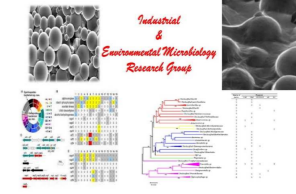




# Industrial and Environmental Microbiology



## GROUP INTRODUCTION

The Industrial and Environmental Microbiology Research Group is passionate to work on diverse research areas within the domain of Microbiology, Molecular Biology, Industrial Biotechnology, Dairy Microbiology, Systematics & Taxonomy, Tissue Culture and Bacterial Metabolites Encapsulation.

## GROUP HEAD

**Dr. Arshia Amin Butt**

Dr. Arshia completed her PhD degree in Microbiology with specialization in Microbial Biotechnology, Bacterial Systematics and Taxonomy from Department of Microbiology, Quaid-i-Azam University Islamabad. Her research work included the isolation and identification of bacteria based on 16S rRNA gene sequence. She experimented on house keeping gene(s) as well as whole genome sequence of selected bacterial strains. She had sequenced many bacterial strains using 16S rRNA gene and submitted these sequence data to DNA database. She had also worked on 2nd generation pyrosequencing technique and analyzed huge data by using various bioinformatic tools. She remained Senior Research Fellow at Yunnan Institute of Microbiology (YIM), Yunnan Kunming China. She had worked with National Agriculture Research Centre Islamabad on Micropropagation of commercially important Date palm varieties. She had also worked with Pakistan Biological Safety Association and Fogarty International Centre, NIH, USA on Biosafety and Biosecurity related projects. Dr Arshia is a lifetime member of Next Generation Global Health Security Network and Pakistan Biosafety Association. She is also active member of American Society of Microbiology. She is recipient of numerous national and international trainings and certifications. Presently she is actively involved in Academia and Research at Department of Bioinformatics and Biosciences, Capital University of Science and Technology, Islamabad.



