

Sadia Ahmed

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EDUCATION

Ph.D., Biotechnology, Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, May 2024, Pakistan.
Thesis research conducted at the National Institute for Biotechnology and Genetic Engineering constitutional college (NIBGE-C) with Dr. Arsalan Zaidi, entitled “Probiotic food products development and investigation of their safety and stability aspects”.

Partial research conducted at Division of Gastroenterology & Liver Disease, Department of Medicine, Case Western Reserve University (CWRU) Cleveland, USA with Dr. Alexander Rodriguez-Palacios.

M. Phil., Biotechnology, Pakistan Institute of Engineering and Applied Sciences (PIEAS), Islamabad, Sep. 2015, Pakistan.

Thesis research conducted at the National Institute for Biotechnology and Genetic Engineering constitutional college (NIBGE-C) with Dr. Romana Tabassum, entitled “Expression and characterization of α -amylase into *Pichia pastoris* SMD1168”.

BS (H), Microbiology, Government College University, Lahore, Sep. 2013, Pakistan.

Thesis research conducted at the University of Veterinary and Animal Sciences, (UVAS) entitled “Isolation and characterization of fowl adenovirus causing Hydro pericardium syndrome”.

PROFESSIONAL EXPERIENCE

Research Assistant 3, Case Western Reserve University, Division of Dermatology, Cleveland, Ohio, 2023-Present

Proficient in a diverse range of microbiological techniques including anaerobic bacterial and fungal culturing, antimicrobial studies, flow cytometry, fluorescence, and confocal microscopy. Experienced in mammalian cell culture studies focusing on anti-inflammatory effects of probiotics and postbiotics. Skilled in conducting animal studies, particularly with mice, to evaluate the efficacy of postbiotics. Demonstrated ability to execute comprehensive experimental protocols and analyze results effectively.

Visiting Research scholar, Division of Gastroenterology & Liver Disease, Department of Medicine, Case Western Reserve University (CWRU), Cleveland, April 2022-Nov 2022

Used Germ-free (GF) and specific-pathogen-free (SPF) mouse models to investigate the therapeutic potential of probiotics. Conducted oral gavaging, dissection of mice, behavioral testing, and established colitis disease models. Proficient in handling and managing experimental animals for preclinical research.

Research associate, National Institute for Biotechnology and Genetic Engineering, Faisalabad, Pakistan, 2018- 2020

Led the development of probiotic foods, ensuring safety and effectiveness. Managed food fermentation, simulated digestion tests, gene cloning, enzyme studies, and bacteriocin production. Crafted an unparalleled sensory experience, seamlessly integrating probiotics without compromise through cutting-edge microencapsulation methodologies

Research assistant, National Institute for Biotechnology and Genetic Engineering, Faisalabad, Pakistan, 2015- 2018

Isolated and characterized probiotic bacteria from diverse sources, evaluating their potential as starter cultures. Oversaw project administration, managing tasks, and writing SOPs. Provided training to undergraduate students in laboratory techniques.

PEER-REVIEWED PUBLICATIONS

1. **Ahmed, S., Muhammad, T., & Zaidi, A. (2021).** Cottage cheese enriched with lactobacilli encapsulated in alginate–chitosan microparticles forestalls perishability and augments probioticactivity. *Journal of Food Processing and Preservation*, e15473. <https://doi.org/10.1111/jfpp.15473>

2. **Ahmed, S.**, Ashraf, F., Tariq, M. *et al.* (2021). Aggrandizement of fermented cucumber through the action of autochthonous probiotic cum starter strains of *Lactiplantibacillusplantarum* and *Pediococcus pentosaceus*. *Annals of Microbiology*, 71, 33 <https://doi.org/10.1186/s13213-021-01645-5>
3. **Ahmed, S.**; Singh, S.; Singh, V.; Roberts, K.D.; Zaidi, A.; Rodriguez-Palacios, A. The Weissella Genus: Clinically Treatable Bacteria with Antimicrobial/Probiotic Effects on Inflammation and Cancer. *Microorganisms* 2022, 10, 2427. <https://doi.org/10.3390/microorganisms10122427>
4. **Ahmed, S.**, Muhammad, T., & Zaidi, A. (2023). Improving yogurt functionality enriched with *Lacticaseibacillus rhamnosus* and aloe vera through response surface methodology. *Food Production, Processing and Nutrition* 5, no. 1: 38. <https://doi.org/10.1186/s43014-023-00153-0>
5. Singh, V., West, G., Fiocchi, C., Good, C. E., Katz, J., Jacobs, M. **Ahmed, S.**, R., ... & Rodriguez-Palacios, A. (2024). Clonal Parabacteroides from Gut Microfistulous Tracts as Transmissible Cytotoxic Succinate-Commensal Model of Crohn's Disease Complications. *bioRxiv*, 2024-01.
6. Roberts KD, **Ahmed S**, San Valentin E, Di Martino L, McCormick TS, Ghannoum MA. Immunomodulatory Properties of Multi-Strain Postbiotics on Human CD14+ Monocytes. *Life* (Basel). 2024 Dec 17;14(12)
7. **Ahmed, S.**, & Zaidi, A. (2025). The entwined history of fermentation and probiotic foods: Prospects for biotherapy and industrial production, *International Journal of Food Science*. (Accepted)
8. **Ahmed, S.**, Singh, S., Singh, V., Roberts, K., Zaidi, A., Rodriguez-Palacios, A., Effect of Probiotics (*Pediococcus*, *Weissella* and *Enterococcus*) and Pathobionts from gut wall Crohn's Disease Microlesions depends on mouse susceptibility to IBD (Under REVIEW)
9. **Ahmed S**, Roberts KD, McCormick TS, Ghannoum MA. Improving Growth Dynamics of *Faecalibacterium prausnitzii* by exposure to prebiotics. (Under Preparation).

AWARDS AND SCHOLARSHIPS

April-Nov 2022	Case Western Reserve University, Cleveland, International research support initiative program,
Jan 2019-Mar 2022	Indigenous PhD Scholarship by HEC Pakistan
November 2015	Awarded Merit certificate and 3rd position certificate in M. Phil
January 2014	Awarded 2nd position certificate for BS (Hons)

TECHNICAL SKILLS

Techniques: Flow cytometry, Confocal and fluorescence microscopy, Aerobic and anaerobic microbial culturing, Mammalian cell culture, DNA and RNA isolation, qPCR, PCR, gel electrophoresis, mouse handling and dissection.

Software: Proficient in MS Office Suite, GraphPad Prism, EndNote, Image J, Flowjo.