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## Physiological Response of Laying Birds Fed Honey and Vitamin C in Drinking Water

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### Abstract

The continuous challenge of climate and its impact on livestock with the resultant threats in food security has necessitated the need to mitigate the effects of stress resulting thereof on the physiological response of layers. This study was designed to investigate the effect of honey and vitamin C fed to layers in drinking water, on the physiological response, growth performance, egg quality characteristics, hematology, serum biochemistry and cost benefit of the birds. One hundred and twenty Shika brown layers were randomly divided into four treatment groups of 30 layers, each replicated three times with 10 birds per replicate, in a randomised complete block design (RCBD). The groups were fed four diets containing 0 ml (only water), 200 mg litre<sup>-1</sup> (vitamin C.), 10 ml honey and 20 ml honey representing treatments 1, 2, 3 and 4, respectively for 84 days during the wet and dry seasons. The measurements taken include body weights, external and internal egg characteristics, daily temperature and relative humidity of the pen, heart and respiratory rate, daily rectal temperature and blood samples. Layers on T1 recorded the highest mean values of 114.6 beats per minutes (bpm) and 39 bpm for HR and RR, respectively. Layers on T4 was superior to those on T1 with regard to body weight (1827 g) and hen day production (80.9%) as against 1717 g and 53.3% for T1, respectively. The hematological profile viz; hemoglobin (Hb), PVC, RBC was significantly ( $p < 0.05$ ) influenced by the treatments. Layers on T4 recorded the highest PCV (31.0%), Hb (8.33 g l<sup>-1</sup> and RBC (2.53/l) than T1, PCV (25.63%), Hb (6.23 g l<sup>-1</sup> and RBC (2.11). The result on serum biochemistry showed that there were significant ( $p < 0.05$ ) differences among treatment means in respect to total proteins (4.01 g dl<sup>-1</sup>), urea (7.46 mg dl<sup>-1</sup>), calcium (10.96 m dl<sup>-1</sup>), cholesterol (148 g dl<sup>-1</sup>), potassium (6.60 mmol<sup>-1</sup>dl) and glucose (212 mg dl<sup>-1</sup>) in favour of T4. It is therefore concluded that inclusion of honey at 20% level of inclusion did not show any deleterious effect and could be used to promote growth performance, elicit positive physiological responses on layers to stress condition and improve their egg characteristics.

**Keywords:** Hematology, honey, physiological response, layers, vitamin C