**Effects of the Probiotics Treatment on the Mucosal Barrier Function of the Gastrointestinal Tract of Broiler Chicks**

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**Abstract**

Probiotics is known as beneficial effects on host animal intestinal immunity, but is not known well the effects of probiotics on host mucosal barrier function. The aim of the study was to determine whether the probiotics enhances mucosal barrier function on gastrointestinal tract of broiler chicks. 0 day-old male broiler chicks were orally injected 300 μL water with or without 5 mg FINELACT (1×108 cfu of Lactobacillus reuteri) at every morning for 7 days (Day 0 to 6). Crop, duodenum, ileum and cecum were collected on Day-7 and were used for RNA extraction. Gene expressions of tight junction related genes (claudin1 and 5, junctional adhesion molecule (JAM)2 and zona occluding (ZO)2), mucin2 and antimicrobial peptide (avian beta defensin (AvBD)2, 10 and 12) in the mucosa of these segments were analyzed by real-time PCR analysis. *TJP2* expression in the crop was significantly higher (p < 0.05), and *claudin1* and *ZO2* expressions in the crop showed tendency to be high in the probiotics treated group than in the control group (p < 0.1). Although the expression of *AvBD12* in the crop and *AvBD10* in the ileum and the cecum were significantly lower in the probiotics group than in the control group (p < 0.05). However, no significantly differences were shown by probiotics treatment in other genes and segments. These results suggest probiotics used in this study may enhance the mucosal physical barrier function of cell junction in the crop, but may decrease production of AvBDs in the gastrointestinal tract.