



Usman Akhtar Butt

Gender: Male

EDUCATION AND TRAINING

01/11/2021 – 31/10/2024 Rome, Italy

PHD - LIFE SCIENCES Sapienza University of Rome

Level in EQF EQF level 8

27/09/2015 – 15/11/2017 Rawalpindi, Pakistan

MASTER'S DEGREE IN ZOOLOGY (M.PHIL ZOOLOGY) PMAS Arid Agriculture University

Level in EQF EQF level 7

13/11/2011 – 14/07/2015 Sargodha, Pakistan

BACHELOR OF SCIENCE (HONOURS) IN ZOOLOGY University of Sargodha

Level in EQF EQF level 6

WORK EXPERIENCE

02/09/2018 – 03/2021 Sargodha, Pakistan

LECTURER (VISITING) UNIVERSITY OF SARGODHA

Worked as a visiting lecturer in the Department of Zoology, University of Sargodha, Pakistan.

LAB RELATED SKILLS

Expertise in:

Microbial DNA extraction from biological specimens
PCR & Gel electrophoresis
DNA quantification & quality control (NanoDrop, UV-visible spectrophotometry)
Ultrafiltration for DNA purification
Bacterial culture techniques (including urine culture, aerobic & anaerobic)
Glycerol stock preparation for bacterial strains
Bacterial transformation & electrocompetent cell preparation (electroporation)
Preparation of different culture media
Plasmid purification
DNA digestion using restriction enzymes
Antibiotic susceptibility testing (disc diffusion assay and microplate MIC)
Assessment of bacterial survival upon exposure to nanomaterials
Enzymatic assays (GABA quantification)
Acid resistance assays in various bacterial species
Colony isolation and preservation
Urine preservation
Complete Blood Count (CBC)
Histological techniques
Bioinformatics analysis using QIIME 2

HONOURS AND AWARDS

16/07/2022

CIVIS Summer School: Single-cell approaches and omics / Exploring the emerging role of the host microbiome in tumor heterogeneity – University of Bucharest, Romania

A summer School organized by CIVIS Alliance members for which I was selected and awarded mobility grant.

01/11/2021

Fully Funded PhD Scholarship – Sapienza University of Rome

I competed internationally and was selected for a fully funded PhD scholarship at Sapienza University of Rome, Italy.

2016

PEEF Scholarship – Government of Punjab, Pakistan

During my M.Phil (Master's degree), I was selected for and awarded the PEEF Scholarship for the entire duration of my degree by the Government of Punjab, Pakistan.

2016

Awarded Laptop – Government of Pakistan

I was awarded a laptop by PM's National Merit-based Laptop Scheme during my M.Phil (Master) degree.

WORKSHOPS

04/05/2022

CIVIS Workshop on Microbiota-related Research Tools - University of Bucharest.

Microbiota-related Research Tools organized by CIVIS

- Methodological aspects in the study of the microbiota and Inflammatory Bowel Disease

- Data analysis and statistical approach in microbiota research

08/02/2022

CIVIS Masterclass in CV & Cover letters - University of Glasgow.

Masterclass in CV and Cover letters organized by CIVIS

27/12/2021

Hands on Training for the Identification of Ticks - UVAS, Lahore.

HEC and World Bank funded GCF-273 project organized by Department of Parasitology, University of Veterinary & Animal Sciences, Lahore.

27/11/2019

Indigenous Faculty Development Program for Enhancing Teaching Skills of University Teachers, at the Committee Hall, Office of the Vice Chancellor, Sargodha University, Pakistan.

CONFERENCES

23/10/2024 – 25/10/2024

International Union of Microbiological Societies (IUMS 2024 Congress), Florence, Italy

Organized by KENES Group for IUMS.

08/12/2017 – 09/12/2017

1st International Conference on Emerging Trends in Zoology (1st ICETZ 2017)

Organized by Department of Zoology, University of Sargodha, Sargodha, Pakistan.

16/02/2016 – 18/02/2016

36th Pakistan Congress of Zoology (International)

Organized by Zoological Society of Pakistan, University of Sindh, Jamshoro, Pakistan.

PROJECTS

2023

NANOtechnology inspired biosensor with photo-responsive Liquid Crystals –NANO-LC

I was involved in a project funded by NATO - Science For Peace and Security Programme. I performed bacterial cultivations and survival tests required as part of the experimental protocols developed in my supervisor lab.

2023

The Glutaminase-Dependent Acid Resistance System in Enteric Bacteria

I was involved in performing microbiological and enzymatic tests to expand knowledge of acid resistance in *Yersinia ruckeri*.

2022

Construction of EPEC double gadC mutant strain to unveil the role of the two gadC

I was involved in performing microbiological and enzymatic tests to study the functioning of the acid resistance system in EPEC.

I conducted comprehensive research on the human urinary microbiome as it was my PhD project. It included various activities that are already listed in my lab-related skills section. The study was in collaboration with the urology units of two hospitals, one in Rome and one in Latina.

POSTER PRESENTATIONS

23/10/2024

Investigating the role of microbiota in bladder cancer

Poster Presented at the 18th Congress of the International Union of Microbiological Societies (IUMS 2024), Florence, Italy.

23/10/2024

Occurrence of functional glutamine/glutamate-acid resistance systems in *Yersinia ruckeri*

Poster Presented at the 18th Congress of the International Union of Microbiological Societies (IUMS 2024), Florence, Italy.

16/07/2022

The role of microbiota in urinary tract cancer

Poster presented at the University of Bucharest, Romania, during a CIVIS summer school.

