

Gastrointestinal tract morphological alteration by unpleasant physical treatment and modulating role of *Lactobacillus* in broilers

ABSTRACT

1. An experiment was conducted to determine the effects of supposedly unpleasant physical treatment on broiler performance, small intestinal development and ameliorating role of probiotics. 2. The following treatments were applied from day one: (1) chicks exposed to normal human contact fed basal diet (control); (2) chicks were exposed to unpleasant physical treatment and fed basal diet (UPT-BD); and (3) chicks were exposed to unpleasant physical treatment and fed basal diet supplemented with *Lactobacillus* (UPT-BDL). Chicks were exposed to UPT from days 1 to 21. Different segments of gastrointestinal tract were sampled at 14, 28, 35 and 42 d of age. 3. Broilers of UPT-BD had lower feed consumption compared with control group at 7 d of age. Overall, UPT-BDL birds showed higher body weight gain (BWG) and better feed conversion ratio (FCR) over the course of the experiment. 4. Birds of UPT-BD had lower concentrations of lactic, propionic and butyric acids in the caecum as compared with other groups at 14 d of age. Acetic acid concentration was profoundly decreased in both UPT groups compared to the control. 5. Duodenal villus height of UPT-BD broilers showed a slight reduction compared to the control and UPT-BDL birds at 14 d of age. Afterwards until day 42, UPT-BDL birds showed the highest villus height among treatments in different parts of the small intestine. 6. The results suggested that, even though UPT did not have significant inhibitory effects on the development of the small intestine and broiler performance, it negatively affected bacterial metabolic end products in the caecum, which could be ameliorated by the addition of *Lactobacillus*.