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Characterizing and evaluating putative indigenous probiotic lactobacilli strain from human feces against inflammatory disorders

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The human and animal gastrointestinal microbiota is a complex ecosystem composed of a diverse microbial population, which is constantly exposed to endogenous microbes, exogenous pathogenic and non pathogenic microorganisms and varied food ingredients. Lactobacilli constitute the normal component of the intestinal microflora in both human and animals and are acclaimed as the key member of probiotics. A probiotic should be of human origin, withstand transit through the GI tract, adhere to intestinal epithelial cells, produce antimicrobial substances, modulate the mucosal immune system, have a beneficial effect on the host, be safe, genetically stable, withstand processing of the foodstuff and remain viable through the shelf life and viability at high populations (108cfu/ml or more-which is considered as the effective dose). Probiotic therapy can be utilized to prevent several diseases like ulcerative colitis, Traveler's diarrhea, Crohn's disease, etc. Thus, quantification of genes encoding specific physiological attributes at transcriptional level is an important criterion to know gene functionality. Initially, several putative indigenous probiotic *Lactobacillus* isolates along with standard culture *L. plantarum* CSCC5276 were screened based on their hydrophobicity and cell adhesion property on human adenocarcinoma cell lines namely HT-29 and Caco-2 cell lines. Two of the probiotic cultures namely Lp9 and Lp91 were able to exhibit immuno-modulatory properties by up regulating MUC2 expression and the key anti-inflammatory cytokines (IL-10, IFN-α and TGF-β) and regulating the pro-inflammatory markers (IL-8, TNF-α, IFN-γ and IL12p35) and other signaling molecules (COX-1, COX-2 and Hsp70). Hence, it can be concluded that Lp91 and Lp9 were the most promising indigenous probiotic strains and can be explored as potential probiotics for boosting gut health and immunity.

Biography

Raj Kumar Duary has completed his Ph.D. at the age of 28 years from National Dairy Research Institute. Currently, he is working as Assistant Professor in Department of Food Engineering and Technology, Tezpur University, Napaam, Assam, India. Undertook academic project on 'Modulation of gene expression by probiotic lactobacilli under simulated in vitro gut environment' for Ph.D. dissertation work. He has published 10 papers in reputed journals.

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