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Comparative Efficacy of Different Combinations of Electrolytes, Vitamins and Minerals to Combat Heat and Transportation Stress in Broilers

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Abstract:

The experiment was conducted to determine the comparative efficacy of different combinations of electrolytes, vitamins, and minerals to combat heat and transportation stress in broilers. A total of two hundred ten, broiler chicks (n = 210) were randomly divided into twenty-one replicates of ten chicks each, allotted to one of the seven treatments (A, B, C, D, E, F, and G) having thirty chicks. The treatments were as followed: A = simple water (control), B and C = blend-I at the rate of 2g/liter and 4g/liter of water respectively; D and E = blend-II at the rate of 2g/liter and 4g/liter of water respectively, and F and G = blend-III at the rate of 2g/liter and 4g/liter of water, respectively that were started before transportation on hatchery and then on-farm from day 1 to 35th day. After receiving the chicks at the farm, the blood samples from 2 chicks per replicate were collected for the determination of hematology and serology parameters. The results showed non-significant improvement in water intake, feed intake, weight gain, and feed conversion ratio. Poor water intake, feed intake, weight gain, and feed to conversion ratio were observed in the control group as compared to all other treatments of groups. Electrolytes, vitamins, and minerals supplementation showed a significant effect on the immunity of birds by improving heterophil to lymphocyte ratio. No significant difference was noted on slaughtering parameters except live body weight, duodenum length, and ileum length as compared to the control group. The left-over birds were transported to market at a distance of 20 kilometers and data on rectal temperature, weight loss, hematology, and serology were analyzed. A significant effect was observed on rectal temperature, heterophil to lymphocyte ratio, cholesterol, and triglycerides level of before and after transported broiler birds. In conclusion either under transportation stress or heat stress, the addition of electrolytes, vitamins, and minerals have shown to improve weight gain, water intake, feed intake, feed conversion ratio, and immunity of the birds, these factors are specifically related to efficiency and economical broiler production. As treatments, E and G showed the best results, so the use of electrolytes, vitamins, and minerals in broiler diets is recommended as an inexpensive and efficient growth-promoting agent without residual effects like antibiotic growth promoters.

Keywords: Vitamins, minerals, electrolytes, rectal temperature, serology, hematology, broilers.