – 14 January 2022)

She worked in the Higher Education Commission (HEC) funded project (HEC-RRG-43) entitled "Development of a reliable, economical and high throughput serodiagnostic method for early detection of COVID-19"

Ph.D.

Sr. No.	Type	Title	Ownership	Date
1	Ph.D. Mol Biol	Syed Shoaib Ahmad – Molecular cloning, characterization and kinetic studies of thermophilic cellulolytic enzyme (The University of Lahore, Lahore)	2 nd Supervisor	Jan 2021
2	Ph.D. Biochem	Aasia Kalsoom – Evaluation of anticancer potential of selected medicinal plants and their influence on the expression of apoptotic genes in cancer cell lines (The University of Lahore, Lahore)	Member Supervisory Committee	March 2024
3	Ph.D. Biochem	Mohsin Shad – Development of highly thermostable alpha-amylase through protein engineering for industrial applications (University of the Punjab, Lahore)	1 st Supervisor	Oct. 2024
4	Ph.D. Mol Biol	Arshia Nazir – Recombinant production, characterization and engineering of archaeal lysophospholipase and glycerophosphoryl diester phosphodiesterase (University of the Punjab, Lahore)	1 st Supervisor	Thesis submitted
5	Ph.D. Biol Sci	Kanwal Shabbir – Study of genotype-phenotype correlation of CDC14A p.R345X variant in human and mouse (University of the Punjab, Lahore)	2 nd Supervisor	In progress
6	Ph.D. Biochem	Asif Abbas – Heterologous expression and characterization of cellulase from indigenous strain of <i>Pseudomonas fluorescens</i> (University of Gujrat, Gujrat)	2 nd Supervisor	In progress
7	Ph.D. Zoology	Rabia Jahangir – Mutation of superoxide dismutase gene and its relations with oxidative stress in hypertensive patient (Govt. College University, Lahore)	2 nd Supervisor	In progress
8	Ph.D. Biotech	Aqsa Anwar – Engineering, recombinant production and characterization of pectinolytic enzymes of <i>Thermotoga</i> sp. (University of the Punjab, Lahore)	1 st Supervisor	In progress
9	Ph.D. Biochem	Hina Qaiser – Elucidating the role of miRNAs in breast cancer (University of the Punjab, Lahore)	1 st Supervisor	In progress

M.Phil. / M.S.

Sr. No.	Type	Title	Ownership	Date
1	M.Phil. Mol. Biol.	Hafiz Muzzamel Rehman – Protein engineering of endoglucanase CelR of <i>Clostridium thermocellum</i> for enhanced expression (The University of Lahore, Lahore)	1 st Supervisor	Sept. 2014
2	M.Phil. Biotech	Sidra Pervez – Antibacterial activity of turmeric (Curcumin) against pathogenic bacteria (The University of Sargodha, Sargodha)	1 st Supervisor	March 2016
3	M.Phil. Biotech	Rabia Mehmood – Antibacterial activity of garlic extract (<i>Allium sativum</i>) against pathogenic bacteria (The University of Sargodha, Sargodha)	1 st Supervisor	March 2016
4	M.Phil. Biotech	Saira Saif – Directed evolution of endoglucanases Cella-BC of <i>Clostridium thermocellum</i> to improve its activity and characteristics (The University of Sargodha, Sargodha)	2 nd Supervisor	Nov. 2016
5	M.Phil. Biochem	Irum Shahzadi – Enhanced production of recombinant cellulase by applying fermentation kinetics (The University of Lahore, Lahore)	1 st Supervisor	Nov. 2018
6	M.Phil. Biochem	Muhammad Raza – Cloning and recombinant expression of thermostable laccase in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	Nov. 2018
7	M.Phil. Biochem	Qurat ul Ain Fatima – Biochemical characterization of antioxidant and antimicrobial activities of <i>Citrullus lanatus</i> seeds and pulp (The University of Lahore, Lahore)	1 st Supervisor	Nov. 2018
8	M.Phil. Biochem	Huma Liaqat – Isolation and characterization of alpha-amylase producing bacterial strains from Raiwind, Punjab (The University of Lahore, Lahore)	1 st Supervisor	Nov. 2018
9	M.Phil. Biochem	Zohaib Hassan – Isolation and characterization of alpha-amylase producing bacterial strains from Hafizabad, Punjab (The University of Lahore, Lahore)	1 st Supervisor	Nov. 2018
10	M.Phil. Biotech	Awais Ali – Recombinant production of L-asparaginase from <i>Pyrococcus abyssi</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	Dec. 2018
11	M.Phil. Biotech	Muhammad Hussain – Optimization of conditions for recombinant production of asparaginase from <i>Geobacillus thermodenitrificans</i> (The University of Lahore, Lahore)	1 st Supervisor	Dec. 2018
12	M.Phil. Biotech	Muhammad Arslan Amjad – Heterologous expression of lipase gene of thermophilic <i>Geobacillus thermodenitrificans</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	Dec. 2018
13	M.Phil. Biotech	Muhammad Faizan Manzoor – Screening and characterization of <i>Vinca rosea</i> extracts and their anti-cancer activity <i>in vitro</i> (The University of Lahore, Lahore)	1 st Supervisor	Jan. 2019
14	M.Phil. For Sci	Muzammil Ishaq – Characterization of mtDNA of Sayyid families of Pakistan (The University of Lahore, Lahore)	1 st Supervisor	Jan. 2019

