Comparative influence of dietary probiotic, yoghurt, and sodium butyrate on growth performance, intestinal microbiota, blood hematology, and immune response of meat-type chickens


Abstract:

This study was conducted to assess the effects of early dietary supplementation with probiotic, yoghurt, and sodium butyrate (SB) on the growth performance, intestinal microbiota, blood hematology, and immune response of broiler chickens. A total of 180 1-day-old SASSO broiler chicks, housed in 12 equal floor pen replicates each of 15 chicks, were assigned randomly to four feeding treatments (three replicates/treatment, n = 45): T1. Basal diet (BD) (control), T2. BD incorporated 1 g of a commercial probiotic per kilogram, T3. BD mixed with 5 g of fresh yoghurt per kilogram, and T4. BD incorporated 0.6 g SB/kg. The experimental birds received the dietary treatments from 1 to 21 days of age. The dietary supplementation (g/kg) with commercial probiotic, yoghurt, and SB during the first 21 days of age did not affect broiler’s growth performance variables at day 42, relative weight of immunity organs, blood hematological indices, or the ileal and cecal bacterial counts at day 42, but increased the serum IgG levels and reduced the cecal aerobes at day 21. The probiotic and yoghurt treatments increased the serum content of antibody titer against Newcastle disease virus and decreased the counts of ileal aerobes and E. coli at day 21, whereas the SB treatment increased the ileal lactobacilli count at day 21. In conclusion, the tested feed additives displayed beneficial impacts on broilers’ gut microbiota at day 21 and serum IgG at day 42, but did not affect the growth performance or blood hematological indices at 42 days of age.

Keywords:

Growth promoters Antibiotic alternatives Immune response Gut microflora Broiler chickens

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