Growth performance, intestinal microbial populations, and serum cholesterol of broilers fed diets containing Lactobacillus cultures

ABSTRACT

A study was conducted to determine the effects of adherent Lactobacillus culture on growth performance, intestinal microbial population, and serum cholesterol level of broilers. Four dietary treatments, consisting of the basal diet (control), basal diet + 0.05, 0.10, or 0.15% Lactobacillus culture (LC), were fed to 2,000 Arbor Acres broiler chicks from 1 to 42 d of age (DOA). The chicks were randomly assigned to 40 cages (50 chicks per cage, 10 cages per diet). The experimental period was 42 d. Body weights and feed to gain ratio were measured at 21 and 42 DOA. The intestinal microbial populations and serum cholesterol levels were determined at 10, 20, 30, and 40 DOA. The results showed that body weights and feed to gain ratios were improved significantly ($P < 0.05$) when compared to control broilers for broilers fed diets containing 0.05 or 0.10% LC, but not 0.15% LC, at 21 and 42 DOA. Coliform counts in the cecum of birds receiving 0.05% LC at 10, 20, and 30 DOA, and 0.10% at 10 and 20 DOA were significantly lower ($P < 0.05$) than those of the control birds. The total aerobes, total anaerobes, lactobacilli, and streptococci in the small intestines and ceca of the control birds were not significantly different from those of the treated groups. Serum cholesterol levels were significantly lower ($P < 0.05$) in broilers fed the three diets containing LC at 30 DOA, and in the birds fed 0.05 or 0.10% LC at 20 DOA.

Keyword: Broiler; Intestinal microbial population; Lactobacillus; Probiotics; Serum cholesterol