

Effects of Feeding Prosopis juliflora Pods with and Without Exogenous Enzyme on Performance, Meat Quality and Health of Broiler Chickens

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Abstract :

Two experiments were conducted to evaluate the use of Prosopis juliflora pods as a partial replacement of corn as a source of energy for growing broiler chicken. The main objective of Experiment 1, an ileal digestibility assay, was to assess the nutritional value of Prosopis juliflora pods compared with corn for feeding broiler chicken. The two test ingredients, Prosopis juliflora pods and corn were given alone to determine apparent metabolizable energy (AME) and apparent ileal digestibility of crude fibre. Prosopis juliflora pods had significantly lower AME content (10.64 vs 15.26 MJ/kg) and lower apparent ileal digestibility coefficient for crude fibre (0.24 vs 0.63) than corn ($p < 0.001$). The objective of Experiment 2, a growth study, was to test the effect of exogenous enzymes on the nutritive value of Prosopis juliflora pods. Three Prosopis juliflora pods contents (5, 10 and 15%) with and without enzyme supplementation were evaluated. Daily feed intake, body weight gain and feed conversion ratio were measured. At the end of Experiment 2, 64 birds were randomly selected and slaughtered to evaluate carcass and meat quality characteristics. Substitution of corn by 10 and 15% Prosopis juliflora pods significantly depressed AME ($p < 0.001$). Enzyme supplementation did not improve crude fibre digestibility. The inclusion of Prosopis juliflora pods in the diets, except at 5% decreased average daily gains, feed intake and feed conversion ratio ($p < 0.001$). Addition of Prosopis juliflora pods caused a significant increase in the weights of total digestive tract, pancreas and caecum ($p < 0.01$). Addition of Prosopis juliflora pods or the exogenous enzyme had no significant effect on carcass or meat quality characteristics, haematology, serum biochemistry and sensory evaluation. This study indicated that Prosopis juliflora pods can be included at levels of 5% in broiler diets without affecting performance.

Key Word :

Ileal digestibility, Prosopis juliflora pods, performance, meat quality, broiler chicks

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