## Awards and Distinctions of Head

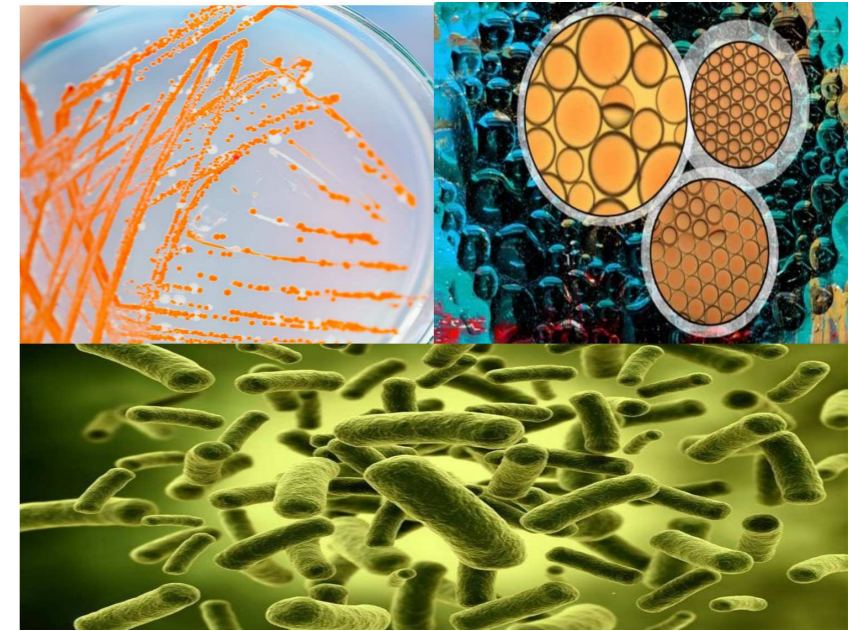
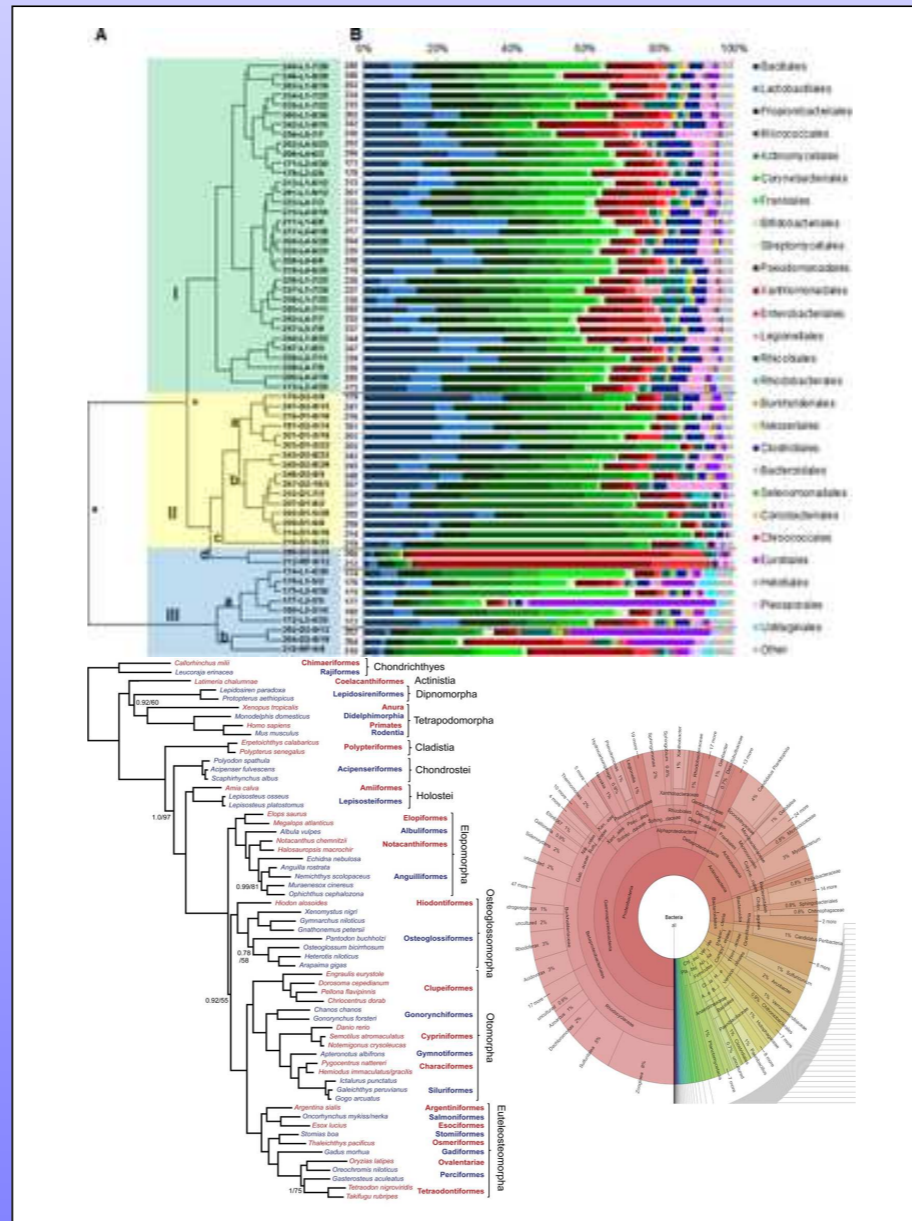
- Certified by IFBA for Biorisk Management
- Certified for Transportation of Infectious Substance by WHO
- Awarded for "Best Presenter Award" in International Conference on Date Palm entitled "Date palm Tissue Culture, Outstanding Problems and Solutions."

