LB-9, plant-originated lactic acid bacteria having high stability in simulated gastro-intestinal conditions and improving colitis in DSS-induced mouse model

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The plant-originated probiotics are known as beneficial bacteria that lived in fruit or vegetable fermented food. They were also known that exhibit various biological effects and have higher stability in stressed conditions than probiotics derived from dairy products. In this study, many lactic acid bacteria that isolated from Kimchi were tested for their characterization including tolerance to acidic and bile acidic conditions, adhesion to intestinal cells. Finally, LB-9, two novel lactic acid bacteria, L. Plantarum LRCC5193 and LRCC5273 were selected for application to many food products such as biscuit, chocolate, wafers, and milk. Also, we report that both the LB-9 probiotics ameliorate DSS-induced colitis using a mouse model. Under our experimental condition, oral administration of probiotic LB-9 and milk product of LB-9 was performed twice in a day for 7 days and the mice were followed by DSS treatment in order to induce pathological colitis. We found that DSS-induced intestinal apoptotic death was reduced in the mice treated with LB-9 compared to control. In addition, reduction of the apoptotic death was correlated with inhibition of proinflammatory cytokine-induced apoptotic signaling pathways by LB-9 treatment. Especially, NF-κB-mediated activation of the apoptotic index is significantly down-regulated in the DSS-induced colitis mice with LB-9. The present study supports the rationale for treatment of LB-9 as an important strategy to improve IBD, particularly colitis.

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Biography

Youngbae Noh has majored in Dairy Science at Gyeongsang National University and obtained another major the Dairy Microbiology in Graduate School of Gyeongsang National University. He was joined in Dairy Team at Lotte R&D Center in Korea in 2016. He is a senior researcher of Dairy Team and in charge of research about probiotic strain and developing yogurt and fermented food. His major topic is fermentation of lactic acid bacteria and he has developed many probiotic foods such as LB-9 (Lotte’s probiotics brand) yogurt.

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