Abstract
The present study was carried out to investigate the effect of intensity and initiation time of early feed restriction on performance, blood parameters, jejunal epithelial cell morphology and ileal microflora in broiler chicks. A total of 350 day-old Ross 308 broiler chicks were randomly assigned to 5 replicates (of 10 birds each) of each of 7 experimental treatments. The experimental treatments consisted of 3 feed restriction intensities (20, 40 and 60%) and 2 different initiation time (7 and 10 days of age) that offered as a 3 × 2 factorial arrangement compared with a control not-restricted group. The results showed that daily body weight gain wasn't affected by experimental treatments during 1 to 49 d of age, but application of 5 d feed restriction significantly ($P < 0.01$) improved feed conversion ratio compared with control group. At d 28 of age, early feed restriction caused a considerable ($P < 0.05$) increase in relative weights of pancreas and heart. Also, the relative weights of small intestine, gizzard and carcass were numerically higher in feed-restricted birds, while liver and abdominal fat percents were numerically reduced as the result of early feed restriction. On the other hand, offering 5 d feed restriction resulted in significant ($P < 0.01$) decrease in relative weights of liver and abdominal fat in 49 d-aged broiler chicks and tended to increase weights of small intestine, heart, breast, thigh and carcass. Application of early feed restriction increased ($P < 0.01$) serum cholesterol and high-density lipoproteins and reduced ($P < 0.05$) serum triglycerides concentration in 49 d-aged birds. Furthermore, feed restriction reduced E. coli count of ileal contents at d 28 of age. In contrast, lactobacillus count of ileum was increased ($P < 0.05$) in feed-restricted birds compared with control chicks. Also, application of early feed restriction increased villi height of jejunal epithelium. From the present findings, it seems that application of 5 d feed restriction with a intensity of 20% started at 7 days of age not only support final performance of broilers, but also efficiently improve feed efficiency, ileal microbial balance and morphology of jejunal cells.

Keywords: Broiler chick, Early feed restriction, Jejunal morphology, Ileal microflora, Blood parameters

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Title

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