

A Review on Probiotics and Their Use in the Treatment of Various Diseases

Sarika Joga¹, Sreekanth Madathala², Pothula Sreeja³, Puram Ruchitha⁴

Assistant Professor, Department of Pharmacology¹

Professor, HOD of Pharm D²

Students, Department of Pharmacology^{3,4}

Sarojini Naidu Vanita Pharmacy Maha Vidyalaya, Hyderabad, India

Abstract: Probiotics are live microorganisms that provide health benefits when consumed in adequate amounts, primarily by modulating the host's microbiota and immune responses. Traditionally recognized for their role in maintaining gut health, probiotics are now gaining attention for their therapeutic potential in a variety of diseases, including gastrointestinal disorders, metabolic syndromes, allergic conditions, urogenital infections, neurological diseases, and even as adjuncts in cancer therapy. This review highlights the mechanisms through which probiotics exert their effects—such as enhancing intestinal barrier function, competitive inhibition of pathogens, and immunomodulation. Furthermore, it explores specific probiotic strains and their efficacy in clinical settings, supported by current scientific evidence. Despite promising outcomes, the field faces challenges regarding strain specificity, regulatory standards, and long-term safety. Future research directions include the development of personalized probiotics, synbiotics, and postbiotics to enhance therapeutic outcomes

Keywords: Probiotics, Gut Microbiota, Gastrointestinal Diseases, Immune Modulation, Metabolic Disorders, Psychobiotics, Synbiotics, Postbiotics, Clinical Applications, Microbial Therapy.