15	M.Phil. For Sci	Quratul Ain – Data analysis of suicide cases in Punjab, Pakistan: a criminalistics perspective (The University of Lahore, Lahore)	1 st Supervisor	Feb. 2019
16	M.Phil. Biochem	Sobia Sajid – Recombinant production of small asparaginase (Asn-2) from <i>Pyrococcus abyssi</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	June 2019
17	M.Phil. Biochem	Waseem ur Rehman Chohan – Recombinant production of an alkaline metalloprotease from <i>Pseudomonas aeruginosa</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	June 2019
18	M.Phil. Zoology	Sidra Farooq – Recombinant production of DNA polymerase from <i>Pyrococcus abyssi</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	June 2019
19	M.Phil. Zoology	Insa Naeem – Heterologous expression of archaeal DNA Ligase in <i>Escherichia coli</i> (The University of Lahore, Lahore)	1 st Supervisor	June 2019
20	M.Phil. Zoology	Yasmeen Nazeer – Treatment of artificially prepared trichlorofon-polluted wastewater using bacterial strains (The University of Lahore, Lahore)	1 st Supervisor	June 2019
21	M.Phil. Zoology	Maham Pervaiz – Bioremediation of butachlor-impacted wastewater with bacteria (The University of Lahore, Lahore)	1 st Supervisor	June 2019
22	M.Phil. Zoology	Dur-ea-Shahwar – Biosorption of Cypermethrin using an indigenous pesticide resistant bacterial strain (The University of Lahore, Lahore)	1 st Supervisor	June 2019
23	M.Phil. Mol Biol	Adnan Yaseen – Molecular evolution of beta-glucosidase-A from <i>Clostridium thermocellum</i> to enhance its enzymatic activity (The University of Lahore, Lahore)	2 nd Supervisor	Dec 2019
24	M.Phil. Biochem	Mamoona Sadaf – Recombinant production of keratinase from <i>Bacillus subtilis</i> in <i>Escherichia coli</i> (The University of Lahore, Lahore)	2 nd Supervisor	March 2021
25	M.Phil. Biotech	Aqsa Anwar – Recombinant production and characterization of Spike (S1) protein of SARS-CoV-2 (University of the Punjab, Lahore)	1 st Supervisor	June 2021
26	M.Phil. Biochem	Sana Munir – In silico analysis of anti-Foot and Mouth Disease Virus (FMDV) phytochemicals derived from <i>Zingiber officinale</i> (University of Management and Technology, Lahore)	2 nd Supervisor	July 2021
27	M.Phil. Biochem	Tayyaba Naseem – Computational analysis of <i>Nigella sativa</i> derived phytochemicals against Beak and Feather Disease Virus (University of Management and Technology, Lahore)	2 nd Supervisor	July 2021
28	M.Phil. Biochem	Asad Rahman – Recombinant production of a fusion protein containing epitopic regions from SARS-CoV-2 Spike protein (University of the Punjab, Lahore)	1 st Supervisor	August 2022
29	M.Phil. Biochem	Sania Javaid – Recombinant production of a fusion protein containing epitopic regions of Nucleocapsid and Spike proteins from SARS-CoV-2 (University of the Punjab, Lahore)	1 st Supervisor	August 2022

