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Utilization of Synthetic and Natural Ascorbic Acid (African Locust Bean, Baobab, and Prosopis Africana) Pulp for Sustainable Broiler Production in the Era of Global Warming

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Abstract : Heat stress exerts a high deteriorating impact on the poultry industry which could be ameliorated by dietary incorporation of synthetic vitamin C. Certain herbs either alone or in combination thereof are also a rich source of ascorbic acid in natural form. Gashua is located in the semi arid zones with temperature ranges of 38-43oC especially in the months of March up to June/July which make survival and production much difficult to poultry especially broilers chickens as it was found that high ambient temperatures above 380C feed consumption, growth rate, feed efficiency, survivability, egg production and egg quality tends to decline. In order to address the problem of heat stress, an experiment was conducted in the month of March/April to determine the effect of synthetic ascorbic-acid (vitamin C), natural ascorbic from baobab, African locust bean and prosopis africana pulp was administer in drinking water and basal diets adlibitum. 300 day old marshal breed chicks were used for this experiment which was divided into five treatment group with 20 birds per replicate which designated as zero, synthetic ascorbic acid 40g/L, baobab pulp 40g/L, African locust pulp 40g/L and iron wood pulp 40g/L for T1, T2 T3 T4 and T5 respectively. The experiment was lasted for eight weeks (four weeks each for the starter and finisher). Data collected were subjected to analysis of variance (ANOVA) using SAS 2002 soft wire and significant difference observed means were separated using Duncan multiple range test. The result revealed that bird on control diet were significantly ($p<0.05$) lowered in terms total and daily weight gain and feed efficiency but significantly ($p<0.05$) higher in terms feed intake, water intake, rectal temperature and mortality. This study concluded that ascorbic acid increased broiler performance and reduced mortality under high temperature thereby maintain the sustainability of broiler production to bridge the gap of animal protein deficit in the hot arid zone.

Keywords : ascorbic acid, heat stress, broiler, performance
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