



Effect of Three Different Fig tree Leaf Powder and Vitamin C Supplemented Diet on Serum Biochemistry and Haematological Parameters of Laying Hens

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Abstract

This study was conducted to investigate the physiology of laying hen fed *Ficus carica*, *Ficus exasperate* and *Ficus thonningii* leaf powder and vitamin C supplemented diet.

One hundred and forty four (144) - 28weeks old Lohman brown laying birds were randomly allocated into eight (8) treatments, with three (3) replicates of six (6) birds per replicate. The birds were fed same diet with different supplementation; diet 1: no supplementation; diet 2: 200mg/kg vitamin C supplementation; diet 3: 1.0 g/1kg *Ficus carica* supplementation; diet 4: 1g/1kg *Ficus exasperata* supplementation; diet 5: 1g/1kg *Ficus thonningii* supplementation; diet 6: 200 mg/kg vitamin C + 1g/1kg *Ficus carica* supplementation; diet 7: 200mg/kg vitamin C + 1g/1kg *Ficus exasperata* supplementation; diet 8: 200 mg/kg vitamin C + 1g/1kg *Ficus thonningii* supplementation respectively. At the end of the 12-weeks feeding trial, blood samples were taken from the wing vein and assayed for serum biochemistry and haematological parameters. The data obtained were subjected to one way ANOVA.

The result showed that Alanine transaminase (93.45 – 106.96 U/L) and serum creatinine (0.91 – 1.33mg/dl) of laying birds fed the treatment diets were significantly ($p < 0.05$) lowered than birds on diet 1 107.47u/l and 1.38mg/dl respectively. Blood glucose of laying birds fed diet 3, diet 4 and diet 5 (6.74, 6.65 and 6.95mmol/l) are significantly ($p < 0.05$) reduced compare to the other diet. Cholesterol level of laying birds fed, diets 5 – 8 (0.62, 0.57, 0.87 and 0.87) reduced significantly ($p < 0.05$) than diet 1 (2.67mmol/l). Superoxide dismutase of laying birds fed treatment diet (56.79 – 70.43%) was significantly higher than diet 1 (49.08%). Lipid peroxidation of laying birds fed diets 2-8 were (0.03, 0.03, 0.09, 0.04, 0.09, 0.24, 0.08TBARS/mg protein respectively) were significantly lowered than diet 1 (0.85TBARS/mg protein). Packed cell volume of birds fed with diet 2 (36%) were significantly ($p < 0.05$) higher than the rest diet. Red blood cell of birds fed diet 5 ($4.00 \times 10^6/L$) were significantly ($p < 0.05$) higher than the other diets which had similar value. The Lymphocyte of birds fed diet 3 ($76.00 \times 10^9/L$) were significantly ($p < 0.05$) higher than diet 1 ($58.00 \times 10^9/L$). In conclusion, the antioxidant enzymes, blood profile of the laying birds were all improved by the supplementation of 200 mg/kg vitamin C. The blood enzyme concentration and biochemical indices of the laying birds were suppressed by the combination of 200mg/kg of vitamin C and 1g/kg of *Ficus exasperata*.

Keywords: *Ficus Carica*; *Ficus Exasperate*; *Ficus Thonningii*; Vitamin C. Haematology; Serum Biochemistry

Introduction

The demand for meat and eggs is rising every year [1]. Nigeria produced up to 454 billion tons of meat and 3.8 million tons of eggs from chicken annually [2].

Currently, Nigeria is the largest market in sub-Saharan Africa and with a predicted rise of 3 to 5 percent between 2017 and 2027 [3]. Poultry meat and eggs are expanding in popularity because

they are the only inexpensive alternative animal-based proteins with a nourishing and delectable taste and lack of any religious stigma. However, the poultry sectors are struggling with a variety of issues, which among them are environmental condition, physiological status, poor immunity, health status, and nutrition all which have considerable impact on the hemato-biochemical profiles of farm animals [4]. Hematological components are valuable in monitoring feed toxicity especially with feed constituents that affect the