ALLEVIATION OF CHRONIC HEAT STRESS IN BROILERS BY DIETARY SUPPLEMENTATION OF NOVEL FEED ADDITIVE COMBINATIONS

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Abstract:

Abstract: Heat stress causes economic losses via decreasing feed intake, nutrient digestion, weight gain, feed conversion, immunity, carcass quality and increasing mortality in broilers. The aim of the study was to assess the ability of dietary additive combinations to ameliorate the detrimental effect caused by chronic heat stress (32 ± 2ºC for 24 h per d) on performance, carcass traits, metabolic status and economic efficiency of broiler chickens. A total of 420, one-day old Cobb-500 broiler chicks were assigned into seven treatment groups (n=60) of five replicates. Each replicate contained 12 unsexed chicks. The control groups did not receive any supplementation to the basal diet (thermoneutral control (TNC) and heat stress control (HSC) groups). The other groups received control diet supplemented with 1 % cumin plus 1 % turmeric powders (T1); 1.5 g/kg potassium chloride plus 2 g/kg sodium bicarbonate (T2); 1000 ppm propolis plus 15000 IU vitamin A (T3); 1200 ppb chromium plus 500 ppm vitamin C (T4) ; 1200 ppm betaine plus 500 ppm vitamin E (T5). The results indicated that at 42 d of age, all dietary additive combinations improved the growth performance indices, carcass traits, concentrations of serum antioxidant enzyme biomarkers, stress biomarkers and economic efficiency in comparison to HSC group. Based on the obtained results, it could be concluded that dietary supplementation with betaine and vitamin E followed by chromium and vitamin C combinations offers a good management practice for alleviating heat stress related depression in the performance of broiler chickens

Keywords:

heat stress; broilers; vitamin C; betaine; chromium; propolis; turmeric

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