

Dr. Muhammad Afzaal

Professor (Assistant)

Sustainable Development Study Centre (SDSC),(Environmental Sciences)

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Research Gate: <https://www.researchgate.net/profile/Dr-Muhammad-Afzaal>

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Biography

Dr. Muhammad Afzaal has a Master of Science at Quaid-i-Azam University Islamabad, Pakistan, in 2007, and a Master of Philosophy at Quaid-i-Azam University Islamabad, Pakistan in 2009. He has a Ph.D. in Sustainable biomaterial for water treatment from the Department of Chemical Engineering, Universiti Teknologi PETRONAS, Malaysia in 2014. He is currently working as a Professor (Assistant) at the Sustainable Development Study Centre (SDSC), Government College University, Lahore, Pakistan since 2015. He has published many research articles and book chapters on wastewater treatment, microbial activity, and biomaterial. He has produced his *1st Ph.D.* student in July 2022. He has attended different conferences and delivered invited talks on wastewater treatment using different biomaterials. He has presented his work at various national and international conferences. He also has been serving as an external examiner for the B.Sc, MPhil and PhD thesis evaluations for different universities.

Education

- **Ph.D. Chemical Engineering**

Green chemistry, Biomaterial for water treatment. Universiti Teknologi PETRONAS, Malaysia (2009-2014)

- **MPhil Biochemistry**

Department of Biological Sciences Quaid-i-Azam University Islamabad, Pakistan (2007-2009)

- **Master of Science Biochemistry**

Department of Biological Sciences Quaid-i-Azam University Islamabad, Pakistan (2005-2007)

- **Bachelor of Science B.Sc.**

Government College University Lahore, Pakistan (2002-2004).

Work Experience

- **Professor (Assistant)** 2015 - Present

Sustainable Development Study Center (SDSC), **Government College University, Lahore, Pakistan.**

The teaching and research at SDSC are focused on Environmental Chemistry, Public Health, Lab practices and Management, Natural Resource Management, and Alternative energy Resources.

- **Graduate Research Assistant** (2009- 2014).

Universiti Teknologi PETRONAS ,Malaysia

Teaching Experience

Government College University, Lahore, Pakistan 2015 – Present

B.Sc. (Hons.): Chemistry of the Environment, (ENVSC-2101) 3 credits hours, Natural Resource Management (ENVSC-3205) 3 credits hours, Environmental Monitoring (ENVSC-2202) 4 credits hours.

MS/M.Phil.: Course Alternative Energy Sources (ENVSC-7125), 3 credits hours. **Wastewater treatment** 3 credits hours

Ph.D.: Course, Public Health and Environment (ENVSC-7203) 3 credits hours, Cleaner production technologies (ENVSC-7126) 3 credits hours, Laboratory Management Practices (ENVSC-7139) 3 credits hours.

Administrative Experience

- Deputy Chief Proctor of SDSC & Girls Hostel at G.C. University, Lahore since 2025 continue
- Member Board of Faculty (BOF) faculty of Mathematical and Physical Sciences G.C. University, Lahore 2024 continues
- Department focal person for PM laptop scheme 2023
- Programm co.ordinator B.Sc Self Supporting program me, 2023 Sustainable Development Study Centre (SDSC), G.C. University, Lahore 2023

- Course coordinator (Chemistry of Environment) Sustainable Development Study Centre (SDSC), G.C. University, Lahore 2023.
- Student advisor Environmental Science year (III) 2023
- Member, Departmental Admission Committee, Sustainable Development Study Centre (SDSC), G.C.
- Member Board of study (BOS).Sustainable Development Study Center (SDSC), G.C. University, Lahore 2022 continues
- SDSC Page focal person from 2021 continue
- Programm co.ordinator Ph.D. Coordinator (2016 to 2019)
- Programm co.ordinator M.phil Self Supporting programme, 2016 Sustainable Development Study Centre (SDSC), G.C. University, Lahore
- Programm co.ordinator B.Sc Self Supporting programme, 2018 Sustainable Development Study Centre (SDSC), G.C. University, Lahore
- University, Lahore 2019
- Member of National Academy of Young Scientists (NAYS),Pak
- Member of Research Committee, Sustainable Development Study Centre (SDSC), G.C. University, Lahore since 2015.
- M.Phil. Coordinator in (2015).
- Turnitin Focal Person for QEC from SDSC, Government. University, Lahore 2015-2021.
- Nonteaching employs affairs incharge SDSC, G.C. University, Lahore (2015)
- Sports in charge, SDSC, G.C. University, Lahore 2015.

Academic & Research Experience

- Research Supervisor. Supervising M. Phil,B. Sc (Hons.) and Ph.D. Thesis.
- Teaching Ph.D., M. Phil, and B. Sc (Hons.)Classes.

Demonstrator, Universiti Teknologi PETRONAS, Malaysia (2009-2014)

- Research supervision and teaching to B.Sc(Hons) lab tutor(2009-2014)

Research Interest

- Water and Wastewater quality monitoring treatment and management.

- Air & Noise Pollution Monitoring and Control.
- Sustainable Rural/Urban Development.
- Environmental Impact Assessment (EIA).
- Conventional and Advanced Wastewater Treatment systems

Reviewer of International Journals

- Water Practice and technology
- Arabian Journal of Geosciences
- Environmental Contamination and Toxicology
- Biomass Conversion and Bio refinery
- Environmental Technology & Innovation
- Bioscience Scientific Review

Extracurriculum Activities

- Member of Sports & Recreational club at QAU Islamabad 2005-2009
- Member of Adventure Club at QAU Islamabad 2005-2009
- Member of Pakistani welfare fund (PWF) at UTP Malaysia 2009-2014
- Member of International Student Council at UTP Malaysia 2009-2014
- Member of Arts & Culture Club at UTP Malaysia in 2009-2014
- Member of Leadership program of (Malaysia Homestay Program at UTP Malaysia in 2009-2014
- Member of Sports & Recreational club at UTP Malaysia in 2009-2014
- Member of Student Support Unit to guide the international student at UTP Malaysia 2009-2014
- Member Environment Protection society GC University Lahore
- Member of Horticulture Society at GC University Lahore
- Member Blood Donor Society GC University Lahore
- Member Nazir Ahmad Music Society GC University Lahore
- Member Rovers' Club at GC University Lahore
- Member Adventure club at GC University Lahore
- Member zoological Societies Zoological Society GC University Lahore

International Conference Organized

- Organized two days 3rd international conference on "Environment and Sustainable Development", held on 12-14th September 2021.
- Organized two days 2nd international conference on "Environment and Sustainable Development", held on 13-14th March 2018.

- Editor of conference proceeding entitled as a two-day international conference on "Environment and Sustainable Development," held on 16-17th December 2014.

Seminars/Workshops Organized

- Participated in Pre-sedex (science and engineering design exhibition in UTP 6th and 7th August 2014.
- Participated in Postgraduate research seminar in Science and Engineering held on 8th and 9th December 2014
- Organized one-day seminar on 'Biodegradable Plastic' in collaboration with d2w, Pakistan held on 22nd Apr 2016 at SDSC Seminar Hall, GC University, Lahore
- Organized celebrations of 'World Earth Day' by inter-university painting and documentary competition in collaboration with WAPDA, Pakistan held on 22nd Apr 2016 at Physics Seminar Hall, GC University, Lahore
- Organized on day seminar on "Three bin system" in collaboration with LWMC and Albayrak, held on 8th Mar at Bukhari Auditorium, G.C. University, Lahore and Installation of "Three Bins System" at seven different locations of G.C. University, Lahore.
- Organized one day International Seminar on "Technologies of Waste/Sludge Treatment and Waste to Energy" organized in collaboration with We Consult Germany, Municipal services consultant Turkey, and LWMC, on 23rd Feb 2016 Physics Seminar Room, G.C. University, Lahore.
- Organized one-day seminar on World Wetlands Day on "Wetlands for our Future: Sustainable Livelihood," organized in collaboration with WWF, UVAS, and Punjab, Fisheries Department, held on 2nd Feb 2016 held at Physics Seminar Room, G.C. University, Lahore
- Organized one-day 2nd workshop on "Basic Life Support and Firefighting," organized in collaboration with Rescue 1122, held on 22nd and 23rd Dec. 2015 held at Physics Seminar Room, G.C. University, Lahore
- Organized two days 2nd workshop on "First Aid," in collaboration with Red Crescent Society, held on 2nd and 4th Dec. 2015 held at Physics Seminar Room, G.C. University, Lahore, Dr. Rauf-e-Azam, Vice-Chancellor Education University as Chief Guest.
- Organized a two-day 1st workshop on "First Aid," in collaboration with Red Crescent International, held on 27-28th May 2015 held at Physics Seminar Room and SDSC Lecture

Theatre, G.C.University,Lahore.

