

Ankaferd Blood Stopper (ABS) Has Protective Effect on Colonic Inflammation: An in Vitro Study in Raw 264.7 and Caco-2 Cells

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Abstract : Ankaferd Blood Stopper (ABS) is a plant extract used to stop bleeding caused by injuries and surgical interventions. ABS also involved in wound healing of intestinal mucosal damage due to oxidative stress and inflammation. Inflammatory Bowel Disease (IBD) is a common chronic disorder of the gastrointestinal tract that causes abdominal pain, diarrhea, and gastrointestinal bleeding, and increases the risk of colon cancer. Inflammation is an essential factor in the development of IBD. The various studies have been performed about the physiological effects of ABS; however, ABS dependent mechanism on colonic inflammation has not been elucidated. Thus, the protective effect of ABS on colonic inflammation was investigated in this study. The Caco-2 and RAW 264.7 murine macrophage cells were used as a model of in vitro colonic inflammation. RAW 264.7 cells were treated with lipopolysaccharide (LPS) for 12 hours to induce the inflammation, and a conditional medium was obtained. Caco-2 cells were treated with 15 µl/ml ABS for 4 hours, then incubated with conditional medium and the cells also were incubated with 15 µl/ml ABS and conditional medium together for 4 hours. Tumor necrosis factor alpha (TNF-α) protein levels were targeted in testing inflammatory condition and its level was significantly increased (25 fold, p<0.001) compared to the control group by using Enzyme-Linked Immunosorbent Assay (ELISA) method. The COX-2 mRNA level was used as a marker gene to show the possible anti-inflammatory effect of ABS in Caco-2 cells. RAW cells-derived conditional medium significantly (3.3 fold, p<0.001) induced cyclooxygenase-2 (COX-2) mRNA levels in Caco-2 cells. The pretreatment of Caco-2 cells caused a significant decrease (3.3 fold, p<0.001) in COX-2 mRNA levels relative to conditional medium given group. Furthermore, COX-2 mRNA level was significantly reduced (4,7 fold, p<0.001) in ABS and conditional medium treated group. These results suggest that ABS might have an anti-inflammatory effect in vitro.

Keywords : Ankaferd blood stopper, CaCo-2, colonic inflammation, RAW 264.7

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