PUBLICATIONS

2025

Enhancing Bacteria Inactivation: Computational Insights Into the Use of Laser Irradiated Gold Nanoparticles

Koulali A., Ziółkowski P., Radomski P., Petronella F., Zaccagnini F., Nevárez Martínez, M.C., De Biase D., **Butt U.A.**, Zieliński J., De Sio L. Mikieliewicz D. (2024) Chapter 7: Enhancing Bacteria Inactivation: Computational Insights Into the Use of Laser Irradiated Gold Nanoparticles. In: *Biotechnology and human enhancement: present research and future perspectives*. NATO Science for Peace and Security Series A: Chemistry and Biology. Springer (in press).

Link: <https://link.springer.com/book/9789402422955>

Book chapter

2024

Cascade structured plasmonic liquid crystal biosensor for the rapid detection of harmful bacteria dispersed in potable water

Sforza, M.L., Petronella, F., De Biase, D., Zaccagnini, F., Lim, S.I., **Butt, U.A.**, d'Alessandro, A., Godman, N.P., Evans, D.R., McConney, M. and Jeong, K.U., 2024. Cascade Structured Plasmonic Liquid Crystal Biosensor for the Rapid Detection of Harmful Bacteria Dispersed in Potable Water. *Advanced Sensor Research*, p.2300201. DOI: 10.1002/adsr.202300201

Link: <https://advanced.onlinelibrary.wiley.com/doi/full/10.1002/adsr.202300201>

Research article

2024

Occurrence of functional glutamine/glutamate-acid resistance systems in *Yersinia ruckeri*

Butt, U.A. and De Biase, D., 2024. Occurrence of functional glutamine/glutamate-acid resistance systems in *Yersinia ruckeri*. In *The 18th Congress of the International Union of Microbiological Societies (IUMS 2024)* (pp. 1353-1354). Frontiers. DOI: <https://dx.doi.org/10.3389/978-2-8325-5119-6>

Abstract in conference proceedings

2024

Investigating the role of microbiota in bladder cancer

Butt, U.A., Antonioni, A., Rosato, E., Al Salhi, Y., Mollo, L., Mancini, C., Pastore, A.L., Finazzi Agrò, E., Carbone, A. and De Biase, D., 2024. Investigating the role of microbiota in bladder cancer. In *The 18th Congress of the International Union of Microbiological Societies (IUMS 2024)* (pp. 1476-1478). Frontiers. DOI: <https://dx.doi.org/10.3389/978-2-8325-5119-6>

Abstract in conference proceedings

2023

Haematological Alterations in Common Carp (*Cyprinus carpio*) Infected by *Saprolegnia* spp.

Anjum, M.Z., Junaid, M., **Butt, U.A.**, Irfan, M., Muhammad, Z. and Khan, M.Q., 2023. Haematological Alterations in Common Carp (*Cyprinus carpio*) Infected by *Saprolegnia* spp. *Asian Journal of Research and Review in Agriculture*, pp.99-105.

Link: <https://www.jagriculture.com/index.php/AJRRRA/article/view/69>

Research Article

2020

A review on Chitosan: As a potent fish preservative

Siddique, F., Arshad, M., Hassan, W., Hussain, S. Z., **Akhtar, U.**, 2020. A review on Chitosan: As a potent fish preservative. International Journal of Biosciences. 16(4), 90-101.
Link: <https://hdl.handle.net/11573/1643919>.

Review article

2015

Autotomy: An Important Tool in Spiders to Avoid Life Threatening Situations

Tahir, H.M., Naseem, S., Zahra, K., **Akhtar, U.**, Mumtaz, R., Khalid, R. and Nouman, M., 2016. Autotomy: An important tool in spiders to avoid life threatening situations. Biologia (Pakistan), 61 (2), pp. 329-333.

Link: <https://hdl.handle.net/11573/1643988>.

Research Article

2014

Toxicity and Avoidance Behavior of Coccinella septempunctata (Coleoptera: Coccinellidae) Against Deltamethrin

Tahir, H.M., Yaqoob, R., **Akhtar, U.**, Ahmed, K., and Sharif, M., 2014. Toxicity and Avoidance Behaviour of Coccinellaseptempunctata (Coleoptera: Coccinellidae) Against Deltamethrin. Biologia (Pakistan), 60(2), pp.305-307.

Link: <https://hdl.handle.net/11573/1644001>.

Research article

COURSES

29/03/2024 – 30/04/2024

Corso D.Lgs. 81/2008: Workers. KPMG Advisory S.p.A. in e Learning mode - Sapienza University of Rome.

From Ramon y Cajal to CryoEM Course for Advanced Microscopy organized by Sapienza University of Rome.

15/03/2024

Career development plan for early stage researchers - Sapienza University of Rome.

Preparing Artwork for scientific papers by Giorgio Giardina and Stefano Gianni (Sapienza University of Rome).

10/10/2023 – 10/10/2023

Imaging 3D cellular models for biomedical applications. Theoretical-practical course - Sapienza University of Rome.

30/01/2023 – 31/01/2023

Advanced Microscopy - Sapienza University of Rome.

06/05/2022

Preparing artwork for scientific papers getting started in scientific illustration - Sapienza University of Rome.

DIGITAL SKILLS

Search engine optimization | Microsoft Office | CISCO Certified Network Associate

LANGUAGE SKILLS

Mother tongue(s): **URDU**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C2	C2	C2
ITALIAN	A2	A2	A1	A1	A1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user