- Organized one-day 1st workshop on "Basic Life Support and Firefighting," organized in collaboration with Rescue 1122, held on 26th May 2015 held at Physics Seminar Room, G.C.University,Lahore
- Participated in a day workshop on "Use of PPEs" under the theme of Occupational safety and Environment on 15th Apr 2015 held at SDSC, Government College University,Lahore.
- Participated in a two-day workshop on "Research Methodology and Biostatistics" at SDSC, G.C. University, Lahore (2015).
- Organized one-day Seminar on World Wetland day by the title 'Wetland Conservation' in collaboration with WWF and the University of Veterinary and Animal Sciences.
- Organized one-day Seminar with the title "Life Style Changes" in collaboration with Fatima Memorial Hospital, about World Health Day(2015).
- Algae Asia Summit 2009''ALGAE FOR ENERGY" 23rd -24th November.Malaysia.
- (IGEM) International Green technology and purchasing conference 2010.15-16 Oct Malaysia.

International/National Conference, Seminars/Workshops/meetings Participated.

- CO.Chair at "5th International Conference on Innovative Biological and Public Health Research (IBPHR-2023)" at GC University Lahore on October 11-12,2023.
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- Participated in .One day workshop on "A successful journey from research to publication organized by office of research and innovation (ORIC) Government College University Lahore on February 17 ,2022.
- Participated in . One day workshop on Citation and literature Management using Mendeley Software organized by office of research and innovation (ORIC) Government College University Lahore on October 24,2022.
- National workshop on air pollution and smog on 8 Nov2017,UoreVASLahore
- In service short tem training of university faculty members in collaboration with punjab higher education commission (PHEC) on -*Andrological communication skills*- May 23-27 in 2016
- One day training workshop on approaching towards comprehensive elimination of persistent organic pollutants(pesticides) in Pakistan organized by Environmental and Climate change unit **UNDP** Pakistan on 20 Dec 2017
- Participated in 1st International Symposium on circular Economy for sustainability in Energy and textile Sector organized by Department of Chemistry Government College University Lahore May 24.2022
- Participated in International conference on research and advancement 2021,Oorganizer –NUST

Chemistry Department Wednesday-10-03-2021

- Participated in one day workshop on "Environment and social system assessment (ESSA) under job and competitiveness (J & C) program for results (PforR),"held on 8th Dec 2015, Organized by Planning and Development Department, Government of Punjab, held at Palace Hall, PC Hotel Lahore.
- Participated in five days of the international forum, along with approx. 50 students on "3rd Pakistan Urban Forum (PUF-2015)", held on 4th - 8th December 2015, Organized by UrbanUnit.
- The World Engineering Science and Technology Congress (ESTCON) 12-14 June 2012 Kuala Lumpur Convention Center Malaysia.
- Planning and Development Department, Government of Punjab, held at Alhamra Halls, Lahore.

Honors /Awards

- Best University teacher award by Government College University Lahore 2022 -2023.
- Merit Scholarships in Ph.D by Malaysian Govt.2009-14
- Won Research project offered by ORIC Government College University Lahore 2023
- Got 2nd Position at school level in Matriculation Exam in (1998) Lahore board

Professional Experience

- FESEM Field Emission Scanning Electron Microscopy and Fourier transform spectroscopy (FTIR) in Central Analytical Laboratory, Chemical Engineering Department, Universiti Teknologi PETRONAS, Malaysia and GCULahore
- Organic Chemistry laboratory demonstration for Undergrad students Chemical Engineering Department, Universiti Teknologi Petronas, Malaysia and GCULahore
- Health and safety advisor at the Petronas Malaysia at lab scale(2009-2014).

External Examiner

Conducted viva Voce as external examiner of almost 100, M.Phil.Level Students at different Universities of Pakistan Such as

- University of Health Sciences Lahore, Punjab Pakistan
- University of Punjab Lahore,
- Karakoram University of Science and Technology Gilgit Baltistan, Pakistan
- University of Central Punjab Lahore Pakistan.
- University of Lahore ,Punjab Pakistan.

Books Published as an Editor

- A.B.Tabinda, Abdullah Yasir, **Muhammad Afzaal** Naveed Ahmed (2015), proceeding of international conference on "Environment and Sustainable Development 1ISBN 978-969-9071-07-02, SDSC GCU Pakistan.
- **Muhammad Afzaal**, Rasheed Khan, Amtul Bari Tabinda (2016). Protective effects of methanolic extract of *Digeramuricata* (L.) Mart. against toxicity induced with acrylamide in rat live 1ISBN 978-3-659-90161-4, LAP Lambert Academic Publishing Germany

Published Book Chapters

1. Abdullah, MohdAzmuddin, **Muhammad Afzaal**, Safdar Ali Mirza, SakinatuAlmustapha, and HanaaAliHussein. "**Recyclable and Eco-friendly Single Polymer Composite.**" In *Sustainable Polymer Composites and Nanocomposites*, pp. 693-725. Springer, Nature 2019.https://doi.org/10.1007/978-3-030-05399-4_24
2. **Muhammad Afzaal***, Sidra Mukhtar, AfifaMalik, RabbiaMurtaza, and MasoomaNazar. Paddy Soil Microbial Diversity and Enzymatic Activity in Relation to Pollution. Pages, 139-146. *Springer International Publishing AG, part of Springer Nature* 2019. M. Z. Hashmi, A. Varma (eds.), Environmental Pollution of Paddy Soils, Soil Biology 53, https://doi.org/10.1007/978-3-319-93671-0_9
3. **Muhammad Afzaal***, Safdar Ali Mirza, Miuniza Mir, Sarfraz Ahmed, AzharRasul, Shabab Nasir, Muhammad YasirWaqas, and Ummadud din Umar, *Antibiotics and Resistant Genes in Paddy Soil*, Pages 99-112 *Springer International Publishing AG, part of Springer Nature* 2019 M. Z. Hashmi, A. Varma (eds.), Environmental Pollution of Paddy Soils, Soil Biology 53, https://doi.org/10.1007/978-3-319-93671-0_6
4. Muhammad Zaffar Hashmi, AatikaKanwal, RabbiaMurtaza, Sunbal Siddique, XiaomeiSu, Xianjin Tang, and **Muhammad Afzaal***, *Arsenic in Untreated and Treated Manure: Sources, Biotransformation, and Environmental Risk in Application on Soils: A Review*. Pages 179-194. *Springer International Publishing AG, part of Springer Nature* 2018 M. Z. Hashmi, A. Varma (eds.), Environmental Pollution of Paddy Soils, Soil Biology 53, https://doi.org/10.1007/978-3-319-93671-0_12

5. Muhammad Ibrahim¹, Fiaz Ahmad, Bushra Yaqub¹, Ayesha Ramzan¹, Ayesha Imran¹, **Muhammad Afzaal***, Safdar Ali Mirza, Iqra Mazhar, Muhammad Younus, Qaisar Akram⁵, Muhammad Sulman Ali Taseer, Ali Ahmad, Sarfraz Ahmed. *Current trends of antimicrobials used in food animals and aquaculture. Pages (39-68)*. Advances in Environmental Pollution Research Series, **Antibiotics and Antimicrobial Resistance Genes in the Environment** (2019) by Edited by Muhammad Zaffar Hashmi **volume 1** Published by Elsevier (<https://www.elsevier.com/books-and-journals>).
6. Safdar Ali Mirza, Iram Liaqat, Muhammad Umer Farooq Awan, and **Muhammad Afzaal**. *Long-range transport of antibiotics and AMR/ARGs Current trends of antimicrobials used in food animals and aquaculture. Pages (117-123)*. Advances in Environmental Pollution Research Series, **Antibiotics and Antimicrobial Resistance Genes in the Environment** (2019) by Muhammad Zaffar Hashmi **volume 1**. Published by Elsevier. (<https://www.elsevier.com/books-and-journals>).
7. Safdar Ali Mirza, **Muhammad Afzaal***, Sajida Begum, Taha Arooj, Muniza Almas, Sarfraz Ahmed, and Muhammad Younus. *Uptake mechanism of antibiotics in plants Current trends of antimicrobials used in food animals and aquaculture. Pages (183-187)*. Advances in Environmental Pollution Research Series, **Antibiotics and Antimicrobial Resistance Genes in the Environment** (2019) by Edited by Muhammad Zaffar Hashmi **volume 1**. Published by Elsevier (<https://www.elsevier.com/books-and-journals>).
8. **Muhammad Afzaal***, Sidra Mukhtar, Masooma Nazar, Afifa Malik, Amtul Bari Tabinda, Abdullah Yasir, Ashfaq Ahmed Bangash, Sarfraz Ahmed, Azhar Rasool, and Muhammad Khalid, **Bio-monitoring of Antibiotics and AMR/ARGs Pages (163-176)**. Springer Nature Switzerland AG **2020** 163 M. Z. Hashmi (ed.), *Antibiotics and Antimicrobial Resistance Genes*, Emerging Contaminants and Associated Treatment Technologies, https://doi.org/10.1007/978-3-030-40422-2_4
9. **Muhammad Afzaal***, Safdar Ali Mirza, Taha Arooj, Muniza Almas, and Sarfraz Ahmed., *Antimicrobial and Antibiotic Resistance Genes in the Environment Pages (51-80)*, © Springer Nature Switzerland AG **2020** 81 M. Z. Hashmi (ed.), *Antibiotics and Antimicrobial Resistance Genes*, Emerging Contaminants and Associated Treatment Technologies, https://doi.org/10.1007/978-3-030-40422-2_4
10. **Muhammad Afzaal***, Iqra Mazhar, Rizwan Rasheed, Faiza Sharif, Waqas Ud Din Khan, Nusrat Bashir, Syeda Saira Iqbal, and Abdullah Khan, *Industrial chemicals as micro pollutants in the environment Pages (13-39)* Elsevier Radarweg 29, PO Box 211, 1000 AE Amsterdam, Netherlands The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, United Kingdom 50 Hampshire Street, 5th Floor, Cambridge, MA 02139, United States, Copyright © **2022** Elsevier Inc. All rights reserved. 2022 M. Z. Hashmi (ed.), *Advances in pollution research series ENVIRONMENTAL MICROPOLLUTANTS* <https://doi.org/10.1016/B978-0-323-90555-8.00010-6>

