

C.V.

Prof. Dr. Muhammad Nauman Aftab
Director, Dr. Ikram-ul-Haq Institute of Industrial Biotechnology
Chairperson, Department of Biotechnology

Professor (Tenured)
Dr. Ikram-ul-Haq Institute of Industrial Biotechnology
Government College University, Lahore

Father's name Prof (r) Aftab Ahmad
Present posting Director/Professor, Dr. Ikram-ul-Haq Institute of Industrial Biotechnology, GC
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ACADEMIC QUALIFICATION

Post-Doc Biotechnology/Cancer Biology (Sanford Burnham-Preby Medical Research Institute, Orlando
(Florida), United States (2013)
Ph.D (RNA Biology/Bioinformatics) Institute of Biophysics, University of Chinese Academy of
Sciences, Beijing, China (2008)
Ph.D (Biotechnology/Botany) Institute of Industrial Biotechnology, Government College University,
Lahore (2010)
M.Phil. (Microbiology) Quaid-i-Azam University, Islamabad (1995-1997)
M.Sc. (Biological Sciences) Quaid-i-Azam University, Islamabad (1993-1995)
B.Sc. (Botany, Zoology, Chemistry) Islamia University, Bahawalpur (1990-1992)
F.Sc. (Biology, Chemistry, Physics) Govt. College of Science, Lahore (1988-90)
Matric (Biology, Chemistry, Physics) Crescent Model School, Lahore (1978-1988)

OTHER QUALIFICATIONS

- M.A. History (Punjab University, 2015)
- One year Diploma in Islamic Banking (Technical Education and Manpower Training (2010-2011)
- 8 months Chinese Language course (Beijing Language University, Beijing, China, 2008-09)
- 4 week Arabic language course (July, 2010)

- 3 months short course from Quran Academy (2010)
- 2 week workshop on Islamic Banking (Alhuda Center of Islamic Banking and Economics) (June, 2012)
- 6 week Arabic course (July-August, 2009)
- 4 weeks short course on Industrial Biotechnology (2014)
- 8 months online course on Bioinformatics (2015)
- 3 months Russian Language course (March-May, 2019)

EMPLOYMENT RECORD

- Director, Dr. Ikram-ul-Haq Institute of Industrial Biotechnology, GC University Lahore (May, 2019 to-date)
- Professor, Government College University, Lahore (19th Aug, 2019 todate)
- Associate Professor, Government College University, Lahore (30th Jan, 2015 to 18th Aug, 2019)
- Assistant Professor, Government College University, Lahore (19th July, 2008 to 29 January, 2015)
- Lecturer in Biology, Govt. Degree College Daska/Sialkot (4th January, 2000 – 18th July, 2008)
- Section Officer, Education Department, Punjab Civil Secretariat, Lahore (30th June, 1999 to 3rd Jan, 2000)
- Lecturer in Biology at Government College Gogera, Okara (30th May, 1997 to 29th June, 1999)
- Research Assistant, Department of Biological Sciences, Quaid-i-Azam University, Islamabad (19th September, 1995 to 29th May, 1997)

RESEARCH SUPERVISION

PhD (completed):	08	PhD (ongoing):	05
M.Phil (completed):	65	M.Phil (ongoing):	04
B.S (completed):	103	B.S (ongoing):	14

DEPARTMENTAL RESPONSIBILITIES

- 1- Director, Dr. Ikram-ul-Haq Institute of Industrial Biotechnology
- 2- Member, Syndicate
- 3- Convener, Institutional Biosafety Committee (IBC)
- 4- Convener, Committee for interviews of Disabled students

PATENTS

- 1- Patent No. 2021106012 (2021)

A ranking algorithm to pick up critical scenarios of fluctuation patterns from the uncertain renewable energy production using machine learning

- 2- Patent No 212141044579 (2021)

Self healing of concrete using bacterial reinforcement

- 3- Patent No. 202241076373

Artificial Intelligence based prevention and Implications of cancer stem cells in diabetes and pancreatic cancer diagnose this disease at an earlier stage using Deep Learning algorithms.

- 4- Patent No. 202241074692

Automatic smart Health care System to prevent and detection of all types of Tumors based on bacteria to enhance anti-tumor immunotherapy using Artificial Intelligence and Machine Learning Algorithms

- 5- Patent No 202241073319

Impact of Green HRM Practices on Environmental Performance

- 6- Patent No. 202241070928

IoT based Automatic detection and prevention of all types of leaf disease and other environmental factors using AI camera, WSN and Machine learning algorithms

- 7- Patent No 202141045064

To develop a portable sensor to measure food quality.

