



MUHAMMAD SAJJAD, Ph.D.

School of Biological Sciences
University of the Punjab, quaid-e-Azam Campus
Lahore-54590, Pakistan
Mobile: +92-334-4368366; +92-312-4368366
E-mail: m_sajjad_khattak@yahoo.com; sajjad.sbs@pu.edu.pk

PERSONAL SUMMARY

Father's name	Usman ud Din
Date of birth	March 31, 1983
Domicile	Karak, Khyber Pakhtunkhwa, Pakistan
NIC No.	37405-0349133-1
Passport No.	AT5571332
Marital status	Married

EDUCATION

M.Phil. leading Ph.D. – Biological Sciences (Biochemistry)	(2014)
(CGPA 3.63/4.0 for M.Phil. & 4.0/4.0 in Ph.D. course work, 1 st 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 - Biochemistry	(2005)
(CGPA 3.8/4.0, 1 st Div., University Gold Medal) Institute of Biochemistry and Biotechnology, University of the Punjab, Lahore-54590, Pakistan	
B.Sc. Botany, Zoology, Chemistry	(2003)
Marks: 490/800 (61%), 1 st Div. University of the Punjab, Lahore, Pakistan	
F.Sc. Pre-Medical	(2000)
Marks: 762/1100 (69%), 1 st Div. FBISE Islamabad, Pakistan	
Matriculation (Science)	(1998)
Marks: 602/850 (71%), 1 st Div. FBISE Islamabad, Pakistan	

PROFESSIONAL EXPERIENCE

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

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

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

Life Member **Pakistan Proteomics Society** since 2009

SUBJECTS / AREAS COVERED

Protein structure, function and engineering;

Enzymology and industrial applications;

Metabolism and Metabolic Engineering;

Plant Biochemistry;

Fermentor design and applications;

Recombinant DNA technology

CURRENT RESEARCH INTERESTS

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

RESEARCH PROJECTS

Submitted: 04

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** Approved in initial screening, 2019)
2. Development of Indigenously Produced Pectinase for Applications in Juice Processing (5.2 million rupees funded by **Pakistan Science Foundation (PSF), Pakistan under CRP (2019)**).

As Co-Principal Investigator

1. Construction of multifunctional enzymes for rapid hydrolysis of plant biomass polysaccharides for the production of biofuels (5.5 million rupees funded by **Pakistan Science Foundation (PSF), Pakistan under RSP (2019)**. PI: Dr. M. Waheed Akhtar (SBS-PU)
2. Development of proto type Platform for Production of Proteases Involved in Ecofriendly Leather Processing in Pakistan (5.2 million rupees funded by **Pakistan Science Foundation (PSF), Pakistan under CRP (2019)**. PI: Dr. Nadia Zeeshan (UoG)

Currently in Progress: 03

As Co-Principal Investigator

1. Cloning and expression of the lipolytic bacterial gene in *E. coli* BL21 for the production of lipase enzyme (0.36 million rupees funded by **The University of Lahore, Pakistan**). PI: Mr. Asif Ali (UoL)
2. Recombinant production and characterization of thermophilic beta-glucosidase (cellulase) in bulk by using bioreactor (0.4 million rupees funded by **The University of Lahore, Pakistan**). PI: Mr. Syed Shoaib Ahmed (UoL)
3. Recombinant production and characterization of keratinase in bulk to use in tanneries (0.34

million rupees funded by **The University of Lahore, Pakistan**). PI: Dr. Madiha Fayyaz (UoL)

Completed: _____ **01**

As Principal Investigator (PI)

1. Engineering of cellulolytic enzymes of *Clostridium thermocellum* through random mutagenesis (0.5 million rupees under **SRGP, Higher Education Commission (HEC), Pakistan**)