11. **Muhammad Afzaal***, Nusrat Bashir, Rizwan Rasheed, Waqas Ud Din Khan, Iqra Mazhar, and Syeda Saira Iqbal ,Hormones-active substances,Pages(151-177) Elsevier Radarweg 29, PO Box 211, 1000 AE Amsterdam, Netherlands The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, United Kingdo 50 Hampshire Street, 5th Floor, Cambridge, MA 02139, United States ,Copyright © **2022** Elsevier Inc. All rights reserved. 2022M. Z. Hashmi (ed.), Advances in pollution research series Environmental micropollutants <https://doi.org/10.1016/B978-0-323-90555-8.00010-6>
12. **Muhammad Afzaal***, Saman Hameed, Rizwan Rasheed,and Waqas Ud Din Khan Microalgal biofuels: A sustainable pathway for renewable energy Sustainable Algal Biotechnology,**2022** page(188-2015)
 - a. **Published by Elsievier** ISBN: 978-0-323-90476-6
13. Qaiser Farid Khan, Sidra Anum, Hafiz Arbab Sakandar,Muhammad Farhan, Muhammad Tayyab Akhtar, **Muhammad Afzaal**,and Hamid Majeed **Occurrence of Microplastic Pollution in Marine Water**. In Microplastic Pollution (2022), (pp. 257-274). ISSN 2524-6402,ISSN 2524-6410 (electronic), Emerging Contaminants and Associated Treatment Technologies, ISBN 978-3-030-89219-7 ISBN 978-3-030-89220-3, Springer, Nature.
- Muhammad Afzaal**, Syeda Saira Iqbal, Naeem Akthar Abbasi,Faiza Sharif, Mehreen Fatima, Haseeb Nisar, Aruba Imran,Nusrat Bashir, Hafiz Abdul Mannan, Amir Amanat Ali Khan,Iram Liaqat, and Yasir Rehman, Fermentation and Production of Microorganisms for Industrial Products: An Introduction .In Hashmi, M.Z., Saeed, A., Musharraf, S.G., Shuhong, W. (eds) Recent Advances in Industrial Biochemistry. Springer, Cham. https://doi.org/10.1007/978-3-031-50989-6_1 . . . Online ISBN978-3-031-50989-6 09 May **2024 .Page 1-15**
15. Muhammad Afzaal, Aruba Imran, Naeem Akthar Abbasi, Faiza Sharif, Syeda Rizwan Rasheed, Saira Iqbal, Nusrat Bashir,Qaiser Farid Khan, Hafiz Abdul Mannan, Yasir Rehman,Asim Laeeq Khan, Zafar Hashmi, Farida Begum, Shaukat Ali,and Iram Liaqat (**2024**).Industrial Trends in Antibiotics. In: Hashmi, M.Z., Saeed, A., Musharraf, S.G., Shuhong, W. (eds) Recent Advances in Industrial Biochemistry. Springer, Cham. https://doi.org/10.1007/978-3-031-50989-6_8 . Online ISBN978-3-031-50989-6 09 May **2024. Page 129-145**
16. **Muhammad Afzaal**, Nusrat Bashir, Ilza Amjad ,Naeem Akthar Abbasi, Syeda Saira Iqbal, Faiza Sharif,Hafiz Abdul Mannan, Aruba Imran, Amir Amanat Ali Khan,Basit Zeshan, and Yasir Rehman Amino Acids and Their Biosynthesis, Extraction, Purification, and Refining. In: Hashmi, M.Z., Saeed, A., Musharraf, S.G., Shuhong, W. (eds) Recent Advances in Industrial Biochemistry. Springer, Cham. https://doi.org/10.1007/978-3-031-50989-6_15 . Online ISBN978-3-031-50989-6 09 May **2024 Page 419-431.**

17. Muhammad Afzaal, Eman Idrees, Muhammad Farooq, Naeem Akhtar Abbasi, Hafiz Abdul Manan, Ahmad Farooq, Farida Begum, Shaukat Ali, Muhammad Huzaifa Mehboob, Gul Zareen Ghafoor, Muhammad Umar Hayat, Iqra Mazhar, Nusrat Bashir, Syeda Saira Iqbal & Zafar Hashmi "Contaminated Land/Water Microbial Diversity and Enzymatic Activity in Relation to Pollution." In *Contaminated Land and Water: Remediation and Management*, pp. 45-57. Cham: Springer International Publishing, 2024.. In: Alshemmari, H., Hashmi, M.Z., Kavil, Y.N., Shu-hong, W. (eds) Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. https://doi.org/10.1007/978-3-031-65129-8_4. **20 October 2024**. ISBN978-3-031-65129-8
18. Muhammad Afzaal, Muhammad Umer Farooq Awan, Shahzad Sharif, Muhammad Umar Hayat, Muhammad Luqman & Zafar Hashmi . (2024). Impact of Biochar on the Pollutants in Contaminated Land and Fertility. In: Alshemmari, H., Hashmi, M.Z., Kavil, Y.N., Shu-hong, W. (eds) Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. https://doi.org/10.1007/978-3-031-65129-8_5 page no.51-68.. **20 October 2024**. ISBN978-3-031-65129-8
19. Qaiser Farid Khan, Mehvish Shabir, Gul Zareen Ghafoor, Faiza Sharif, Muhammad Khurshid, Rizwan Rasheed Hafiz Arbab Sakandar, Naba Azhar, Umar Hayyat, Muhammad Tayyab Akhtar, Muhammad Afzaal & Mohsin Gulzar Barq . (2024). Biodegradation of POPs in Contaminated Land/Water. In: Alshemmari, H., Hashmi, M.Z., Kavil, Y.N., Shu-hong, W. (eds) Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. https://doi.org/10.1007/978-3-031-65129-8_8. 20 October 2024. Online ISBN978-3-031-65129-8
20. Zainab Tahir, Qaiser Farid Khan, Umar Hayyat, Faiza Sharif, Naba Azhar, Zaib un Nisa, Muhammad Farhan, Rizwan Rasheed, Gul Zareen Ghafoor, Muhammad Afzaal, Hamid Majeed & Hafiz Arbab Sakandar . (2024). Isotopic Tools for Tracing Water Pollutants. In: Alshemmari, H., Hashmi, M.Z., Kavil, Y.N., Shu-hong, W. (eds) Contaminated Land and Water. Emerging Contaminants and Associated Treatment Technologies. Springer, Cham. https://doi.org/10.1007/978-3-031-65129-8_6 **20. October 2024** . ISBN978-3-031-65129-8
21. Ghafoor, Gul Zareen, Anam Rafique, Uqba Maher, Memoona Tahir, Memuna Ghafoor Shahid, Faiza Sharif, Naghmana Ghafoor, Laila Shahzad, Muhammad Umar Hayyat, and **Muhammad Afzaal**. "Microalgae as health and disease prevention agents." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 69-87. Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5

22. **Muhammad Afzaal**, Aruba Imran, Syeda Saira Iqbal, Sadia Nawaz, Andleeb Batool, Tehreema Iftikhar, Rab Nawaz, Aamir Amanat Ali, Nehsoon Tahir Sharif, and Manzar Zahra. "Potential microalgae-derived antioxidants as human health supplements nutritional evaluation and benefits." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 131-144. Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5
23. Barq, Mohsin Gulzar, Wasif Hussain, Qaiser Farid Khan, Naba Azhar, and Muhammad Afzaal. "Sustainable microalgae-derived pigments for the food industry." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 145-165. Academic Press, Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5
24. **Muhammad Afzaal**, Aruba Imran, Sadia Nawaz, Syeda Saira Iqbal, Muhammad Umar Hayat, Andleeb Batool, Tehreema Iftikhar, Rab Nawaz, Urooj Naeem, and Nehsoon Tahir Sharif. "Therapeutic potential of microalgae-derived innovative biomaterial." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 191-204. Academic Press, Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5
25. Farhan, Muhammad, **Muhammad Afzaal**, Amina Kanwal, Atika Waqar, Qaiser Farid Khan, Muhammad Ali, Maqsood Ahmad, and Zahid Ali Butt. "Freshwater microalgae: promising food sources with nutritional and functional properties." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 205-217. Academic Press, Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5 .
26. **Muhammad Afzaal**, Aruba Imran, Syeda Saira Iqbal, Amtul Bari Tabinda Akhtar, Rizwan Rasheed, Muhammad Farhan, Rab Nawaz, and Sajid Mansoor. "Nutritional and functional microalgae for human health." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 219-234. Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5
27. **Muhammad Afzaal**, Amna Ilyas, Wasif Hussain, Mohsin Gulzar Barq, Amtul Bari Tabinda Akhtar, Rab Nawaz, Nehsoon Tahir, and Andleeb Batool. "Emerging prospects in microalgae-based biorefineries: potential for carbohydrate-enriched biomass, high-value products, and bioactive compounds." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 235-249.

Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf
<https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5

28. **Muhammad, Afzaal**, Aruba Imran, Syeda Saira Iqbal, Amtul Bari Tabinda Akhtar, Muhammad Umar Hayat, Nehsoon Tahir Sharif, Rab Nawaz, Urooj Naeem, Andleeb Batool, and Sadia Nawaz. "Scaling up microalgal cultures for sustainable and nutritional food production." In *Algae Biotechnology for Biomedical and Nutritional Applications*, pp. 295-323. Academic Press,(ELSEVIER) edited by Ashfaq Ahmad and Syed Salman Ashraf <https://doi.org/10.1016/C2023-0-01238-9> 31 January 2025. ISBN 978-0-443-24006-5

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Research Papers Published

1. Mazhar, I., **Muhammad Afzaal**, Altaf, M. *et al.* Structurally engineered monolithic catalyst for enhanced sunlight-driven degradation of ciprofloxacin in contaminated water systems. *Discov Sustain* **6**, 606 (2025). <https://doi.org/10.1007/s43621-025-01396-2>, IF **3.6**
2. Manzar Zahra,Jigar Ali1, Mohsin Javed, Muhammad Yousaf, **Muhammad Afzaal**, Syed Kashif Ali,,Ahmad AsimovFarruh Atamurotov,Doniyor Jumanazarov9 | Ali Bahadur,Shahid Iqbal,Sajid Mahmood, Abd-ElAzim Farouk,Synthesis, Characterization, and Enriched Photocatalytic Performance of FeS/NiS- Engineered Graphene Oxide (GO) Nanocomposites for Environmental Applications, Luminescence, 2025; 40:e70331<https://doi.org/10.1002/bio.70331>.IF. **3.280**
3. Nusrat Bashir, **Muhammad Afzaal***, Asim Laeeq Khan2, Rab Nawaz, Ali Irfan, Khalid S. Almaary, Fakhreldeen Dabiellil, Mohammed Bourhia8 & Zulkifl Ahmed.Green-synthesised silver nanoparticle-enhanced nanofiltration mixed matrix membranes for high-performance water purification. Scientific Reports | (2025) 15:100 | <https://doi.org/10.1038/s41598-024-83801-w> IF.**3.8**
4. Ali, Sikander, Hijab Zahra, Muhammad Usman Ahmad, Amany A. Abdel-Rheem,

- Muhammad Afzaal, Rab Nawaz, Bakar Bin Khatab Abbasi, Ali Irfan, and Yousef A. Bin Jordan. "Synergistic photocatalytic and biomedical applications of Ag₂O-immobilized Bacillus subtilis-hyaluronic acid." *Microbial Cell Factories* 24, no. 1 (2025): 1-17. IF **4.3**
5. Iram Liaqat¹ · Alishba Fatima¹ · Saiqa Andleeb² · Sajida Naseem³ · Asma Abdul Latif⁴ · Muhammad Nauman Aftab⁵ · Sikander Ali⁵ · Muhammad Afzaal⁶ · Noor Muhammad¹ · Awais Khalid⁷ · Synthesis of Biodegradable Nanocomposite–Based Chitosan/Ag NPs for Food Packaging, *BioNanoScience* (2025) 15:359 <https://doi.org/10.1007/s12668-025-01947-x> I.F.(**3.2**)
 6. Arshad, Muhammad, Rab Nawaz, Sajjad Ahmad, Muhammad Atif Irshad, Ali Irfan, Mir Muhammad Nasir Qayyum, Khalid S. Almaary, **Muhammad Afzaal**, Zulkfil Ahmed, and Mohammed Bourhia. "Effect of daily thinning on biweekly increment of growth and yield of maize (*Zea mays* L.) in mountainous agroecosystem." *BMC Plant Biology* 25, no. 1 (2025): 428. W-IF. **5.2**
 7. Mussa, Sania, Muhammad Farhan, Shoaib Ahmad, Khadija Zahra, Amina Kanwal, Qaiser Farid Khan, **Muhammad Afzaal** et al. "Exploring the utility of different bulking agents for speeding up the composting process of household kitchen waste." *Scientific Reports* 15, no. 1 (2025): 2488. IF.**3.8**
 8. Rasheed, Rizwan, Fizza Tahir, Shuaishuai Geng, Fizza Batool, **Muhammad Afzaal**, and Yuehong Su. "Grey Forecasting for technoeconomic sustainability of fiberglass composite waste recycling in developing countries." *Heliyon* (2025).IF. **3.4**
 9. Hussain, Mudassar, Sajida Naseem, Asma Abdul Latif, Abid Ali, Muhammad Nauman Aftab, Sikander Ali, Chaman Ara,**Muhammad Afzaal** et al. "Antibiofilm and Antiquorum Sensing Potential of *Pheretima posthum*." *Journal of Oleo Science* 74, no. 1 (2025): 61-73. IF.**1.6**
 10. Iram Liaqat, Ibtsam Qaiser, Muhammad Nauman Aftab, Sikander Ali, Asma Abdul Latif, Sajida Naseem, **Muhammad Afzaal**, Awais Khalid, Anti-biofilm potential of some fish probiotics, alone and in combination with antibiotics against isolated aquaculture pathogens; a preliminary data ,*Microbial Pathogenesis*,2025,107437, ISSN 0882-4010, I.F- **3.3**

11. Luqman, Muhammad, Umer F. Awan, Fariha Arooj, Awais Khalid, **Muhammad Afzaal**, Tehreem Shahid, Aliza Niazi, Hsi-Hsien Yang, and Hayat Shaukat Khan. "Exploring microplastic pollution in the pristine Ghar-e-Tangi cave: First evidence from Pakistan's subterranean ecosystem." *Archives of Biological Sciences* 00 (2025): 2-2. I.F - **0.8**
12. **Muhammad Afzaal***, Rab Nawaz, Saddam Hussain , Mahnoor Nadeem, Muhammad Atif Irshad, Ali Irfan *, Hafiz Abdul Mannan, Aamal A. Al-Mutairi Atif Islam, Sami A. Al-Hussain, Mehwish Rubab & Magdi E. A. Zaki, Removal of oxytetracycline from pharmaceutical wastewater using kappa carrageenan hydrogel *Scientific Reports* | (2024) 14:19687 <https://doi.org/10.1038/s41598-024-69989-x>.
13. Liaqat, Iram, Saiqa Andleeb, Sajida Naseem, Abid Ali, Asma Abdul Latif, Muhamad Nauman Aftab, Sikander Ali, **Muhammad Afzaal** et al. "Exploring In Vitro Antibiofilm Potential and In Vivo Toxicity Assessment of Gold Nanoparticles." *Journal of Basic Microbiology* (2024): e2400329. 2024. I.F **2.28**
14. Arshad, Iqra, Hifza Iqbal, Syeda Saira Iqbal, **Muhammad Afzaal**, and Yasir Rehman. "A Review on the Synergistic Approaches for Heavy Metals Bioremediation: Harnessing the Power of Plant-Microbe Interactions." *Lahore Garrison University Journal of Life Sciences* 8, no. 2 (2024): 268-286.
15. **Muhammad Afzaal**, Iqbal, S., Iqbal, A., Ahmed, S., Ahmed, A., Ibrahim, M., Nassar, A. A. (2024). Estimation of heavy metals in sediments and aquatic plant species in two rivers of Punjab, Pakistan. *Journal of Taibah University for Science*, 18(1). <https://doi.org/10.1080/16583655.2024.2354574> . Y(3.3)
16. Abdullah, M.A., Nazir, M.S., Hussein, H.A., Shah, S.M.U., Azra, N., Iftikhar, R., Iqbal, M.S., Qamar, Z., Ahmad, **Muhammad Afzaal**, M. and Om, A.D., 2024. New perspectives on biomass conversion and circular economy based on Integrated Algal-Oil Palm Biorefinery framework for sustainable energy and bioproducts co-generation. *Industrial Crops and Products*, 213, p.118452. W(5.9)
17. **Muhammad Afzaal***, Syeda Saira Iqbal*, Rohama Nassir, Neha Javid John and Aysha Arif. Optimization of Levofloxacin Removal by Corn Husk and its Activated

