Abstract:

In order to investigate the effect of adding five levels of Ferula gummosa root powder (0, 0.25, 0.50, 0.75 and 1 percent) in diet on performance and immune system of straight-run Ross-308 broilers, this experiment was conducted in a completely randomized design with 5 treatments, 4 replicates and 10 chicks in each replicate from 1 to 42 days of age. Effect of different levels of Ferula gummosa root powder on weight gain, feed intake and feed conversion ratio were not significant (P > 0.05). The weight of intestine in birds fed 1 percent Ferula gumosa was higher than control (P < 0.05). Effect of treatments on relative weight of carcass, breast, liver, proventriculus, gizzard, and length of duodenum, jejunum and ileum was not significant (P < 0.05). Heart weight in birds fed 0.25 Ferula gumosa was higher than 0.50 treatment (P < 0.05). Relative weight of intestine showed an increasing trend. Effect of adding Ferula gumosa root powder on relative weight of proventriculus and jejunum and ileum length was not significant (P > 0.05). Birds fed 0.75% Ferula gumosa had the highest amount of serum total protein and albumin. The highest serum cholesterol level was seen in 1 and 0.75 % Ferula gumosa treatments (P <0.05). The highest albumin to globulin ratio was seen in 0.25% Ferula gumosa treatment (P <0.05). The highest antibody titer against sheep red blood cells was seen in birds fed 0.50% Ferula gumosa while the highest antibody titer against Newcastle and bronchitis virus were seen in 0.75% Ferula gumosa (P <0.05). The highest cellular immunity response after 24 h post challenging with dinitrochlorobenzen was seen in birds fed 0.75% Ferula gumosa (P <0.05). Effect of different dietary treatments on relative weights of spleen and bursa of Fabricius were not significant (P >0.05). Ferula gumosa root powder reduced ileum Escherichia coli while increased lactic acid bacteria population (P <0.05). Result of current study shows that use of 0.75% Ferula gumosa root powder in diet of broilers has positive effect on blood metabolites, humoral and cellular immunity and ilial lactic acid bacteria population.

Keywords: Ferula gumosa, Performance, Immune system, Microbial population
University of Zabol
Graduate school
Faculty of Agriculture
Department of Animal Science

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Title:

Effects of different levels of qalbanum (*Ferula gummosa*) root powder on performance, immune response, intestinal microbiology and biochemical parameters of broiler chickens

Supervisor:
Dr. H. R. Mirzaee
Dr. F. Bagherzadeh Kasmani

Advisers:
Dr. M. Yousef Elahi

By:
A. narimani

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