- 8- Patent No 202141045060

Develop of antimicrobial based chitasan sheet using gingerly oil and bacterium *Lactococcus lactis*

- 9- Patent No 202141037730

Boosting framework for semi-supervised learning with limited number of labeled examples and a multitude of unlabeled examples

10- Patent No 202141037738

General framework to handle large class of inference problems using label sequence learning from realtime monitoring videos

11- UK Design number: 6391355

Blood glucose monitoring device.

COMMERCIALIZED PRODUCTS

02 research products are commercialize i.e probiotic for use in poultry feed and alpha amylase for use in textile industry.

AL-HADAYAH FOUNDATION (NGO)

Chief Executive of a NGO, Al-Hadayah Foundation. This NGO is working for the improvement of education system in Pakistan and financial help of poor people.

BOOKS/ BOOK CHAPTERS

- 1- Mahboob, S., Tahir, K., Ali, S., Liaqat, I., & Aftab, N. (2023). Development of Syngas Using Feedstock for the Replacement of Expensive Energy Resources. IntechOpen. doi: 10.5772/intechopen.1002019.
- 2- Sumaira Mazhar, Beenish Sarfaras, Aisha Waheed Qureshi, Sikander Ali, Muhammad Nauman Aftab and Iram Liaqat. Chemical strategies for combating microbial films. Understanding antibiofilm activity. Nova Publishers, 2022.
- 3- Aisha Waheed Qureshi, Sumaira Mazhar, Beenish Sarfaraz, Muhammad Nauman Aftab, Iram liaqat. Perspectives on current information and future potential for antibiofilm approaches in health care systems. Understanding antibiofilm activity. Nova Publishers, 2022.
- 4- Iram Liaqat, abar Gulab, Muhammad Nauman Aftab. Honey potential as antibacterial, antibiofilm, quorum sensing and biofilm dispersal agent against pathogenic bacteria. Biofilms: Advances in research and applications. Nova Publishers, 2021.
- 5- Mohammad Pooya Naghshbandi, Meisam Tabatabaei, Mortaza Aghbashlo, Muhammad Nauman Aftab, and Irfana Iqbal. "Metabolic Engineering of microalgae for biofuel production". Methods in Molecular Biology (Springer) 2020;1980:153-172. doi: 10.1007/7651_2018_205. 2020.
- 6- Muhammad Nauman Aftab, Ahmet Karadag, Ruqaiza Mahuddin, Irfana Iqbal. Cellulose-based bionanocomposites. (Bionanocomposites: Green Synthesis and Applications) (Elsevier). 2020.

- 7- Muhammad Nauman Aftab, Irfana Iqbal, Fatima Riaz, Ahmet Karadag and Meisam Tabatabaei. Different Pretreatment Methods of Lignocellulosic Biomass for Use in Biofuel Production. Doi. 10.5772/intechopen.84995. InTech Open. 2019.
- 8- Fundamentals of Laboratory Manual. Saba Sana, Ali Ahmad Sheikh, Zoya Maheen, Nadia Mukhtar, Tahir Yaqoob, Sikander Ali, Muhammad Nauman Aftab, Iqra Liaqat. Laboratory Manual. 2023.
- 9- Liaqat, I., Ali, N.M., Aftab, M.N., Ali, S., Arshad, M. (2023). Anaerobic Digestion for Bioenergy Production Using Solid Animal Waste: New Avenues. In: Arshad, M. (eds) Climate Changes Mitigation and Sustainable Bioenergy Harvest Through Animal Waste. Springer, Cham. https://doi.org/10.1007/978-3-031-26224-1_4. (Book chapter).
- 10- Liaqat, I., Naseem, S., Ali, S., Aftab, M.N., Arshad, M., Yang, G. (2025). Perspectives Applications of Protease in Textile Industries. In: Arshad, M. (eds) Enzymes in Textile Processing: A Climate Changes Mitigation Approach. SDGs and Textiles. Springer, Singapore. https://doi.org/10.1007/978-981-97-8058-7_11.
- 11- Sikander Ali, Aqsa Zahid, M. Usman Ahmed, Iram Liaqat, M. Nauman Aftab. Properties of aerosol particles in the air and their effects on greenhouse gases dispersion. Advances and Technology Development in Greenhouse Gases: Emission, Capture and Conversion, 2024, 71-102.
- 12- Ahmet Karadağ, Özgenur Dinçer Şahan, Attia Hamid and Muhammad Nauman Aftab. Biodiesel Production Potential in Sustainable Biomass Diversity. <https://doi.org/10.5772/intechopen.1007784>. 10.5772/intechopen.1007784.