Carbon, International Journal of Forest Sciences (2023). 3(3):170-193. Y

18. **Muhammad Afzaal***, Iqbal, S. S., Abbasi, N. A., Manan, H. A., Rasheed, R., Farhan, M,& Ashraf, M. A. (2023). Efficient treatment of tannery wastewater through aeration, coagulation, and algal pond. *Water Environment Research*, 95(12), 10952. X
19. Liaqat I, Khalid A, Rubab S, Rashid F, Latif AA, Naseem S, Bibi A, Khan BN, Ansar W, Javed A, **Muhammad Afzaal**. In Vitro Biofilm-Mediated Biodegradation of Pesticides and Dye-Contaminated Effluents Using Bacterial Biofilms. *Microorganisms*. 2023 Aug 26;11(9):2163. W(4.5)
20. Rasheed, Rizwan, Hajra Javed, Asfra Rizwan, **Muhammad Afzaal**, and Sajid Rashid Ahmad. "Eco-sustainability analysis of precast-concrete utility poles manufacturing—A case study from Pakistan." *Heliyon* (2023).W(3.776)
21. Ahsan, Yousra, Aisha Waheed Qurashi, Iram Liaqat, Asma Latif, **Muhammad Afzaal**, Awais Khalid, and Andleeb A. Sardar. "Efficacy of rice husk and halophilic bacterial biofilms in the treatment of saline water." *Journal of Basic Microbiology* (2023).W (3.1)
22. Yusra Mahfooz,Abdullah Yasar,Liu Guijian,Qamer Ul Islam,Rizwan Rasheed1 · **Muhammad Afzaal** ,Hifza Butt,Urooj Naeem, Appraisal and risk assessment of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and organochlorine pesticides (OCPs) in wastewater irrigated area. *Arabian Journal of Geosciences* (2022) 15:1624 <https://doi.org/10.1007/s12517-022-10894>. X(2.01)
23. **Afzaal, M.**, Hameed, S., Abbasi, N. A., Liaqat, I., Rasheed, R., Khan, A. A., & Manan, H. A. (2022). Removal of Cr (III) from wastewater by using raw and chemically modified sawdust and corn husk. *Water Practice & Technology*, 17(9), 1937-1958 .X(0.243)
24. Liaqat, Iram, Zubreen Shaanzeh, Asia Bibi, Urooj Zafar, Sajida Naseem, Rabbia Ali, Saiqa Andleeb, Gulbeena Saleem, Irfana Liaqat, and **Muhammad Afzaal**. "In vitro Antimicrobial Activity of Biogenically Synthesized Nickel and Zinc Nanoparticles against Selected Pathogenic Bacterial Strains." *Journal of Oleo Science* 71, no. 8 (2022): 1181-1188. X (1.601)

25. Rasheed, R., Tahir, F., **Afzaal, M.** et al. Decomposition analytics of carbon emissions by cement manufacturing – a way forward towards carbon neutrality in a developing country. *Environ Sci Pollut Res* (2022). <https://doi.org/10.1007/s11356-022-20797-8>. W(5.19)
26. **Muhammad Afzaal**, Hameed, S., Liaqat, I., Ali Khan, A. A., Abdul Manan, H., Shahid, R., & Altaf, M. (2022). Heavy metals contamination in water, sediments and fish of freshwater ecosystems in Pakistan. *Water Practice and Technology*, 17(5), 1253-1272.
27. Naeem, U., Qazi, **Muhammad Afzaal.**, Haq, I. U., & Afzaal, M. (2022). *Aspergillus niger* as the rapid press mud composting agent. *journal of animal and plant sciences-JAPS*, 32(2), 515-525. Y(0.570)
28. Liaqat, Iram, Babar Gulab, Uzma Hanif, Aisha Sultan, Ayesha Sadiqa, Urooj Zafar, **Muhammad Afzaal**, Sajida Naseem, Sumia Akram, and Gulbeena Saleem. "Honey Potential as Antibiofilm, Antiquorum Sensing and Dispersal Agent against Multispecies Bacterial Biofilm." *Journal of Oleo Science* (2022) X (1.601)
29. Hussain, Mudassar, Iram Liaqat, Muhammad Mubin, Bushra Nisar, Khurram Shahzad, Arjumand Iqbal Durrani, Urooj Zafar, Muhammad Afzaal, Aqsa Ehsan, and Saima Rubab. "DNA barcoding: Molecular identification and Phylogenetic analysis of pheretimoid earthworm (Metaphire sp. and Amynthes sp.) based on mitochondrial partial COI gene from Sialkot, Pakistan." *Journal of Oleo Science* 71, no. 1 (2022): 83-93. X (1.601)
30. Zuhataqdees,javeriakhan,waqasuddinekhan,salmakausar,**MuhammadAfzaal**,tabish Ata,Silicon and Zinc nano particles enriched miscanthusbiochar enhances seed germination antioxidant defence system and nutrient status of reddish under Nacl stress. *Crop and Pasteur Science*,2021 W(2.249)
31. Muhammad Nawaz, **Muhammad Afzaal***, Zainab Shahid,, Muhammad Ibrahim,Sarfraz Ahmad,Humaira Nawaz, Studies On the Role of Fungal Strains in Bioremediation, of, Dyes,isolated from Textile Effluents. *Int. J. Econ. Environ. Geol. Vol. 12(2)* 32-37, 2021. Y(0.42)
32. Iram Liaqat Muhammad Mubeen,Najma Arshad, **Muhammad Afzaal** ,Nazish Mazhar,Ali,AndleebAnwarSardar,Umer,FarooqAwan,SumairaSajjad,Farzana,Rashid Multienzyme and Antibacterial Potential of Bacteria Isolated from gut of Asian

Honey Bee (*Apis cerana indica*), Lahore Using Culture Dependent Method, *Brazilian Archives of Biology and Technology*, (2021) W(1.18).

33. Naeem, U., **Afzaal, M.**, Qazi, A., Yasar, A., Mahfooz, Y., Naz, A. U., & Awan, H. (2022). Investigating the effect of *Aspergillus niger* inoculated press mud (biofertilizer) on the potential of enhancing maize (*Zea mays*. L) yield, potassium use efficiency and potassium agronomic efficiency. *Cereal Research Communications*, 50(1), 157-170. X(1.43)
34. Naeem, Urooj, Muhammad Afzaal, Irfan ul Haq, Akram Qazi, Abdullah Yasar, Amtul Bari Tabinda, Yusra Mahfooz, Asad Ullah Naz, Humera Aslam Awan, and Ashfaq Ahmad. "Investigating the effect of *Aspergillus niger* inoculated press mud (biofertilizer) on the potential of enhancing maize (*Zea mays* L.) yield, phosphorous use efficiency, and phosphorous agronomic efficiency." *Arabian Journal of Geosciences* 14 (2021): 1-13. 1735-1472.W.(0.406)
35. **Muhammad Afzaal.**, Abdullah, A., Ahmed, S., Ibrahim, M., Khan, J., Mirza, S. A., & Ullah, M. A. (2021). Evaluation of *Ceiba pentandra* for the removal of residual oil from pome (palm oil mill effluent) by using factorial design bioreactor. *Pakistan Journal of Science*, 73(3).
36. M. Ibrahim, S. Ahmed*, J. Khan³, M.A. Idrees, A. Aftab, M. Imran⁶, A. Ahmad S. Munir, **Muhammad Afzaal** Health risk assessment of heavy metals via dietary intake of foodstuffs from the multan, Pakistan. *pakistan journal of science*, 73(3).
37. Bashir, Nusrat, Rashid Saeed, **Muhammad Afzaal***, Ashfaq Ahmad, Nawshad Muhammad, Jibran Iqbal, Abdullah Khan, YusraMaqbool, and Saman Hameed. "Water quality assessment of lower Jhelum canal in Pakistan by using geographic information system (GIS)." *Groundwater for Sustainable Development* (2020). X(5.21)
38. Ali Ahmad, Aftab Ahmad Anjum, Muhammad Younus¹, Sarfraz Ahmed, Ali Ashraf , Ali Asif, Muhammad YasirWaqas, Muhammad Afzaal, Muhammad Ibrahim, Saba Sana.Optimization of Culture Conditions for Phytase Production by *Aspergillus flavus* PHY168 isolated from soil (2019).
39. Atif Amin, Baig, Ibrahim Muhammad, and Afzaal Muhammad. "Health risk assessment of heavy metals via dietary intake of foodstuffs from the Multan, Pakistan." *Annals of Life Sciences* 3, no. 1 (2019): 8-16.

