



Isolation, Characterization and Health Benefit Evaluation of Probiotics Strains

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Abstract: *Lactic acid bacteria (LAB) are widely recognized for their beneficial health effects, making them critical in the development of new probiotics for food applications. The global importance of probiotics lies in their potential to improve health and provide economic benefits. This study focused on isolating and evaluating the probiotic properties of LAB strains from various food samples. A total of eight LAB isolates were obtained and characterized to assess their probiotic potential. Among these, five strains showed promising probiotic traits, with three exhibiting significant antimicrobial activity against *Escherichia coli*. The antimicrobial effects of LAB strains were*

primarily attributed to the production of bacteriocins, organic acids, and low-molecular-weight substances, which are known to inhibit pathogenic microorganisms. Notably, one of the five strains demonstrated bile salt hydrolase (BSH) activity, an essential property that enhances the ability of probiotics to survive in the gastrointestinal tract and potentially contribute to cholesterol metabolism. These findings highlight the functional diversity among LAB strains and their potential applications in developing health-promoting products. While the results are promising, further in vivo studies are required to confirm the safety, efficacy, and functional benefits of these LAB strains. If validated, they could be considered as viable probiotic candidates for incorporation into functional foods, contributing to enhanced consumer health and well-being. This study underscores the value of exploring various food sources for identifying new LAB strains with significant probiotic potential, paving the way for advancements in the field of functional foods and probiotics.

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Keywords: *Lactic acid bacteria; probiotic; BSH activity; antimicrobial activity.*

Introduction:

Probiotics are live microorganisms, primarily bacteria or yeasts, that, when consumed in adequate amounts, can confer specific health benefits to the host. These beneficial microbes interact with the gut microbiota, promoting a balanced microbial environment and supporting various physiological functions. When taken in the right quantities, probiotics can enhance