

# Effects of Herbal Compounds via Drinking Water on Growth Performance and Health of Chickens after Coccidial Vaccination - 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. 240 male broiler chicks (Ross-308) were provided by PINDOS SA hatchery and were raised throughout the study period on used litter, allocated into three treatments (8 pens of 10 chicks per treatment). Litter was kept from a former study and all chickens were supplemented with a 5-fold cocci vaccine EVANT®, HIPRA, on first day of treatments to get a mild challenge. All chicks were vaccinated on hatchery against infectious bronchitis, Newcastle disease and Gumboro. The CONTROL treatment was fed using commercial diets (starter, grower, finisher) based on corn and soybean meal without antibiotics or anticoccidials. The second treatment (HERB1) and third treatment (HERB2) received the same diets. However, water in second and third groups was further supplemented with the herbal mixture 1 and 2, respectively. Herbal mixtures contained garlic essential oil and other phytochemical compounds and were administered at the level of 1 mg/l of drinking water. Total phenolic content of HERB1 and HERB2 test compounds was found to be 100 and 200 mg of gallic acid equivalents (GAE), respectively. Feed and water were offered to the birds *ad libitum*. Temperature, moisture and air speed were monitored throughout the trial. At the end of the trial (day 28), all birds were slaughtered, and meat was examined for chemical composition. The HERB2 treatment had improved ( $P<0.05$ ) final body weight compared to both CONTROL and HERB1 groups (1280 g vs 1226 g and 1217 g, respectively). Water intake also differed between the group, since HERB2 treatment had higher ( $P<0.05$ ) water intake compared to both CONTROL and HERB1 groups (3611.6 g vs 3472.5 g and 3447.8 g, respectively).

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Feed conversion ratio was better in HERB1 group (1.117) compared to HERB2 and CONTROL groups (1.515 and 1.567). Chemical composition of breast and thigh meat did not differ between the experimental groups. According to the results, the use of the herbal products in the drinking water supported growth of chickens raised in an old litter without antibiotic or anticoccidial drugs. Further studies could elucidate the potential effects of the examined substances, as well as the underlying synergistic or antagonistic mechanisms with feed constituents that may affect digestion and absorption throughout the intestinal tract or the intestinal microbiota.

**Keywords:** Herbal compounds; broiler chicken; water intake; performance.

**JEL Codes:** N50; Q10; Q13.

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