40. Daneshfozoun S, Abdullah MA, Afzaal M Asadpoor R and Abdullah B, Kinetics, Isotherms and Thermodynamics of Heavy Metal Ions Sorption onto Raw and Agro Based Magnetic Biosorbent, *Res Adv Environ Sci* 2018(1):27-42.
41. Ahmad, A., A. H. Bhat, A. Buang, S. M. U. Shah, and **Muhammad Afzaal**. "Biotechnological application of microalgae for integrated palm oil mill effluent (POME) remediation: a review." *International Journal of Environmental Science and Technology* (2018): 1- 26. W(2.86)
42. Tabinda, A. B., F. Arshed, A. Yasar, **Muhammad Afzaal**, and A. Iqbal. "Comparative analysis of desulphurization methods of tyre pyrolysis oil (TPO)." *International Journal of Environmental Science and Technology* (2018):1-6 W(2.86)
43. Ahmed, Sarfraz, Siti Amrah Sulaiman, Muhammad Ibrahim, Azhar Rasul, Muhammad Yasir, Atif Amin Baig Waqas, **Muhammad Afzaal**, Muhammad Zeeshan Ahmed, and Nor Hayati. "Effect of Daily Supplementation of Malaysian Jungle Tualang Honey and Australian/New Zealand Manuka honey on Hematological and Some Biochemical Variables in Female Rats." *Annals of Life Sciences* 2 (5) (2018)(10-22).
44. Yasar, Abdullah, Saba Nazir, Amtul Bari Tabinda, Masooma Nazar, Rizwan Rasheed, and **Muhammad Afzaal**. "Socio-economic, health and agriculture benefits of rural household biogas plants in energy scarce developing countries: A case study from Pakistan." *Renewable Energy* (2017). (I.F 8.001)
45. Rasheed, Rizwan, Abdullah Yasar, Amtul Bari Tabinda, Naghman Khan, Yuehong Su, and **Muhammad Afzaal**. "Techno-economic impacts of innovative commercial industrial scale bioenergy plant in Pakistan." *Pakistan Journal of Agricultural Sciences* 53, no. 3(2016). X(0.86)
46. Yasar, Abdullah, Madeha Zakria, Amtul Bari Tabinda, and **Muhammad Afzaal**. "Cost-benefit analysis of using treated sewage for landscaping in Lahore city, Pakistan." *Desalination and Water Treatment* 57, no. 41 (2016):19131-19139. X(1.23)
47. M. A. Abdullah, **M. Afzaal**, Z. Ismail, A. Ahmad, M. S. Nazir, and A. H. Bhat, "Comparative study on structural modification of Ceiba pentandra for oil sorption and palm oil mill effluent treatment," *Desalination and Water Treatment* (2014) P.P., 110, DOI:10.1080/194439942014.906326 .X(1.23)
48. **M. Afzaal**, B. Periyasamy, M. A. Abdullah*. Continuous Heavy Metal Removal from Palm Oil Mill Effluent Using Natural *Ceiba Pentandra* Packed bed Column, *Applied Mechanics and Materials* Vol. 625 (2014) pp822-825
49. Muhammad Rashid Khan*, **Muhammad Afzaal**, Naima Saeed and Maria Shabbir,

Protective potential of methanol extract of *Digeramuricata* on acrylamide induced hepatotoxicity in rats. *African Journal of Biotechnology*(2011).

Conference Papers

1. **Muhammad Afzaal**, Adsorption of Antibiotic from Pharmaceutical Wastewater by using Chitosan-based Hydrogel organized by Emerging Scientist Season III at The Asian Digital Library (ADL) Faisalabad, Pakistan on 16-17 February 2024.
 2. **Muhammad Afzaal**, Formulation of chitosan-based hydrogel for antibiotics adsorption from pharmaceutical wastewater The 6th Conference on Emerging Materials and Processes (CEMP-23) organized by School of Chemical and Materials Engineering, NUST on 22 November 2023
 3. **Muhammad Afzaal** (key note speaker) on. Environmental Friendly hydrogel for antibiotics adsorption from pharmaceuticals wastewater , Fourth International Conference on “Emerging Trends in Earth and Environmental Sciences (ETEES-2023)” organized by College of Earth and Environmental Sciences University of Punjab from 4 to 6 December 2023
 4. **Muhammad Afzaal**, Muhammad Adnan Ashraf , Ashfaqahmad , Abdullah Khan, yusraMaqbool , Amnaiqbal, Efficient Treatment of Tannery Waste Water through Aeration, Coagulation and Algal ponds. 8th International Conference on Environmentally sustainable Development ;held on August 21-23 ,2019 organized by department of environmental sciences ComsatsIslamabad, Abbotabadcampus, kpk Pakistan.
 5. Mehwishrubab, Adnan Ali nawaz, **M. Afzaal**, Using of Begass for the removal of hexavalent chromium from tannery waste and risk Assesment, 2nd international conference on "Environment and Sustainable Development", held on 13-14th March, 2018 at (GCUL). Pakistan.
 6. Muneebashabbir, FatimaNaqvi, MlihaFayyaz, **M. afzaal** .How can we curtail smog in 2018 and beyond. 2nd international conference on "Environment and Sustainable Development", held on 13-14th March 2018 at (GCUL), Pakistan
 7. **M. Afzaal**, MehmaWajid, AmnaAman, Determination of Total Suspended Particulate Matter in an Academic institute (GCUL) Lahore. 3rd international conference on "Environment and Sustainable Development", held on 13-15th September 2021 orgazied by Sustainable Development Study Center ,Government College University Lahore.
 8. **M. Afzaal**, M.A. Abdullah, Hamayunchaudhary, YasirAbdullah, Rizwan Rasheed, *Ceibapetandra* (L.) Garetn for thremoval of residual oil from oily water emulsion 1st international Conference on Emerging Trends in Earth and Environmental Sciences (ETEES) organized by College of Earth and Environment ,University of the Punjab Lahore, Pakistan March 13-15 ,2017
- *
1. **M. Afzaal**, M.A. Abdullah , Structural modification of *Ceibapetandra* and Bentonite clay for POME (Palmoil mill effluent) treatment. APC (2013) at Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 31750 Tronoh, Perak, Malaysia.
 2. **M. Afzaal**, M.A. Abdullah*, N.A. Jumat, M.S. Nazir, Structural modification of *Ceibapetandra* and Bentonite clay for oil removal. .2nd International conference on process engineering and advanced material (ESTCON) 12-14 June 2012 Kuala Lumpur convention Center Malaysia.

3. **M. Afzaal**, M.S Nazir, N.A Jumat , B.A Whajoodi and M.A Abdullah .Characterization of Biomaterial from *CeinbaPentendera* and empty fruit bunch.Internationat conference on green technologies on environmental rehabilitation.Febuary 11-13,(2011).Faculty of Engineering and technology GurukulKangri University HaridwarUttarakhandIndia.

Ph.D. Environmental Science

**(Under
supervision/Completed)**

Sr. No	Name of Students	Session	Title
01	Arooj Naeem	2015	(completed in (2022) Value added Composting of Press Mud by Using Efficient Fungal and bacterial Isolates
02	<u>Iqra Mazhar</u>	2018-Conti	Research work continue
03	Inam	2019-conti	Research work continue
04	Saira Iqbal	2020-Conti	Research work continue
05	Nusrat Bashir	2020-Conti	Research work continue

M.Phil. Environmental Science

**(Under
supervision/Completed)**

SR. NO.	NAME OF THE STUDENT	THESIS TITLE	COMPLETION DATE
1.	Saddam Hussain	AdsorptionOf Oxytetracycline FromPharmaceuticalWastewater By Using Carrageenan Based Hydrogel	2021-2023
2.	Daniyal Naeem	Potential of bacterial biofilms for chromium removal from industrial wastewater	2021-2023
3.	Amna Ilyas	Adsorption of antibiotics from	27-03-2023

		pharmaceutical wastewater by using chitosan-based hydrogel	
4.	Muhammad Ahmed Sajid	Synthesis of chitosan based hydrogel for chromium (vi) removal from tannery wastewater	2020-2022
5.	Ayesha Idrees	Adsorption of Methylene blue from textile wastewater by using chitosan-based hydrogel.	2020-2022
6.	Saman Hameed	Sustainable recovery of Cu (II), Cr (III) and Ni (II) from waste water by raw and chemically treated sawdust and corn husk.	21-02-2022
7.	Yusra Maqbool	Comparative Analysis and Health Impacts of PM2.5 in Bus Terminals of Lahore and Peshawar.	30-12-2020
8.	Abdullah Khan	Analysis of pm10 and its bounded heavy metals in main bus terminals of Lahore and Peshawar.	30-12-2020
9.	Mahad Ali	Treatment of wastewater from Kasur tanneries with nano-photo catalysis	30-9-2019
10.	AarfaTufail	Methylene blue dye Removal by Local Clay, Activated carbon and composite of both Material from textile wastewater	05-12-2019
11.	Muhammad Babar	Determination and Characteristic Analysis of Ambient Air, Particulate Matter and Noise pollution at different location in Lahore	28-09-2018
12.	Sami Ullah	Assessment of selected Organochlorines (O.C.s) in tobacco growing soil and ground water from Buner District ,	25-10-2018
13.	Maryam Imran	Environmental Assessment, Monitoring and Management oBagasse Power Plant in Jauhrabad sugar industry	25-07-2017
14.	<u>MehwishJabeen</u>	Environmental health and safety management by identification of hazards and risk analysis in a large-scale fertilizer industry.	31-10-2016
15.	<u>IstaqlalHaider</u>	Assessing exposure and health consequences of arsenic and fluoride contamination in the	28-10-2016