PUBLICATIONS

- 1- Muhammad Nauman Aftab, Abdul Hameed, Ikram-ul-Haq, Runsheng Chen. Biodegradation of Leather Waste by Enzymatic Treatment. *The Chinese Journal of Process Engineering*. 6 (3): 462-465, 2005.
- 2- Housheng He, Lun Cai, Geir Skogerbo, Wei Deng, Tao Liu, Xiaopeng Zhu, Yudong Wang, Dong Jia, Zhihua Zhang, Yong Tao, Haipan Zeng, Muhammad Nauman Aftab, Yan Cui, Guozhen Liu, and Runsheng Chen. Profiling *Caenorhabditis elegans* non-coding RNA expression with a combined microarray. *Nucleic Acid Research*. 34 (10): 2976-2983, 2006. (IF: 8.3)
- 3- Bilal Haider Abbasi, Khalique Ahmed, Feeroza Khalique, Najma Ayub, Hai Jun Liu, Syed Asad Raza Kazmi and Muhammad Nauman Aftab. Rearing the cotton bollworm, *Helicoverpa armigera*, on a tapioca-based artificial diet. *Journal of Insect Science*. 7: 1-7, 2006. (IF: 0.9)
- 4- Jia D, Cai L, He H, Skogerbo G, Li T T, Aftab M Nauman, Chen R. Systematic identification of non-coding RNA 2,2,7-trimethylguanosine cap structures in *Caenorhabditis elegans*. *BMC Molecular Biology*. 8: 86,

2007. (IF: 3.37)

- 5- Ikram-ul-Haq, Roheena Abdullah, Hamid Mukhtar, Muhammad Nauman Aftab. Fermentation Kinetics of Media Optimization for the Production of Alpha Amylase by a New Isolate of *Aspergillus Oryzae*. *Microbiology*. 2007.
- 6- Muhammad Nauman Aftab, He Huosheng, Geir Skogerbo and Chen Rensheng. Microarray analysis of ncRNA expression pattern in *Caenorhabditis elegans* after RNAi against snoRNA associated proteins. *BMC Genomics*. 9:278, 2008. (IF: 4.4)
- 7- Muhammad Nauman Aftab, Ikram-ul-Haq and Shah Jehan Baig. Enhanced production of bacitracin by a mutant strain *Bacillus licheniformis* UV-MN-HN-8. *Pakistan Journal of Botany*. 42(3): 2095-2103. 2010. (IF: 1.2)
- 8- Muhammad Nauman Aftab, Ikram-ul-Haq and Shah Jehan Baig. Optimization of different parameters for the production of bacitracin in synthetic medium by *Bacillus licheniformis* mutant strain UV-MN-HN-8 *Pakistan journal of Science*. 62 (2): 99-107, 2010.
- 9- Tehreema Iftikhar, Mubashir Niaz, M. Anjum Zia, Rukhsana Jabeen, and Muhammad Nauman Aftab. Biosynthesis of extracellular lipases by *Bacillus* sp. (MBLB-3) in relation to the nutritional conditions. *Pakistan Journal of Botany* 43(5): 2587-2591, 2011. (IF: 1.2)
- 10- Sana Zahoor, Muhammad Mohsin Javed, Muhammad Nauman Aftab & Ikram-ul-Haq. Cloning and expression of β -glucosidase gene from *Bacillus licheniformis* into *E. coli* BL 21 (DE3). *Biologia*. 66 (2): 213-220. 2011. (IF: 0.50)
- 11- Muhammad Nauman Aftab, Ikram-ul-Haq and Shah Jehan Baig. Systematic mutagenesis method for enhanced production of bacitracin by *Bacillus licheniformis* mutant strain UV-MN-HN-8. *Brazilian Journal of Microbiology*. vol.43, n.1, pp. 78-88, 2012. (IF: 0.9)
- 12- Muhammad Nauman Aftab, Muhammad Mohsin Javed and Ikram-ul-Haq. Depletion of Y associated proteins by RNAi down regulates the Y RNA in *Caenorhabditis elegans*. *Pakistan Journal of Botany* 44: 199-202, 2012. (IF: 1.2)
- 13- Saima Aftab, Muhammad Nauman Aftab, Ikram-ul-Haq, Muhammad Mohsin Javed, Asma Zafar and Irfana Iqbal. Cloning and expression of endo-1, 4- β -Glucanase gene from *Bacillus licheniformis* 14580 into *E. coli* BL 21 (DE 3). *African Journal of Biotechnology*. 11(12), 2846-2854, 2012. (IF: 0.5)
- 14- Sana Zahoor, Muhammad Mohsin Javed, Muhammad Nauman Aftab and Ikram-ul-Haq. Isolation and Molecular identification of a facultatively anaerobic bacterium from hot springs of Azad Kashmir. *Pakistan Journal of Botany*, 44: 329-333, Special Issue, 2012. (IF: 1.2)
- 15- Muhammad Mohsin Javed, Sana Zahoor, Sarah Shafaat, Iffat Mehmooda, Ambreen Gul, Huma Rasheed, Ali Imran Bukhari, Muhammad Nauman Aftab and Ikram-ul-Haq. Wheat bran as a brown gold: Nutritious

