

Abstract

Inflammatory bowel disease - ulcerative colitis and Crohn's disease - are chronic relapsing intestinal disorders of unknown etiology. Acute ulcerative colitis was induced in BALB/c mice by 3 % dextran sulfate sodium (DSS) administered in drinking water for 5 days. The effect of *Lactobacillus paracasei* subsp. *paracasei* RL14-P, a bacterium with potential probiotic influence, on the development of inflammation was evaluated. *Lactobacillus* was administered intragastrically to mice on days 1, 4 and 8 and the administration continued for next 5 days during DSS treatment. Control groups received instead of *Lactobacillus* MRSC medium or phosphate-buffered saline according to the same schedule. Clinical symptoms such as diarrhoea, rectal bleeding and loss in body weight were evaluated daily. Cytokine secretion (IL-6, IL-10 and TNF- α) was determined in supernatants of 48 h cultivated splenocytes, mesenteric lymph node lymphocytes and colon pieces by ELISA. The impairment of *colon descendens* was evaluated histologically. *Lactobacillus paracasei* subsp. *paracasei* RL14-P administered mice remained healthy without signs of the intestinal inflammation. We did not find the shortening of *colon* (a sign of inflamed intestine) in *Lactobacillus*-treated mice. We observed that administration of probiotic bacteria decreased levels of proinflammatory cytokines TNF- α and IL-6 in cultivated pieces of *colon descendens*.

We conclude that *Lactobacillus paracasei* subsp. *paracasei* RL14-P administered intragastrically protected mice against severe intestinal inflammation in experimental model of acute colitis and that this bacterium has probiotic properties.