

Dr. AYESHA SIDDIQA

Assistant Professor

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📍 Institute of Microbiology and Molecular Genetics, University of the Punjab, Quid- e- Azam campus, Lahore

Professional Experience

Assistant Professor (2023-ongoing): Institute of Microbiology and Molecular Genetics, University of the Punjab, Quid- e- Azam campus, Lahore.

Lecturer (2018-2023): Institute of Microbiology and Molecular Genetics, University of the Punjab, Quid- e- Azam campus, Lahore.

Education

- 2016-2023: PhD Institute of Microbiology and Molecular Genetics (**MMG**), University of Punjab Lahore, Punjab, (Pakistan)(Cumulative GPA 3.69/4.00) Thesis Title: **Agronomic Biofortification Of Selenium In Crops Using Bacillus Strains**
- 2014-2016: M.Phil. Institute of Microbiology and Molecular Genetics (**MMG**), University of Punjab Lahore, Punjab, (Pakistan)(Cumulative GPA 3.47/4.00) Thesis Title: **Investigation of Selenium Biofortification in Lentils by Bacillus spp.**
- 2011-2013: M.Sc. Institute of Microbiology and Molecular Genetics (**MMG**), University of Punjab Lahore, Punjab, (Pakistan) (Cumulative GPA 3.52/4.00) Thesis Title: **Transformation of Selenium salts by indigenous Bacillus spp**

Publications

- Sameen Tariq, Emaan Tindyala, Aman Asif Butt, Um Ul Baneen Zehra, Hisham Tindyala, Amna Yousaf, Ayesha Aihetasham, **Ayesha Siddiqa**, Nageen Hussain. (2024) Effect of Sleep Deprivation on Reaction Time Towards Visual Stimuli in Medical Students. The Journal of Microbiology and Molecular Genetics. 5(2): 181-187
- Rabia Shahdin, **Ayesha Siddiqa**. Exploring the Synergistic Effects of Selenium, Selenite Resistant Bacteria, and Pisum Sativum Sprout Extract on Malassezia furfur. Journal of Society of Prevention, Advocacy and Research KEMU. Submitted
- Rabia Shahdin, **Ayesha Siddiqa**. Ecosystem Architects: The Vital Role of Plants in Nature's Balance. BioScientific Reviews. In press.
- Fatima Tu Zahra, Izza Taufiq, **Ayesha Siddiqa**. (2024). Evaluating the Environmental Impact of Metal Oxide Nanoparticles: An Ecotoxicological Perspective. LGU Journal of Life Sciences. Vol. 8 No. 3.341-359 <https://doi.org/10.54692/lgujls.2024.0803>
- Hussain, N., Bhatti, A. N., Khan, B. N., **Siddiqa, A.**, Azhar, S., & Zahra, T. (2024). Survey on Eczema; Its Perceptions and Characterization: Perception and Characterization of Eczema. Pakistan BioMedical Journal, 7(08). <https://doi.org/10.54393/pbmj.v7i08>
- Sohail I, Shahdin R, **Siddiqa A.** (2024) Bacterial assisted phytoremediation of selenite in mung bean plants. BioSci Rev. 6(3):65-82. <https://doi.org/10.32350/bsr.63.04>
- Rabia Shahdin, Nayab Batool, Afshan Shafi, **Ayesha Siddiqa**. (2024), Isolating Indigenous Metal Resistant Gram Positive Bacteria: Assessing their Selenite Reduction Potential The Journal of Microbiology and Molecular Genetics Vol 5 (1) 83-95. <https://doi.org/10.52700/jmmg.v5i1.159>
- **Siddiqa Ayesha** and Faisal Muhammad. Isolation of Selenite reducing plant growth promoting novel genus bacteria from Pakistan (2022). Res. J. Biotech.; Vol. 17(10); 1-11; doi: <https://doi.org/10.25303/1710rjbt01011>

- **Siddiqa, A.**, Munir. R., Faysal. M. Anti-tumor effects of Sodium Selenite on Acute Lymphocytic Leukemia. *J Can Res Ther* 2021; 17:266-8.
- Akhtar Mahvish, **Siddiqa Ayesha** and Faisal (2016), Impact of UV Treatment on Exotoxin production by Bacillus species Muhammad, *Research Journal of Biotechnology*, Vol. 11 (3), 92-99.
- **Ayesha Siddiqa**, Shaiq Sultan and Muhammad Faisal. (2014)Selenium Detoxification by Bacillus spp. Isolated from indigenous polluted sites, *Journal of Environment and Earth* Vol.4, 196-201.

