

## Synbiotics (mixture of probiotics and prebiotics) ameliorates DSS-induced ulcerative colitis in vivo.

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Ulcerative colitis (UC) is one of inflammatory bowel disease (IBD), characterized by chronic inflammatory response and dysregulation of immune function. The severity of US has been influenced by environmental factors and food habit. The immune modulatory, anti-inflammatory and steroidal medicine have been used for the treatment of UC. However, long-term administration of those medicine is accompanied with side-effect. So, it is necessary to develop the non side-effect medicine using natural product. Prebiotics influences intestinal condition and food consumption. The heredity, immunity and environmental condition are related with occurrence of UC. In recent study, UC patients had lower level of prebiotics such as *Lactobacillus* and *Bifidobacterium* compared with healthy people. Also, previous study announced that imbalance of enteric flora aggravates the severity of UC. The effectiveness of probiotics might affect colon ability and viable bacteria also could promote the proliferation of beneficial intestinal bacteria. Prebiotics, such as herbal medicine, could lead to balance of intestinal bacteria or increase beneficial bacteria. So, proper choice of herbal medicine could control the intestinal condition. This study aimed to investigate the effect of mixture of probiotics and prebiotics (synbiotics) on dextran sulfate sodium (DSS)-induced UC in vivo. The synbiotics consist of *Lactobacillus buchneri*, *Polymnia sonchifolia* and *Glycine max* Merr. in this study. To evaluate the effect of synbiotics, 3% DSS was administered in BALB/c mice and synbiotics was daily administered for experimental days. The administration of synbiotics regulated colon length shortening, body weight change and disease activity index effectively. Also, extract of synbiotics upregulated survival ability of *Lactobacillus buchneri* in gut condition. These results suggest that mixture of probiotics and prebiotics, called as synbiotics, could influence intestinal condition also regulate the colon disease. Synbiotics might be a therapeutic agent for treatment of UC.

**Key words:** Ulcerative colitis, Probiotics, Prebiotics, *Lactobacillus buchneri*, *Polymnia sonchifolia*, *Glycine max* Merr.

[This research was supported by Ministry of Trade, Industry & Energy (MOTIE). Korea Institute for Advancement of Technology (KIAT) through the Encouragement Program for The Industries of Economic Cooperation Region (Grant No. P0000610).]