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Efficacy of synbiotic and diclazuril and their combination on the performance of broilers infected with *Eimeria acervulina*

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Coccidiosis, caused by *Eimeria* spp., is one of the most important and common parasitic threats to broiler industry. Therefore, the efficacy of synbiotic (a combination of probiotic and prebiotic) with and without diclazuril on *Eimeria acervulina* on growth and associated biochemical variables was investigated in broiler chickens. One-day-old chicks were divided into 5 equal groups (Gps) of 30 chicks each. Gp 1, the negative control group, was not infected and not treated. Chicks of the other groups were directly inoculated intra-crop with 1×10^5 sporulated oocysts of *E. acervulina* on the 8th day of age. Gp 2, the positive control, was infected and not treated. Chicks in the remaining groups were given diets mixed with the tested drugs for 6 successive weeks. Gp 3 was fed on a diet mixed with diclazuril, Clinacox® 0.5%, (1 ppm). Gp 4 was given a diet mixed with synbiotic (Clostat HC SP Dry®, containing a probiotic, *Bacillus subtilis* 2×10^8 CFU/gm and a prebiotic, Lactose 99.8%) (1 kg/ton feed). Gp 5 was fed on a diet mixed with both diclazuril (1 ppm) and synbiotic (1 kg/ton). Our findings revealed that birds in synbiotic- treated groups, Gps 4 and 5, respectively, showed significant ($P < 0.05$) reduction in the mean oocyst counts (70.01 and 88.88%) and lesion scores (0.64 ± 0.02 and 0.43 ± 0.03); improvement of growth- performance parameters represented by the increased cumulative body weight (1897.64 and 1890.48 g) and cumulative body weight gain (1850.54 and 1848.71 g) as well as decreased cumulative feed consumption (3540.88 and 3537.38 g) and FCR (1.91 and 1.91), respectively. Biochemically, Gps 4 and 5, respectively, showed significant ($P < 0.05$) increases of the serum total protein (6.11 and 6.66 gm/dl), albumin (3.68 and 3.88 gm/dl), globulin (2.43 and 2.78 gm/dl) and HDL-C (41.2 and 42.12 mg/dl) and decreases of serum total cholesterol (71.57 and 70.22 mg/dl), triglycerides (30.56 and 30.88 mg/dl), LDL-C (24.26 and 21.92 mg/dl), and VLDL-C (6.11 and 6.18 mg/dl), respectively; whereas, there was no significant difference in uric acid and creatinine among experimental groups. In conclusion, synbiotic supplementation enhanced growth and production of healthy broilers and could be used as a worthwhile and stand- alone supplement in broiler diets instead of growth promoters and anticoccidial drugs.

Biography

Hanem Khater is the Professor of Parasitology in Benha University, Egypt. She completed her doctoral degree at the Department of Entomology, College of Agriculture, food and Natural resources, University of Missouri- Columbia, USA. Her research mainly focused on natural control of arthropods of medical and veterinary importance such as mosquitoes, house flies, lice, green bottle fly, camel nasal botfly, soft and hard ticks, and mite to avoid environmental pollution with pesticides as well as control of several parasites using safe and natural materials to avoid drug resistances and environmental contamination.

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