CHAPTERS

- Izza Taufiq ☑, Fatima Tu Zahra ☑, **Ayesha Siddiqa** ☑. 2024 "Nanotoxicology of metal oxides and their impacts on environment". In: *Membrane technologies for heavy metal removal from water and wastewater*. Juhana Jaafar ☑, Asad A. Zaidi ☑, Muhammad Nihal Naseer ☑ (eds) 65-77. CRC Press, Taylor & Francis Group, LLC. <https://doi.org/10.1201/9781003326281> ☑
- **Ayesha Siddiqa**, Muhammad Faisal, 2021. Microbial degradation of organic pollutants using indigenous bacterial strains. In: *Handbook of Bioremediation*, Hasanuzzaman M., Prasad, M. N. V., (eds) 625-637. Elsevier. London. <https://doi.org/10.1016/B978-0-12-819382-2.00039-9> ☑
- **Ayesha Siddiqa** and Muhammad Faisal, 2020. Heavy Metals: Source, Toxicity Mechanisms, Health Effects, Nanotoxicology and Their Bioremediation. In: *Contaminants in Agriculture Sources, Impacts and Management*. Naeem M., Ansari A.A., Gill S.S., (eds), 117-142. Springer. Switzerland
- **Ayesha Siddiqa** and Muhammad Faisal. Phytoremediation of Chromium-Polluted Soil Using Plants in Conjunction with Microbes. In: *Phytoremediation Management of Environmental Contaminants* vol 6, 2019 Springer, p:215- 234.

List of Students Supervised

Name of student: Ifra Sohail

Roll number: MMG13S18

Class: M.Phil. Spring Session 2018-2020

Title of thesis: Isolation And Characterization of Selenium Degrading Bacteria and Evaluation of Their Biofortification Potential.

Name of Student: Ifra Sakhawat

Roll number: MMG-18-18

Class: M. Phil Session 2018-2020

Title of the Thesis: Isolation and characterization of oil degrading bacteria and their metal resistance profile.

Name of Student: Ayesha Nawaz

Roll number: MMG-18-20

Class: M.Phil. Session 2018-2020

Title of the Thesis: Determination of physical parameters of indigenous isolates and their Chromium reduction

Name of Student: Hafiz Muhammad Rehan

Roll number: MMG-16-44

Session BS honors. 2016-2020

Title of the Thesis: Isolation of chromate reducing bacteria and their chromate detoxification potential

Name of Student: Seemab Fatima

Roll no. M.Phil-MMGo8F19

(Session 2019-2021)

Title of the Thesis: Growth promotion of *Zea mays* by bacterial isolates in the presence of bioavailable selenium

Name of Student: Qinza Ali Shahid

Roll no. MMG23F20

SESSION 2020-2022

Title of the Thesis: Comparative analysis of Foliar application of Elemental Selenium and Selenium nanoparticles on plant growth

Name of Student: Baber Ali

Roll no. BSMMG43F18

Session: 2018-2023

Title of the Thesis: Estimation of Selenium and Chromate Reduction Potential of Bacteria from Polluted Soil

Name of Student: Inam Sarwar

Roll no. MSMMG25F21

SESSION 2021-2023

Title of the Thesis: Investigation of Selenite-detoxifying Bacteria and their Phytoremediation Potential

Name of Candidate: Nayab batool

Roll number: MMG16F22

SESSION 2022-2024

Title of the Thesis: Lettuce Growth and Biofortification via Selenite-Reducing Bacteria and Selenium Nanoparticle

Name of Candidate: Afshan shahzadi

Roll number: MMG15F22

SESSION 2022-2024

Title of the Thesis: Effects Of Selenium And Hydrogen Peroxide Oxidative Stress Responses In *Zea Mays* L. Seedlings

Name of Candidate: Rabia Shahdin

Roll number: MMG28F20

SESSION 2021-2024

Title of the Thesis: Impact of Selenium Resistant Bacteria on seed Germination of *Pisum sativum*

Projects

RESEARCH PROJECT 2019-2020

Project title: Bio-detoxification and reduction analysis of potent cyanide compounds by isolated bacterial species

RESEARCH PROJECT 2021-2022

Project title: Comparative analysis of plant growth promotion by elemental Se and Se nanoparticles

RESEARCH PROJECT 2022-2023

Project title: Selection of high selenite-resistant strains, investigation of their physiological characteristics, and execution of phytoremediation techniques.

RESEARCH PROJECT 2024-2025

Project title: Inhibition of *Malassezia furfur*: Evaluating the Efficacy of Basil, Apple Cider Vinegar, Pea Extract, and Selenium

Commands on

- Microsoft Office, Bioinformatics programming using Galaxy, Python, GeneMark
- Statistical tools and softwares like SPSS, Statistix, Genstat Statistical designs (CRD, RCBD etc.) Prism, imagej