- value and its biotechnological applications. *African Journal of Microbiology Research*. 6(4), 724-733, 2012. (IF: 0.54)
- 16- Joseph Mazar, Wei Zhao, Ahmad M. Khalil, Bongyong Lee, John Shelley, Subramaniam S. Govindarajan, Fumiko Yamamoto, Maya Ratnam, Muhammad Nauman Aftab, Sheila Collins, Brian N. Finck, Xianlin Han, John S. Mattick, Marcel E. Dinger, and Ranjan J. Perera. The functional characterization of long noncoding RNA *SPRY4-IT1* in human melanoma cells. *Oncotarget*. 5(19):8959-69.2014 (IF: 6.64)
 - 17- Bongyong, Lee, Mazar Joseph, Aftab Muhammad N, Qi Feng, Shelley John, Li Jian-Liang, et al. 2014. Long noncoding RNAs as putative biomarkers for prostate cancer detection. *The Journal of Molecular Diagnostics : JMD* 16 (6): 615-26. 2014(IF: 4.8)
 - 18- Muhammad Nauman Aftab, Marcel E Dinger, Ranjan J Perera. The role of microRNAs and long non-coding RNAs in the pathology, diagnosis, and management of melanoma. *Archives in Biochemistry and Biophysics*, 24;563:60-70, 2014. (IF:3.3)
 - 19- B. Lee, J. Mazar, M. N. Aftab, F. Qi, J.L. Li, S. Govindarajan, D. Kameh, V. Patel, R. Perera. Identification and characterization of long noncoding RNA markers for prostate cancer detection. *European Urology Supplements* 13(1):E105. 2014 (IF 3.37).
 - 20- Irfana Iqbal, Muhammad Nauman Aftab, Mohammed Afzal, Asad Ur-Rehman, SaimaAftab, Asma Zafar, Zia Ud-Din, Ateeque Rahman Khuharo, Jawad Iqbal, IkramUl-Haq. Purification and characterization of cloned alkaline protease gene of *Geobacillus stearothermophilus*. *Journal of Basic Microbiology*. 16;55 (2):160-71, 2014. (IF: 1.8)
 - 21- Asad-ur-Rehman, Alia Aslam, Muhammad Nauman Aftab, RabiaAjmal and Ikram-ul-Haq. Production and characterization of a thermostable bioplastic (poly- β -hydroxybutyrate) from *Bacillus cereus* NRRL-B-3711. *Pakistan Journal of Botany* 48(1): 349-356, 2016(IF: 1.2).
 - 22- Asma Zafar, Muhammad Nauman Aftab, Zia ud Din, Saima Aftab, Irfana Iqbal, AnamShahid, Arifa Tahir, IkramulHaq. Cloning, expression, and purification of xylanase gene from *bacillus licheniformis* for use in saccharification of plant biomass. *Applied Biochemistry and Biotechnology*. DOI 10.1007/s12010-015-1872-z. 2015. (IF: 1.8).
 - 23- Asma Zafar, Muhammad Nauman Aftab, Ziauddin, SaimaAftab, Irfana Iqbal, Ikram-ul-Haq. Cloning, purification and characterization of a highly thermostable amylase gene of *Thermotogapetrophila* into *Escherichia coli*. *Applied Biochemistry and Biotechnology*. 2015. DOI: 10.1007/s12010-015-1912-8 (IF: 1.8).
 - 24- Bilqees Fatima, Muhammad Nauman Aftab and Ikram-ul-Haq. Cloning, purification and characterization of xylose isomerase from *Thermotoga naphthophila*. 2016. *Journal of Basic Microbiology* 56(9):949-62. (IF:1.8).

