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THE EFFECT OF DIFFERENT LEVELS OF DIETARY SEED AND EXTRACT OF HARMEL (PEGANUM HARMALA) ON TOTAL PERFORMANCE AND IMMUNOLOGICAL RESPONSES OF BROILER CHICKS

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Introduction

Since antibiotic usage has been forbidden due to inducing resistance strains and carcass retention, so researchers have followed some antibiotic alternatives. Today, essential oils are administered as antibiotic alternatives. So, the present study was carried out to evaluate the effect of different levels of dietary seed and extract of Harmel on total performance and immunological responses of broiler chicks.

Materials and Methods

A total of 350 ROSS 308 broiler chicks were randomly attributed into 5 dietary treatments with 4 replicates of 14 birds each. Dietary treatments consisted of control, 0.1 and 0.2% harmel seed, 100 and 200 mg/L harmel extract. Feed intake and body weight was measured at 14, 28 and 42 d of age and then calculated to assess total performance. 1 ml of sheep red blood cell were intramuscularly injected at d 25 of trial and 5 d later, two birds of each cage were bled to evaluate the antibody titer against SRBC via Hemaglutination inhibition test. Hemaglutination test was applied to evaluate the antibody titer against Newcastle disease virus and influenza vaccination at 30 d of age.

Results and Discussion

Results of this trial showed that dietary inclusion of seed and extract forms of Harmel led to a significant decrease in total feed intake ($P<0.05$) and weight gain ($P<0.01$). However, supplementation of seed and extract of Harmel significantly ($P<0.05$) improved feed conversion ratio in broiler chicks. Additionally, dietary treatments resulted in a noticeable ($P<0.0001$) increase in antibody titer against sheep red blood cell, Newcastle disease virus as well as influenza virus. A decrease in feed intake might be attributed to bitter flavor of alkaloid presence in harmel (Herraiz et al., 2010). A marked decrease in feed intake might be responsible for weight gain reduction. An increase in antibody titer might be due to immunostimulatory activity of bioactive principles existed in plants.

Key words: Harmel, performance, immunity, broiler chicks

References:

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