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Probiotics intervention: A promising approach to control Metabolic disorders and infections

Microorganisms are closely associated with and controlling various metabolic activities directly or indirectly in humans. The disruption and/or any disbalance in the microbial composition may be linked to different metabolic disorders. The chemotherapeutic treatments used to cure the diseases are also known to pose negative health impacts; also the development of antibiotic resistance among pathogens has challenged or limited their applications to control infections. Therefore, there is a need to discover natural means to prevent and cure the infections and other metabolic disorders. Probiotics intervention as supplements or consumption of probiotics carrying food products is one such promising approach that can help maintain microbial homeostasis; thereby lead to healthy life. In our lab, Lactobacillus reuteri strains from breast fed infant feces were isolated and screened for various probiotic attributes. Among various strains tested, L. reuteri LR6 showed maximum tolerance to simulated gastric and duodenum conditions, auto-aggregation, adhesion to Caco-2 cell lines. The strain showed cholesterol lowering and pathogen inhibition abilities under both in-vitro and in-vivo conditions. Also, it was evident that Cell surface proteins play an important role in probiotic activities, such as survival in intestinal conditions, adhesion etc., of the strain LR6. The cell surface proteins and extracellular proteins from the strain LR6 were also found to play an important role in pathogens inhibition and controlling the expression of various genes involved in gut barrier functions using Caco-2 cell lines. It is believed that the indigenous strain L. reuteri LR6 has great potential and can be explored further for practical application.

Speaker Biography

Tejinder Pal Singh has completed his PhD at the age of 26 years from National Dairy Research Institute, Karnal, India. He is working as an Assistant Professor in Dairy Microbiology Department, College of Dairy Science and Technology, LUVAS, Hisar, India. He has published over 15 research and review articles, 6 popular articles, 4 book chapters that have been cited over 150 times. He has also received best paper and best poster awards at different platforms.

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