- 25- Muhammad Nauman Aftab, Hamid Mukhtar and Ikram-ul-Haq. Production and characterization of tannase from a newly isolated *Bacillus subtilis*. *Pakistan Journal of Botany*. 48(3): 1263-1271, 2016 (IF: 0.65).
- 26- Irfana Iqbal, Mohammad Afzal, Muhammad N. Aftab, Farkhanda Manzoor, Afshan Kaleem and Ahmad Kaleem. Hepatotoxicity of *Cassia fistula* extracts in experimental chicks and assessment of clinical parameters. *Kuwait Journal of Science*. 43 (3) 135-141, 2016 (IF: 0.31).
- 27- Muhammad N. Aftab, Asma Zafar & Ali R. Awan. Expression of thermostable β -xylosidase in *Escherichia coli* for use in saccharification of plant biomass. *Bioengineered*, 2017. 8:5, 665-669. 2017; 8(5):665-669 (IF:1.8)
- 28- Zia-ud-Din and Muhammad Nauman Aftab. Comparative effects of three different poultry manures on lentil *Lens culinary*. *Pakistan Journal of Botany*. 49(1): 95-100, 2017 (IF:0.65)
- 29- Muhammad N. Aftab, Asma Zafar, Irfana Iqbal. Optimization of saccharification potential for plant biomass of recombinant xylanase from *Bacillus licheniformis*. *Bioengineered* 8:1-7, 2018 (IF: 1.8)
- 30- Ikram-ul-Haq, Yesra Arshad, Muhammad Nauman Aftab, Ali Nawaz, Fatima Akram and Hamid Mukhtar. Removal of Phenolic compounds through overliming for enhanced saccharification of wheat straw. *Journal of Chemical Technology & Biotechnology* <https://doi.org/10.1002/jctb.5659>, 2018 (IF: 3.3).
- 31- Asma Zafar, Muhammad Nauman Aftab, Asma Manzoor, Irfana Iqbal, Zia ud din, Mushtaq Ahmad Saleem. "Purification and Characterization of a recombinant β -Xylosidase from *Bacillus licheniformis* ATCC 14580 into *E. coli* B121". *Pakistan Journal of Pharmaceutical Sciences*. 31: 6 (Suppl), 2755-2762, 2018 (IF: 0.84).
- 32- Irfana Iqbal, Muhammad Nauman Aftab and Muhammad Afzal. Physiological effects of caffeine and its congeners 3 present in tea and coffee beverages. Preprints, 2018.
- 33- Irfana Iqbal, Pakeeza Tanweer, Farkhanda Manzoor, Muhammad Nauman Aftab Afshan Kaleem, Roheena Abdullah, Asma Zafar, and Mehwish Iqtedar. Antimicrobial properties of Dalbergia, Brassica and Trifolium honey against burn Microorganisms. *Biologia (Pakistan)* , 64 (II), 281-287, 2018.
- 34- Asma Zafar, Muhammad Nauman Aftab, Irfana Iqbal, Zia ud Din, Mushtaq Ahmad Saleem. Pilot-scale production of a highly thermostable α -amylase enzyme from *Thermotoga petrophila* cloned into *E. coli* and its application as a desizer in textile industry. *RSC Advances*, 9, 984–992, 2019 (IF: 2.9).
- 35- Asma Zafar, Saima Aftab, Muhammad Nauman Aftab, Hamid Mukhtar and Mushtaq Ahmad Saleem. Purification and characterization of cloned endo-1, 4- β -glucanase gene of *Bacillus licheniformis* ATCC 14580 for saccharification of plant biomass. *Pakistan Journal of Botany*. 51(3): 957-966. DOI: 10.30848/PJB2019-3(27), 2019 (IF: 0.65).