STUDENTS SUPERVISED

Ph.D. / M.Phil. 22 completed; 05 in progress

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	1 st Supervisor	Sept. 2014
2	M.Phil. Biotech	Sidra Pervez – Antibacterial activity of turmeric (Curcumin) against pathogenic bacteria	1 st Supervisor	March 2016
3	M.Phil. Biotech	Rabia Mehmood – Antibacterial activity of garlic extract (<i>Allium sativum</i>) against pathogenic bacteria	1 st Supervisor	March 2016
4	M.Phil. Biotech	Saira Saif – Directed evolution of endoglucanases CelA-BC of <i>Clostridium thermocellum</i> to improve its activity and characteristics	2 nd Supervisor	Nov. 2016
5	M.Phil. Biochem	Irum Shahzadi – Enhanced production of recombinant cellulase by applying fermentation kinetics	1 st Supervisor	Nov. 2018
6	M.Phil. Biochem	Muhammad Raza – Cloning and recombinant expression of thermostable laccase in <i>Escherichia coli</i>	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>	1 st Supervisor	Nov. 2018
8	M.Phil. Biochem	Huma Liaqat – Isolation and characterization of alpha-amylase producing bacterial strains from Raiwind, Punjab	1 st Supervisor	Nov. 2018
9	M.Phil. Biochem	Zohaib Hassan – Isolation and characterization of alpha-amylase producing bacterial strains from Hafizabad, Punjab	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>	1 st Supervisor	Dec. 2018
11	M.Phil. Biotech	Muhammad Hussain – Optimization of conditions for recombinant production of asparaginase from <i>Geobacillus thermodenitrificans</i>	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>	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>	1 st Supervisor	Jan. 2019
14	M.Phil. Forensic Sciences	Muzammil Ishaq – Characterization of mtDNA of Sayyid families of Pakistan	1 st Supervisor	Jan. 2019

15	M.Phil. Forensic Sciences	Quratul Ain – Data analysis of suicide cases in Punjab, Pakistan: a criminalistics perspective	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>	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>	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>	1 st Supervisor	June 2019
19	M.Phil. Zoology	Insa Naeem – Heterologous expression of archaeal DNA Ligase in <i>Escherichia coli</i>	1 st Supervisor	June 2019
20	M.Phil. Zoology	Yasmeen Nazeer – Treatment of artificially prepared trichlorofon-polluted wastewater using bacterial strains	1 st Supervisor	June 2019
21	M.Phil. Zoology	Maham Pervaiz – Bioremediation of butachlor-impacted wastewater with bacteria	1 st Supervisor	June 2019
22	M.Phil. Zoology	Dur-ea-Shahwar – Biosorption of Cypermethrin using an indigenous pesticide resistant bacterial strain	1 st Supervisor	June 2019
23	M.Phil. Biochem	Wajiha Badar – Recombinant production of an alkaline metalloprotease from <i>Bacillus cereus</i> in <i>Escherichia coli</i>	2 nd Supervisor	In progress
24	M.Phil. Biochem	Mamoona Sadaf – Recombinant production of keratinase from <i>Bacillus subtilis</i> in <i>Escherichia coli</i>	2 nd Supervisor	In progress
25	M.Phil. Mol Biol	Adnan Yaseen – Molecular evolution of beta-glucosidase-A from <i>Clostridium thermocellum</i> to enhance its enzymatic activity	2 nd Supervisor	In progress
26	M.Phil. Zoology	Zainab Fiaz – Optimization of fermentation conditions for production of recombinant ligase in <i>Escherichia coli</i> by using lab-scale fermenter	2 nd Supervisor	In progress
27	Ph.D. Mol Biol	Syed Shoaib Ahmad - Molecular cloning, characterization and kinetic studies of thermophilic cellulolytic enzyme	2 nd Supervisor	In progress

M.Sc. / BS (Hons) 19 completed

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

PUBLICATIONS

Total Impact Factor (IF): 22.93

1. Ahmed, S.S., Akhter, M., **Sajjad, M.**, Gul, R. and 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. <https://doi.org/10.1155/2019/9308593> (IF: 2.20; 2018)
2. Razzaq, A., Shamsi, S., Ali, A., Ali, Q, **Sajjad, M.**, Malik, A. and Ashraf, M. (2019) Microbial