		selected community of district Bahawalpur.	
16.	Kiran Irshad	Quality characterization and magnitude of pollution implication in paint mill effluents	28-10-16
17.	Zainab shahid	Bioremediation of dyes by fungi isolated from contaminated dye effluent sites.	2014-16
18.	Sobia Qayyum	Treatment of textile dye effluent by application of chemical Coagulation and electro coagulation for cod and color removal.	10-12-2016
19.	Ayesha Akhtar	Catalytic ozonation of simulated textile dyeing wastewater using different catalyst.	2013-15
20.	Muhammad Adnan Ashraf	Efficient Treatment of Tannery Wastewater through Aeration, Coagulation and Algae ponds	2014-16
21.	SaimaFaqeer	Perception of women for water quality, its health impact and willingness to pay for its improvement in rural community of Faisalabad	2011-2013
22.			
23.			
24.			

B.Sc (Hons) Environmental Science

(Under supervision/Completed)

Sr. No	Name of Students	Session	Title
1	Khurshid Ahmad Muhammad Rehman Majeed	2013-2017	Application of advance oxidation processes for removal of Color, TSS, COD and BOD from textile wastewater
2	Muhammad Salman Israr/Ambreen Mussarat	2013-2017	Assessment of Automobile Exhaust from Busy Crossroads of Lahore
3	Mehwish Rubab Adnan Ali Nawaz	2014-18	Using of Begass charcoal and pith for the removal of Cr(vi) from tanneries wastewater and evaluation of health risk assessment in prone areas
4	AmnaAman -Mehmawajid	2014-18	Determination of Total suspended particulate matter in an academic institute (GCU,Lahore).
5	Faizan,AshfaqTaqi Gujjar	2015-2019	Removal of the congo red from water by activated carbon prepared from Bagasse material

6	Ramsha Asghar	2015-2019	Use of Waste plastic Bottle Materials for the Manufacturing of Concrete Blocks
7	Muhammad Adeel	2016-2020	Heavy Metals Removal from Tannery wastewater using orange peels
8	Fatima Naqvi	2016-2020	Heavy metals removal from pharmaceutical waste water using coconut shells
9	Sher Zaman	2016-2020	Heavy metals removal from textile waste water using banana peels
10	Aysha Arif	2017-2021	Optimization of amoxicillin removal from synthetic aqueous solution using poultry feathers
11	Neha Javed John	2017-2021	Optimization of Tetracycline Bio sorption using rice husk and It's Activated Carbon
12	Rohama Nasir	2017-2021	Optimization of Levofloxacin removal by Corn Husk and its Activated Carbon
13	Aruba Imran/ Sheharyar	2018-2022	Use of Eichhornia and Pistia for the Removal of Arsenic from Drinking Water
14	Asad Manan	2018-2022	Occurrence of fungal microbial contamination in drinking water

Vivas conducted as External Examiner

Sr. No	Name of Students	Degree	University	Title
1	Dr.umaira Ahsan	Ph.D	UHS Lahore	Resistance, Associated virulence features and antimicrobial effects of <i>Saussurea lappa</i> in <i>Acinetobacter baumannii</i>
2	Sania karam din	M..Phil	UHS Lahore	Identification of <i>Mycobacterium tuberculosis</i> strains at species level and genetic analysis of <i>pcA</i> gene in pyrazinamide resistant isolate.
3	Rabia Tayyab	M..Phil	UHS Lahore	Analysis of Colony Phase variation switched in <i>Acinetobacter Baumannii</i> or impact on adherence with epithelial cells and IL-8 induction
4	Haroon Bhatti	M..Phil	UHS Lahore	<i>Acanthamoeba castellanii</i> as a growth stimulator of <i>salmonella typhimurium</i>
5	Rehmat Younas	M..Phil	UHS Lahore	CsgD promoter analysis in <i>Escherichia coli</i> strains isolated from urinary tract infection
6	Talha Manan	M..Phil	UHS Lahore	The role of chemotaxis motility of <i>salmonella typhimurium</i> in interaction with <i>Acanthamoeba castellanii</i> (T4 genotype)

7	Muhammad Wasim	M..Phil	UHS Lahore	The role of fimbriae of Salmonella Typhimurium in interaction with Acanthamoebacastellanii
8	<u>Taiba Rauf</u>	M..Phil 2023	UOL	Assessing the Potential of Vermicompost and Selenium as a Sustainable Strategy for Improving Spinach Growth under Induced Cadmium Stress
9	Asma Saleem	M..Phil	UOL	The Role of Scavengers and Household Behavior in Collection and Recycling of Municipal Waste in Lahore
10	Maham Tahir	M..Phil	UOL	Quantification of Metals and Pesticides in Drinking Water Quality: Case Study of South Lahore
11	Rabia Maqsood	M..Phil	UOL	Assessment of Respiratory Issues, Health and Safety Practices in Construction Workers
12	Madiha Ashraf	M..Phil 2023	UOL	Assessment of solid waste management practices and occupational risk assessment for scavengers in Madina Town, Faisalabad
	<u>Hira Javed</u>	M..Phil 2024	UOL	Assessing carbon emissions and climate action awareness level among water and sanitation agency workers in Lahore”
13	<u>Mahnoor Rizwan</u>	M..Phil 2024	UOL	Occupational risk analysis and safety climate management in small scale textile units in Lahore”
	<u>Zakir Hussain</u>	M..Phil 2024	KIU	<u>Health Assessment of Aquatic Ecosystem Using Associated Flora in District Gilgit</u>
14	Shameen Zafar	M..Phil	KIU	Assessing the role of community based natural resource management as climate change adaptation in Gilgit Baltistan
15	Jubilee Rani	M..Phil	KIU	Assessment of macroinvertebrates assemblages and water quality at selected river dam lakes of gilgit- Baltistan
16	<u>Sumera Batool</u>	M..Phil	KIU	Altitudinal variation in nutritional values of mulberry (<i>Morus Alba</i>) in district Nager Gilgit Baltistan
17	Salma Khan	M..Phil	KIU	Assessment of water pollution in khalti lake and Attabad Lake by using macro invertrebrataes
18	Qandeel Zahra	M..Phil	KIU	Ecological status appraisal of blind Lake of Shigar, Baltistan by using fish parasites, Macro invertebrates and physico-chemical properties as indicators
19	Ijlal Hussain	M..Phil	KIU	Analysis of drinking water sources and associated water born diseases in district Nager Gilgit Baltistan
20	Mahrukh	M..Phil	KIU	Assessing agriculture water quality and climate vulnerability of irrigation systems at selected sites in karakoram mountain range, pakistan".

21	Shafiqa Ali	M..Phil	KIU	Assesment of Heavy metal in selected medicinal plants community used in northern Pakistan
22	Muhammad ZubairTahir Muhammad Talha Zahid	B.Sc.Hons	PU Lahore	Estimation of heavy metals in barb and calamus of tail feathers of white backed vultures.
23	Talha Saeed Kaleem Ullah	B.Sc.Hons	PU Lahore	Assessment of mercury & arsenic in brick kiln workers' blood, hair & nail and associated health risks
24	Ghulam Mustafa Muteeb Ahmad Sheikh Muhammad Hamza Zaman	B.Sc.Hons	PU Lahore	Assessment of Toxic Trace metals in Cattle Egrets and its Food Chain
25	Fakhra Mubeen	M..Phil	UCP Lahore	Identification of bacterial isolates on culture of cerebrospinal fluid in children patents suspected with meningitis
26	Shahid Mehmood	M..Phil	UCP Lahore	Molecular characterization of resistant gene <i>BLA_{CTX-M15} QNRS, CATA ISUL2</i> IN <i>SALMONELLA ENTERICA</i> serovar TYPHI TO EVALUATE emergence of drug resistance pattern
27	Saba Ghafoor	M..Phil	UCP Lahore	Identification of Aminoglycosides Resistant Isolates in Immunocompromised Patients and Detection of armA gene
28	Miss Wafa Komal	M..Phil	UCP Lahore	Antibiotic resistance patterns of staphylococcus aureus in patients admitted at kidney and liver settings in lahore, pakistan
29	Mr.Waqas Saleem	M..Phil	UCP Lahore	Molecular Detection of ToxA and oprI Gene of Pseudomonas aeruginosa for early Detection and Treatment
30	Aman Murtaza	M..Phil	UCP Lahore	To Study the Interleukin-18 Gene Polymorphism in Hepatitis C Virus Infection
31	Saman Nazir	M..Phil	UCP Lahore	To Study the HMGB1 and RAGE Gene Polymorphism in Hepatitis C Virus Infection
32	Ghulam Murtaza	M..Phil	UCP Lahore	Prevalence, resistance profiling and risk factors analysis of uropathogenic escherichia coli
33	Ms. Maryum Khan	M..Phil	UCP Lahore	Determination of antioxidant and antibacterial activity in Zingiber officinale and its phytochemical analysis
34	Hamza Saleem ur Rehman	M..Phil	UCP Lahore	Molecular Analysis of Polymorphism in AS3MT Gene causing Type 2 Diabetes and its Association with Arsenic
35	Muhammad Asif	M..Phil	UCP Lahore	Molecular analysis of genes, qnrS and qnrC in ciprofloxacin resistant salmonella enterica serovar typhi.