## RESEARCH AREAS

- Glacial Soil Bacterial Diversity Shift and Impact of Physicochemical Characteristics over Diversity Distribution
- Psychrophilic Bacterial Diversity and Isolates Antibiotic Resistance Pattern
- Microbially Enhanced Oil Recovery (MEOR) with reference to Biotransformation Capability and Enhanced Surfactant Activity
- Encapsulation of Probiotic Bacteria and Metabolites for Biodegradable Polymers
- Antimicrobial Activities of Medicinally Important Plants
- Characterization and Identification of novel Bacterial Species from Extreme Environments
- Bacterial Systematic and Taxonomy
- Psychrophilic Bacterial Diversity and Antibiotic Resistance Pattern of Isolates
- High Temperature Tolerance in Various Microorganisms at Molecular level
- Identification of Novel High Temperature Tolerant Bacteria and their Mechanisms of Tolerance
- Proteomics in Bacteria for Targeting of high Temperature Tolerance

## GROUP MEMBERS

- Hafsa Raja
- Zainab Rasheed Bhutto
- Tehseen Zahra
- Sajjida Tayyaba
- Rabia Shahid
- Quratul Ain Rehman
- Barira Anees
- Sundus Batool
- Tooba Khalid
- Hareem Batool
- Shagufta Batool



## Selected Publications

- A. Amin, I. Ahmed, N. Salam, B.Y. Kim, D. Singh, X.Y. Zhi, M. Xiao, and W.J. Li, "Diversity and distribution of thermophilic bacteria in Hot Springs of Pakistan". **Microbial Ecology**, vol. 74, no. 1, pp. 116, 2017.
- A. Amin, I. Ahmed, N. Khalid, G. Osman, I. U. Khan, M. Xiao, and W. J. Li, "Streptomyces caldifontis sp. nov., isolated from a hot water spring of Tatta Pani, Kotli, Pakistan". **Antonie van Leeuwenhoek Journal Microbiology**, vol. 110, no. 1, pp. 77, 2017.
- A. Amin, I. Ahmed, N. Habib, S. Abbas, F. Hasan, M. Xiao, W. N.Hozzein, and W. J. Li, "Microvirga Pakistanensis sp. nov., a novel bacterium isolated from desert soil of Cholistan, Pakistan. **Archives of Microbiology**". **International Journal of Systematic and Evolutionary Microbiology**, vol. 198, no. 10, pp. 933, 2017.
- I. U. Khan, F. Hussain, N. Habib, M. Xiao, I. Ahmed, A. Amin, X. Y. Zhia, and W. J. Li, "Nocardioides thalensis sp. nov., isolated from a desert". **International Journal of Systematic and Evolutionary Microbiology**, vol. 67, no. 8, pp. 2848, 2017.
- I. U. Khan, N. Habib, F. Hussain, W. D. Xian, A. Amin, E. M. Zhou, I. Ahmed, X. Y. Zhi, and W. J. Li, "Thermus caldifontis sp. nov., a thermophilic bacterium isolated from a hot spring". **International Journal of Systematic and Evolutionary Microbiology**, vol. 67, no. 8, pp. 2868, 2017.
- A. Amin, I. Ahmed, N. Habib, S. Abbas, M. Xiao, W. N.Hozzein, and W. J. Li, "Nocardioides Pakistanensis sp. nov., isolated from hot water spring of Tatta Pani in Pakistan". **Antonie van Leeuwenhoek Journal Microbiology**, vol. 109, no. 8, pp. 1101, 2016.
- A. Amin, I. Ahmed, G. Osman, N. Habib, F. Hussain, M. Xiao, M. N. Rao, and W. J. Li, "Proposal of Zafarii solitudinis sp. nov., a halotolerant bacterium isolated from hot water spring of Tatta Pani, Pakistan". **International Journal Systematic and Evolutionary Microbiology**, vol. 109, no. 8, pp. 1101, 2016.
- M. I. Afridi, N. Ali, K. I. Shinwari, M. A. Hassan, A. Amin, A. Shah, and A. Muhammad, "Optimization of Aseptic Conditions for Micropropagation of Olive (Olea europaea L.) Cultivar Uslu". **Journal of Bio-Molecular Sciences (JBMS)**, vol. 3, no. 1, pp. 35, 2015.