- 36- Ikram ul Haq, Ali Nawaz, Zoya Manzoor, Yesra Arshad, Hamid Mukhtar, Muhammad Nauman Aftab, Asad ur Rehman,. "A new multi-stress resistant *Wickerhamomyces anomalus*: Isolation, identification and bioethanol fermentation potential. *Revista Mexicana de Ingeniería Química*, 18(3), 2019 (IF: 1.097).
- 37- Syed Fahad Tahir, Muhammad Nauman Aftab, Ikram-ul-Haq, Asad-ur-Rehman, Ali Nawaz. Purification and characterization of a thermostable cellobiohydrolase from *Thermotoga petrophila*. *Protein and Peptide Letters* 2018, 25, 1-12. (IF: 1.03).
- 38- Zia-ud-Din, Muhammad Nauman Aftab, Asma Zafar, Irfana Iqbal. Growth and feed conversion response of four female asel chicken varieties to antibiotic and probiotic. *Pakistan Journal of Zoology*, 52(1), 2019. (IF: 0.55).
- 39- Attia Hamid and Muhammad Nauman Aftab. Cloning, purification, and characterization of recombinant thermostable β -xylanase tnap_0700 from *Thermotoga naphthophila*. *Applied Biochemistry and Biotechnology*. 2019. 189(4):1274–1290. doi:10.1007/s12010-019-03068-0 (IF: 2.1)
- 40- Nesrin K, Yusuf C, Ahmet K, Bulbul, S, Muhammad Nauman Aftab. Biogenic silver nanoparticles synthesized from *Rhododendron ponticum* and their antibacterial, antibiofilm and cytotoxic activities. *Journal of Pharmaceutical and Biomedical Analysis* 2020; 179:112993. doi:10.1016/j.jpba.2019.112993. (IF: 2.9)
- 41- Ali, A., Malik, S., Zaidi, A.Z., Ahmad, N., Shafique, S., Aftab, M., & Aisha, K. (2019). Standing stock of seaweeds in submerged habitats along the Karachi Coast, Pakistan: an alternative source of livelihood for coastal communities. *Pakistan Journal of Botany.*, 51(5): 1819-1830,2019 (IF: 0.62).
- 42- Ahmad, W., Tayyab, M., Aftab, M.N. Optimization of Conditions for the Higher Level Production of Protease: Characterization of Protease from *Geobacillus* SBS-4S. Ahmad. *Waste and Biomass Valorization*. 11:6613–6623. 2020, doi.org/10.1007/s12649-020-00935-4. (IF: 2.3)
- 43- Zafar A, Aftab MN, Saleem MA. Pilot scale production of recombinant hemicellulases and their saccharification potential. *Prep Biochem Biotechnol*. 50:10, 1063-1075, 2020;1-13. doi:10.1080/10826068.2020.1783679 (IF: 1.4)
- 44- Iftikhar, S., Iqtedar, M., Saeed, H., Aftab, M., Abdullah, R., Kaleem, A., & Aslam, F. (2020). Comparative and combinatorial study of Biogenic Bismuth nanoparticles with Silver Nanoparticles and Doxycycline against Multidrug Resistant *Staphylococcus aureus* BTCB02 and *Salmonella typhi* BTCB06. *Revista Mexicana de Ingeniería Química*.
- 45- Haqqi A, Zahoor S, Aftab MN, et al. COVID-19 in Pakistan: Impact on global polio eradication initiative. *J Med Virol*. 93(1), 2020;10.1002/jmv.26240. doi:10.1002/jmv.26240 (IF: 2.1)

- 46- Haqqi A, Khurram M, Din MSU, Aftab MN et al. COVID-19 and Salmonella Typhi co-epidemics in Pakistan: A real problem. *Journal of Medical Virology*. 2020;10.1002/jmv.26293. doi:10.1002/jmv.26293 (IF: 2.1)
- 47- Muhammad Nauman Aftab, Irfana Iqbal, Asma Zafar. Characterization of *Geobacillus stearothermophilus* protease for detergent industry. *Revista Mexicana de Ingeniería Química*, 19:267-279, 2020 (IF: 1.1).
- 48- Kaleem A, Javed S, Rehman N, Aftab M,N et al. Phosphorylated and O-GlcNAc Modified IRS-1 (Ser1101) and -2 (Ser1149) Contribute to Human Diabetes type II. *Protein Pept Lett*. 2020;10.2174/0929866527666200813210407. doi:10.2174/0929866527666200813210407, 2020 [IF: 1.1].
- 49- Nesrin Korkmaz, Yusuf Ceylan, Attia Hamid, Ahmet Karadag, Ali Savas Bulbul, Muhammad Nauman Aftab, Ozge Cevik, Fatih Sen. Biogenic silver nanoparticles synthesized via *Mimusops elengi* fruit extract, a study on antibiofilm, antibacterial, and anticancer activities. *Journal of Drug Delivery Science and Technology*. 2020. 59:101864 (IF: 2.7).
- 50- Haqqi A, Khurram M, Din MSU, Aftab MN et al. COVID-19 and Influenza H1N1: A dangerous combination for Pakistan in the upcoming winter season. *Journal of Medical Virology*. 93(4):1875-1877, 2020 (IF: 2.1).
- 51- Haqqi A, Khurram M, Din MSU, Aftab MN et al. COVID-19 and Arboviral Diseases: Another Challenge for Pakistan's Delipidated Healthcare System. *Journal of Medical Virology*. <http://dx.doi.org/10.1002/jmv.26668>, 2020 (IF: 2.1).
- 52- Bilqees Fatima, Muhammad Nauman Aftab and Ikram-ul Haq. Kinetics and thermodynamics for aldo/keto conversion of D-xylose and D-glucose catalyzed by xylose isomerase from *Thermotoga naphthophila* RKU-10. *J Chem Technol Biotechnol*. v.96 no.10 pp. 2755-2766.(IF: 3.7).
- 53- Asma Zafar, Muhammad Nauman Aftab, Anam Asif, Ahmet karadag, Liangcai Peng, Hassan Ufak, Muhammad Sohail Afzal, Attia Hamid, Irfana Iqbal. Efficient biomass saccharification using a novel cellobiohydrolase from *Clostridium clariflavum* for utilization in biofuel industry. *RSC Advances*. **11**, 9246-9261, 2021 (IF: 3.1).
- 54- Attia Hamid, Muhammad Nauman Aftab, Asma Zafar. Production and characterization of a thermostable extracellular esterase from *Aspergillus niger*. Accepted in *Revista Mexicana de Ingeniería Química*, 2021 (IF:1.1).
- 55- Zhen Hu; Youmei Wang; Jingyuan Liu; Yuqi Li; Yanting Wang; Jiangfeng Huang; Yuanhang Ai; Peng Chen; Yuqing He; Muhammad Nauman Aftab; Lingqiang Wang; Liangcai Peng. Integrated NIRS and QTL assays reveal minor mannose and galactose as contrast lignocellulose factors for biomass enzymatic saccharification in rice. *Biotechnology for Biofuel*. 2021. (IF: 4.8).