- proteases applications. *Frontiers in Bioengineering and Biotechnology* 7, 110. (IF: 5.122; 2018)
3. Rehman, H.M., Nasir, H., Iqbal, A., Shah, S.Z., Ahad, A., Naseem, M.U., **Sajjad, M.**, Akhtar, M.W. and Ahmad, S. (2019). Protein Engineering of Endoglucanase CelR of *Clostridium thermocellum* for Enhanced Expression. *Advancements in Life Sciences*. 6(2), 81-87.
 4. Ali, I., Asghar, R., Ahmad, S., **Sajjad, M.** and 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)
 5. Khan, M.I.M., **Sajjad, M.**, Sadaf S., Zafar R., Niazi U.H.K. and 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)
 6. Khan, M.I.M., **Sajjad, M.** and 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.
 7. **Sajjad, M.**, Khan, M.I.M., Zafar, R., Ahmad, S., Niazi, U.H.K. and 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)
 8. Shahwar, D., Khan, M.A., Siddique, M., **Sajjad, M.**, Khan, Z.D., Ajaib, M., and 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)
 9. Khan, M.I.M., **Sajjad, M.**, Ali, I. Ahmad, S., and 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)
 10. **Sajjad, M.**, Khan, M.I.M., Akbar, N.S., Ahmad, S., Ali, I. and 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)
 11. Khan, M.A., Sadaf, S., **Sajjad M.** and 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)

CONFERENCES / SEMINARS / SYMPOSIA

1. Member, organizing committee of **International Conference on Recent Innovations in Molecular Sciences**, University of the Punjab, Lahore (Nov. 2019)
2. Oral presentation in **Seminar on Engineering of Enzymes for Industrial Applications**, University of Management and Technology, Lahore (Dec. 2018)
3. Participated in the **Seminar on Genetic Disorders from Awareness to Diagnosis**, National University of Science and Technology, Islamabad (Nov. 2014)
4. Oral presentation in **11th Biennial Conference on Molecular Biosciences: Challenges and Opportunities**, University of the Punjab, Lahore (Nov. 2013)
5. Oral presentation in **10th Biennial Conference on Biomolecular Sciences in Development**, University of Karachi, Karachi (Dec. 2010)

6. Oral presentation in **9th Biennial Conference on Advances in Biochemistry and Molecular Biology**, PMAS-Arid Agriculture University, Rawalpindi (Dec. 2008)
7. Member, organizing committee of **International Symposium on Glycoproteins in Health and Disease**, University of the Punjab, Lahore (May 2008)
8. Poster presentation in **18th FAOBMB Symposium on Genomics and Proteomics in Health and Agriculture**, (International), University of the Punjab, Lahore (Nov. 2005).

TRAININGS / WORKSHOPS

1. Resource Person at the **1st Training Workshop in Life Sciences: Techniques in Molecular Biology**, University of Management and Technology, Lahore (Nov. 2019)
2. Participated in the Workshop on **Citation Management using Mendeley Software**, organized by PASTIC at the University of Lahore, Lahore (March 2019)
3. Participated in the **Workshop on Project Formulation**, organized by Pakistan Science Foundation, Islamabad at the University of Lahore, Lahore (Jan. 2019)
4. Participated in the International Workshop on **Applications of Computational Biology in Biotechnology**, National Institute of Biotechnology and Genetic Engineering, Faisalabad (July 2017)
5. Resource Person for the Workshop on **Primer to Recombinant DNA Technology**, The University of Lahore, Lahore (Sept. 2012)
6. Participated in the Workshop on **Computational Resources for Protein Modelling**, (March 2011)
7. Attended the International Course on **Advanced School on Biochemistry of Biofuels**, jointly organized by IUBMB, ASBMB and SBBq, Sao Paulo, Brazil (Oct. 2010)
8. Participated in the Workshop on **Enhanced Production of Recombinant Biomolecules of Commercial Importance**, University of Karachi, Karachi (July 2009)
9. Member organizing committee of the International Workshop on **Separation Science and the Omics**, University of the Punjab, Lahore (April 2009)
10. Participated in the Workshop on **Crystal Structure Determination using Powder XRD**, University of the Punjab, Lahore (August 2007)
11. Participated in the Workshop on **Biochemical Engineering and Fermenter Applications**, University of the Punjab, Lahore (August 2006)

REFERENCES

Prof. Dr. M. Waheed Akhtar, (Ph.D. supervisor)

Prof. Emeritus,
School of Biological Sciences,
University of the Punjab, Lahore, Pakistan
Phone No. +92-42-99230970
E-mail. mwa.sbs@pu.edu.pk

Prof. Dr. Naeem Rashid

Acting Director General,
School of Biological Sciences,
University of the Punjab, Lahore, Pakistan
Phone No. +92-42-99231534
E-mail. naeemrashid37@hotmail.com