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Effects of Bile Acids and Lipase Supplementation in Low-Energy Diets on Growth Performance and Meat Quality in Broiler Chickens

Authors : Muhammad Adeel Arshad, Shaukat Ali Bhatti

Abstract : The study aimed to investigate the effect of bile acids and lipase supplementation in low-energy diets on growth performance and meat quality of broilers. Seven hundred day-old Cobb-500 broiler chicks with an average initial body weight of 45.9 ± 0.3 g were assigned to 5 dietary treatments, with five replications of 28 birds each in a completely randomized design. The five treatments were as follows: (i) HE: broilers received a diet with high energy content; (ii) LE: broilers received a diet with low energy content and energy content reduced by 100 kcal/kg as compared to HE; (iii) LEB: broilers received a diet similar to the LE group supplemented with 300 g/ton bile acids; (iv) LEL: broilers received a diet similar to the LE group supplemented with 180 g/ton lipase enzyme and (v) LEBL: broilers received a diet similar to the LE group supplemented with both 300 g/ton bile acids and 180 g/ton lipase enzyme. The experimental period lasted for 35 days. Broilers fed HE had a lower ($P < 0.05$) body weight (BW) gain and lower feed intake (1-35 d), but during finisher period (21-35 d), BW gain was similar with other treatments. Feed conversion ratio (FCR) was lower in HE and higher in LEBL group ($P < 0.05$), while the LE, LEB, and LEL had intermediate values. At 35 d no difference occurred between treatment for water holding capacity and pH of breast and thigh muscles ($P > 0.05$). The relative weight of pancreas was higher ($P < 0.05$) in LEB treatment but lower ($P < 0.05$) in LEL treatment. In conclusion, bile acids and lipase supplementation at 300 g/ton and 150g/ton of feed in low-energy diets respectively had no effect on broiler performance and meat quality. However, FCR was improved in HE treatment.

Keywords : bile acids, energy, enzyme, growth
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