30	M.Phil. Biol Sci	Zara Ashi – Recombinant production and purification of highly immunogenic fragment from S2 domain of SARS-CoV-2 Spike protein (University of the Punjab, Lahore)	2 nd Supervisor	August 2022
31	M.Phil. Biotech	Khadija Yaqoob – Investigating the effect of SUMO fusion on solubility and stability of amylase-catalytic domain from <i>Pyrococcus abyssi</i> (University of the Punjab, Lahore)	1 st Supervisor	August 2023
32	M.Phil. Biol Sci	Maham Ijaz – Genetic engineering of a putative asparaginase from <i>Methanocaldococcus janaschii</i> (University of the Punjab, Lahore)	1 st Supervisor	August 2023
33	M.Phil. Mol Biol	Arubah Farooq – Recombinant production and purification of full length asparaginase (AnsA) from <i>Methanocaldococcus janaschii</i> (University of the Punjab, Lahore)	1 st Supervisor	August 2024
34	M.Phil. Biochem	Syeda Arooba Farman – Effect of active site mutations through site-direct mutagenesis on stability and activity of glycerophosphoryl diester phosphodiesterase from <i>Pyrococcus abyssi</i> (University of the Punjab, Lahore)	1 st Supervisor	In progress
35	M.Phil. Biochem	Maryam Hamayun – Recombinant production and characterization of mutant glycerophosphoryl diester phosphodiesterase from <i>Pyrococcus abyssi</i> (University of the Punjab, Lahore)	1 st Supervisor	In progress

M.Sc. / BS (Hons):

Sr. No.	Type	Title	Ownership	Date
1	M.Sc. Biochem	Maleeha Abdul Ghafoor – Recombinant production of putative glycoside hydrolase of family 48 from <i>Acidothermus cellulolyticus</i>	1 st Supervisor	2014
2	M.Sc. Biochem	Ayesha Akram – Fusion of carbohydrate binding module of family 3a to major endoglucanase CelA of <i>Clostridium thermocellum</i>	1 st Supervisor	2014
3	BS (Hons) Biochem	Saman Haider – Protein engineering of endoglucanase Cel5A of <i>Acidothermus cellulolyticus</i> by addition of CBM3	1 st Supervisor	2014
4	BS (Hons) Biochem	Saliha Shabbir – Cloning and expression of engineered endoglucanase Cel5A of <i>Acidothermus cellulolyticus</i> in <i>E. coli</i>	1 st Supervisor	2014
5	BS (Hons) Biochem	Maria Amjad – Polycystic ovary syndrome and its clinical aspects (Review)	1 st Supervisor	Dec. 2016
6	BS (Hons) Biochem	Iqra Maqsood – Galactosemia and its prevalence (Review)	1 st Supervisor	2018
7	BS (Hons) Biochem	Aneeba Shuja Uddin – Determination of pesticide residues in common fruits and vegetables using validated QuEChERS extraction and high resolution GCMS analytical techniques	1 st Supervisor	May 2018

8	BS (Hons) Biotech	Muhammad Wali Qazi – Analysis of <i>embB</i> mutations conferring ethambutol resistance in MDR strains of <i>Mycobacterium tuberculosis</i>	2 nd Supervisor	July 2018
9	BS (Hons) Biochem	Muhammad Rizwan – Isolation of pectinase producing bacteria using rotten orange sample	1 st Supervisor	August 2018
10	BS (Hons) Biotech	Hafiz Khawar – Isolation, characterization and identification of polyhydroxyalkanoate producing bacteria	2 nd Supervisor	August 2018
11	BS (Hons) Biochem	Muhammad Mohsin – Isolation of pectinase producing bacteria using rotten lemon	1 st Supervisor	Sept. 2018
12	BS (Hons) Biotech	Sehrish Sikandar – Medicinal importance of <i>Vinca rosea</i> derived therapeutic compounds (Review)	1 st Supervisor	Oct. 2018
13	BS (Hons) Biotech	Amna Yaqoob – Isolation and Screening of pectinolytic bacterial strains using rotten apple sample	1 st Supervisor	Oct. 2018
14	BS (Hons) Biotech	Ayesha Iqbal – Extraction of PHA (polyhydroxyalkanoate) from <i>Pseudomonas</i> sp.	2 nd Supervisor	Oct. 2018
15	BS (Hons) Biochem	Ashir Azeem – Regulation, effects and socio-economic impact of oxytocin on living organisms (Review)	1 st Supervisor	Jan. 2019
16	M.Sc. Biotech	Hooria Saeed – The impact of genetically modified food on human health in the 21 st century (Review)	1 st Supervisor	Jan. 2019
17	M.Sc. Biochem	Nimra Azam – Isolation and characterization of pectinase producing <i>Enterobacter cloacae</i> from rotten beet root and determination of its enzymatic activity	1 st Supervisor	May 2019
18	BS (Hons) Biotech	Ali Asrar – The study of begomovirus diversity in guar plant	1 st Supervisor	June 2019
19	BS (Hons) Biotech	Hafiz Syed Haris Hussain Zaidi – Cloning of β -glucuronidase enzyme gene in <i>Escherichia coli</i> DH5 α	1 st Supervisor	July 2019

REFERENCES

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