Effects of turmeric rhizome powder and black pepper on blood constituents and performance of male broiler chickens

A. Akbarian, A. Golian, H. Kermanshahi, A. Gilani and S. Moradi
Department of Animal Science, Faculty of Agriculture, Ferdowsi University of Mashhad, Iran

The objective of this study was to evaluate the effect of turmeric rhizome powder (TRP) and black pepper (BP) on blood constituents and performance of male broiler chickens. A total of 288 d-old male chicks of Ross 308 were used in a CRD experiment with a 2×3 factorial arrangement of two levels of TRP (0 and 0.05%) and three levels of BP (0, 0.05 and 0.1%) that were added to the starter and grower basal diets. Each diet was randomly fed to four replicates of 12 chicks each. Feed and water were provided ad-libitum throughout the experiment. Body weight gain (BWG), Feed intake (FI), and feed conversion ratio (FCR) were determined for each group of birds. Blood samples were collected from wing vein and were analyzed by an autoanalyzer at 21 day of age. The results showed that BWG, FI, and FCR of male broilers during different weeks were not influenced by TRP. Turmeric rhizome powder in the diets significantly (P<0.05) decreased ALT (12 to 9 IU/L), but did not have an effect on AST and LDH activities and LDL, HDL, cholesterol and triglycerides concentrations of serum. Chloride and total electrolyte balance of serum were significantly decreased by TRP (P<0.05), but sodium and potassium concentrations were not influenced by TRP. Black pepper at the level of 0.1% significantly reduced FCR in the first week, but this pronounce effect was not observed in the later weeks. Also, BP did not have a significant effect on BWG and FI. Serum metabolites of LDL, HDL, cholesterol, electrolytes and AST, ALT and LDH activities were not influenced by BP. Serum triglycerides were significantly (P<0.05) reduced in birds fed diet contained 0.1% BP as compared to control diet (63.3 vs 87 mg/dl). There was not a significant interaction between TRP and BP on blood metabolites and performance of male broiler chickens.

Key words: turmeric rhizome, black pepper, blood constituents, broiler performance