36	Ayesha Qamar	M..Phil	UCP Lahore	Molecular analysis of parC, parE and sul2 genes in ciprofloxacin and sulfamethoxazole resistant isolates of salmonella enteric serovar typhi
37	Aqsa Asif	M..Phil	UCP Lahore	Prevalence of plasmid-mediated genes “qnrA, qnrB, and qnrD” in Salmonella enterica serovar Typhi resistance against Fluoroquinolone
38	Fatima Khan	M..Phil	UCP Lahore	Evaluation and characterization of antibacterial and antioxidant activities in crude extracts of zingiber officinale
39	Mehwish Dabeer	M..Phil	UCP Lahore	Prevalence of Antibiotic Resistant Bacteria in Rhizospheric Soil
40	Imtiaz Ahmed	M..Phil	UCP Lahore	Isolation, identification and characterization of coil for bacteria from Pakistani currency in Lahore
41	Aqeel Ahmed	M..Phil	UCP Lahore	In silico and in vivo phytochemical analysis of Malus pumila cider vinegar on hyperuricemia
42	Muhammad Zain ul Abidin	M..Phil	UCP Lahore	Microbiological Profiling of Waterborne Pathogens in 2022 Flood Crisis of Southern Punjab
43	Tehreem Mujtaba	M..Phil	UCP Lahore	Epidemiological investigation of <i>Vibrio cholerae</i> strains in flood water of Pakistan
45	MS.Zubia Ayub	M.Phil	KIU	Chemical Contamination in Commercial Fish Species in District Gilgit: A Health Risk Assessment and Awareness Survey

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Conference Papers

1. **Muhammad Afzaal**, Adsorption of Antibiotic from Pharmaceutical Wastewater by using Chitosan-based Hydrogel organized by Emerging Scientist Season III at The Asian Digital Library (ADL) Faisalabad, Pakistan on 16-17 February 2024.
 2. **Muhammad Afzaal**, Formulation of chitosan-based hydrogel for antibiotics adsorption from pharmaceutical wastewater The 6th Conference on Emerging Materials and Processes (CEMP-23) organized by School of Chemical and Materials Engineering, NUST on 22 November 2023
 3. **Muhammad Afzaal** (key note speaker) on Environmental Friendly hydrogel for antibiotics adsorption from pharmaceuticals wastewater , Fourth International Conference on “Emerging Trends in Earth and Environmental Sciences (ETEES-2023)” organized by College of Earth and Environmental Sciences University of Punjab from 4 to 6 December 2023
 4. **Muhammad Afzaal**, Muhammad Adnan Ashraf , Ashfaqahmad , Abdullah Khan, yusraMaqbool , AmnaIqbal, Efficient Treatment of Tannery Waste Water through Aeration, Coagulation and Algal ponds. 8th International Conference on Environmentally sustainable Development ;held on August 21-23 ,2019 organized by department of environmental sciences ComsatsIslamabad, Abbotabadcampus, kpk Pakistan.
 5. Mehwishrubab, Adnan Ali nawaz, **M. Afzaal**, Using of Begass for the removal of hexavalent chromium from tannery waste and risk Assesment, 2nd international conference on "Environment and Sustainable Development", held on 13-14th March, 2018 at (GCUL), Pakistan.
 6. Muneebashabbir, FatimaNaqvi, MlihaFayyaz, **M. afzaal** .How can we curtail smog in 2018 and beyond. 2nd international conference on "Environment and Sustainable Development", held on 13-14th March 2018 at (GCUL), Pakistan
 7. **M. Afzaal**, MehmaWajid, AmnaAman, Determination of Total Suspended Particulate Matter in an Academic institute (GCUL) Lahore. 3rd international conference on "Environment and Sustainable Development", held on 13-15th September 2021 orgazied by Sustainable Development Study Center ,Government College University Lahore.
 8. **M. Afzaal**, M.A. Abdullah, Hamayunchaudhary, YasirAbdullah, Rizwan Rasheed, *Ceibapetandra* (L.) Garetn for thremoval of residual oil from oily water emulsion 1st international Conference on Emerging Trends in Earth and Environmental Sciences (ETEES) organized by College of Earth and Environment ,University of the Punjab Lahore, Pakistan March 13-15 ,2017
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9. **M. Afzaal**, M.A. Abdullah , Structural modification of *Ceibapentandra* and Bentonite clay for POME (Palmoil mill effluent) treatment. APC (2013) at Universiti Teknologi PETRONAS, Bandar Seri Iskandar, 31750 Tronoh, Perak, Malaysia.
 10. **M. Afzaal**, M.A. Abdullah*, N.A. Jumat, M.S. Nazir, Structural modification of *Ceibapentandra* and Bentonite clay for oil removal. .2nd International conference on process engineering and advanced material (ESTCON) 12-14 June 2012 Kuala Lumpur convention Center Malaysia.
 11. **M. Afzaal**, M.S Nazir, N.A Jumat , B.A Whajoodi and M.A Abdullah .Characterization of Biomaterial from *CeinbaPentendera* and empty fruit bunch. Internationat conference on green technologies on environmental rehabilitation. Febuary 11-13, (2011). Faculty of Engineering and technology Gurukul Kangri University Haridwar Uttarakhand India.

Current Supervision of Students

Ph.D Students

1. Name of PhD Scholar:	Iqra Mazhar
Registration No.	2018-GCU-PhD-ENVS-46
Course Work Completed vide:	(COE Notification No. 8690/C. Exam Dated: 28/11/2019)
Title of Research Proposal:	Photocatalytic degradation of organic pollutants from industrial effluents using metal-doped oxides nanocomposites
2. Name of PhD Scholar:	Nusrat Bashir
. Registration No.:	2020-GCU-PHD-ENVS-40
. Course Work Completed vide:	18 Credit hours/ 18/10/2021
. Title of Research Proposal:	Fabrication of mixed matrix nano-filtration membrane by using green synthesized nanoparticles for water purification
3.Name of PhD Scholar:	Syeda Saira Iqbal
Registration No.:	2019-GCUL-Ph.D-EVVS-96
Course Work Completed vide:	(COE Notification No. 5317 Dated: 12-08-2021
Title of Research Proposal:	Biofilm mediated biodegradation of plastic waste from the environment.

M.Phil Student

Name of Student	Muhammad Huzaifa Mehboob
Registration No/Roll No	0006-MPhil-ENV-23
Date of Registration	October 2023
Session	2023-2025
Title of Research Proposal	Water Quality assessment and its effects on Public Health Agricultural of Pakpattan, Pakistan

B.Sc(Hons) Students

Name of Students	Muhammad Usman Muhammad Fahad Akhlaq
Registration No/Roll No	0831-BS-ENVSC-21 0804-BS-ENVSC-21
Session	2022-2026
Title of Research Proposal	Removal of Congo Red from Textile Wastewater Using Poultry Feathers
Name of Students	NAYAB FATIMA
Registration No/Roll No	122-BS-SP-ENVSC-22 SPRING (EVENING)
Session	2022-2026
Title of Research	Removal of Pathogenic Bacteria from the sewage wastewater using nanoparticles made from eggshells
Name of Students	<i>RAFFAY NAWAB</i>
Registration No/Roll No	<i>0840-BS-ENV-21</i>
Session	2022-2026
Title of Research	THE NEXUS BETWEEN URBANIZATION AND AIR POLLUTION IN LAHORE : A GEOSPATIAL ANALYSIS”
Name of Students	Sadia A (851-BH-ENV-21) Zoha (854-BH-ENV-21)
Registration No/Roll No	(851-BH-ENV-21) (854-BH-ENV-21)
Session	2022-2026
Title of Research	Removal of Tetracycline from an aqueous Solution by Nano material Prepared from Rice Husk