- 56- Ozgenur Dincer, Hasan Ufuk Celeioglu, Attia Hamid, Muhammad Nauman Aftab, Ahmet Karadag. Saccharification of hazelnut and Rhododendron biomass using β -xylanase from *Thermotoga naphthophila*. *Journal of the Institute of Science and Technology*. 11(2): 1321-1328. 2021.
- 57- Arodh Lal Karn, Sharnil Pandya, Abolfazl Mehbodniya, Farrukh Arslan, Dilip Kumar Sharma, Khongdet Phasinam, Muhammad Nauman Aftab, Regin Rajan, Ravi Kumar Bommisetti, Sudhakar Sengan. An integrated approach for sustainable development of wastewater treatment and management system using IoT in smart cities. *Soft Computing*. [https://doi.org/10.1007/s00500-021-06244-9\(0123456789\(\).,-volV\)\(0123456789\(\).,-volV\)](https://doi.org/10.1007/s00500-021-06244-9(0123456789().,-volV)(0123456789().,-volV)). (IF: 3.64).
- 58- Liaqat I, Durrani AI, Zafar U, Rubab S, Faheem M, Mubin M, Raza C, Aftab N. Role of modified diet and gut microbiota in metabolic endotoxemia in mice. *Arch Microbiol*. 2021 doi: 10.1007/s00203-021-02491-4. (IF: 2.42).
- 59- Liaqat I, Naseem S, Ejaz S, Hanif U, Rubab S, Aftab N, Iqbal R. Impact of Interplay between Obese Gut Microbiota and Diet in Developing Obesity in Synthetic Community Mice. *J Oleo Sci*. 2021;70(9):1285-1293. (IF: 1.6).
- 60- Alvi MZ, Sattar M, Cheema FA, Awan UA, Aftab MN, Shah ZH, Afzal MS. COVID-19 and emergence of antimicrobial resistance: A most neglected aspect of health emergency in Pakistan. *Diabetes Metab Syndr*. 15(4):102179. doi: 10.1016/j.dsx.2021.06.016. 2021 (IF: 2.37).
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- 105- Saleem Ahmad, Muhammad Nauman Aftab, Muhammad Shahbaz Aslam, Asad Ur Rehman, Ikram Ul Haq, Sikandar Ali, Muhammad Usman. Trehalose–abscisic acid pathway feedback loops in wheat – *Piriformospora indica* symbiosis: Mechanisms and drought resilience. *The Microbe*. 9, 2025.

SCIENTIFIC PROJECTS

Completed (Principal Investigator)

- Bioconversion of sugarcane molasses into high value chemical 5-hydroxymethylfurfural (HMF) for use as bioenergy molecule funded by Sugarcane Research Board Pakistan 2024-2026 (Ongoing) (**\$ 52,000/ Rs 14 million**).
- Low cost production of probiotic as supplement for poultry feed funded by Higher Education Commission

Pakistan, Project No TDF03-262, 2020-23 (Completed) (\$ **280,000 million/ Rs 45 million**)

- Cost effective pilot scale production of bioethanol production funded by Higher Education Commission Pakistan. Project No 5535, 2017-2020 (completed) (\$ **55,000/ Rs 6 million**).
- Pak-Turkey Researcher's Mobility Program (Biofuel production from biomass using cellulose enzymes) funded by Higher Education Commission Pakistan, 2018-2020 (\$ **28,000/ Rs 3.4 million**).
- Biomass saccharification potential of cloned xylanase enzyme from *Clostridium clariflavum* after immobilization with nano-particles funded by GCU, 2016- 2018 (Completed) (\$ **6,000/ Rs 0.63 million**)
- Development of probiotics as supplement in poultry feed for enhanced weight gain and production from diseases in poultry birds sponsored by Cherry Pharma, Lahore) (Completed) 2015 to 2017 (\$ **5,000/ Rs. 0.5 million**).

