Effects of Dietary Herbal Compounds on Growth Performance and Meat Composition of Broiler Chickens - Abstract

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Summary

This study investigated the in vivo effects of two mixtures of herbal compounds on growth performance of broiler chickens. 180 as hatched broiler chicks (Ross-308) were provided by PINDOS SA hatchery and were raised throughout the study period on pens with fresh litter of wheat straw, allocated into three treatments (5 pens of 12 chicks per treatment). All chicks were vaccinated on hatchery against infectious bronchitis, Newcastle and Gumboro disease. The CONTROL treatment was fed using commercial diets (starter, grower, prefinsher and finisher) based on corn and soybean meal without antibiotics or anticoccidials. The second treatment (HERB1) and third treatment (HERB2) received the same diets further supplemented with a mixture of oregano essential oil and phyto constituents at the level of 200 mg/kg. The third treatment (HERB2) received the same control diets further supplemented with a mixture of garlic and other phyto constituents at the level of 200 mg/kg. Total phenolic content of HERB1 and HERB2 diets were found to be 50 and 55 mg of gallic acid equivalents (GAE), respectively. Feed and water were offered to birds *ad libitum*. Temperature, moisture and air speed were monitored throughout the trial. At the end of the trial (day 42), all birds were slaughtered, and meat was examined for chemical composition. The HERB1 and HERB2 treatments had improved ($P<0.05$) final body weight compared to CONTROL group (2705.2 and 2697.1 vs 2493.2 g, respectively) and improved feed conversion ratio values compared to control groups (1.764 and

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1.737 vs 1.859). Mortality and meat composition of breast and thigh tissues did not differ between the experimental groups. According to the results, the use of dietary herbal products supported growth of chickens raised in pens without antibiotic or anticoccidial drugs. Further studies could elucidate the potential effects of the examined substances, as well as the underlying synergistic mechanisms with feed constituents that may affect digestion and absorption throughout the intestinal tract or the intestinal microbiota.

Keywords: Herbal compounds; dietary supplementation; broiler chicken; performance.

JEL Codes: N50; Q10; Q13.

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