Member of various research projects

- “Production of antibiotic Zn-bacitracin by *Bacillus licheniformis* to supplement the poultry feed”, sponsored by Pakistan Science Foundation (Pakistan Council of Scientific and Industrial Research, 2002-2004)
- “Microarray analysis of ncRNA expression patterns in *Caenorhabditis elegans*” sponsored by National Sciences Foundation, China (2005-2008).
- “Production of biofuel” sponsored by Pakistan Science Foundation (Government College University, Lahore, 2008-2014).
- “Development of biomarkers for the early detection of prostate cancer” sponsored by National Institute of Health, US (2012-2013).

INTERNATIONAL CONFERENCES ATTENDED

- Attended 3 days workshop on Cancer Bioinformatics: Genomics and Transcriptomics Approach from 3-5 March, 2019 at Center of Excellence in Molecular and cellular Medicine, Faculty of Medicine-Suez Canal University, Ismailia, Egypt.
- Participated in 2 days exhibition on Science Research Market in Bartın University, Bartın, Turkey, from 24-25 March, 2019.
- Attended two days workshop on nanoparticle synthesis from 21-22 July, 2018 at Bartın University, Bartın, Turkey.
- Attended “Global Experts Meeting on Biofuel and Bioenergy” held on July 16-17, 2018 at Madrid Spain.
- Attended 6th International Conference on Biotechnology and Bioengineering held from 26th September to

28th September, 2017 in Offenburg, Germany.

- Attended Global Biotechnology Congress 2017 held from 10th July to 13th July, 2017 in United States.
- Attended Global Biotechnology Congress 2016 held from 22nd August to 25th August, 2016 in Boston, United States.

HEC APPROVED SUPERVISOR

PhD supervisor approved by Higher Education Commission (HEC), Pakistan since November, 2008.

TRAININGS/WORSHOPS

- 3-week In-service training course in the subject of Biology at Directorate of Staff Development, Punjab, Lahore from 25-01-1999 to 13-02-1999.
- Four months training in Medical Transcription, COMSATS Institute of Information Technology, October, 2001
- Three week Master Trainers Workshop of Biology (New Curriculum) Secondary level held at Directorate of Staff Development, Lahore from 07-07-2002 to 27-07-2002.
- Three day training at Quality Enhancement Cell, Government College University, Lahore from 24-01-2009 to 26-01-2009.
- Training workshop for Biology Teachers (New Curriculum) at Government College of Science, from 10th June to 19th June, 2002.
- Three day Academic retreat for HEC approved Ph.D Supervisors held at COMSATS Institute of Information Technology, Abbottabad from June 3-5, 2010.
- One day workshop on Network Performance Monitoring at HEC Regional Centre Lahore on 29th September, 2010.
- One day workshop "Introduction to responsible conduct of research (RCR) and research ethics" held at Sanford Burnham Medical Research Institute Orlando, Florida, United States (March, 19, 2013).
- 2 hour workshop on "Introduction to Responsible conduct of Research (RCR) and Research Ethics involving various RCR topics like Publication Practices and Responsible Authorship, Peer Review, Mentor Responsibilities held at Sanford Burnham Medical research Institute, Orlando, Florida, United States on March 19, 2013.
- Online training on Biosafety.
- One day workshop on "Research Integrity and Peer Review" held in Islamabad, Pakistan, February 18, 2016.

- 2 days "Project Formulation Workshop" held at Government College University, Lahore from March 30-31, 2016.
- Workshop on "Fund Winning Opportunities" during 5th Invention to Innovation Summit 2016 held at University of the Punjab from March 2-3, 2016.
- Resource person on one day seminar on "Biochemistry, Molecular Biology and Bioinformatics: held at Institute of Industrial Biotechnology, GC University, Lahore on October 23, 2014.
- Resource person on "Bioinformatics Workshop: Hands on Training on Analysis of Biological Data using R" held at Department of Bioinformatics and Computational Biology, Virtual University of Pakistan on 5th January, 2016.
- Resource person on "Research and Technology Development" during 5th Invention to Innovation Summit 2016 held at University of the Punjab from March 2-3, 2016.
- Resource person on "Bioinformatics Workshop on Analysis and Annotation of Variants in NGS Data" held at Department of Bioinformatics and Computational Biology, Virtual University of Pakistan from January 3-4, 2017.