

Assessment of Blood Metabolites and Haematological Profiles of Broiler Chickens Fed Diets Supplemented Ghee Residue

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This experiment was conducted to investigate the effect of different levels of ghee residue inclusion in finisher diets on the blood serum metabolites and haematological indices of broiler chickens at the finisher stage. Two hundred and sixteen broiler chickens were randomly assigned to six treatment groups in a RCBD, with three replicates per treatment. The treatments comprised diets containing 0% (T1), 3% (T2), 6% (T3), 9% (T4), and 12% (T5) ghee residue, where T1–T5 were self-formulated diets, while T6 was a commercially procured finisher diet. At 42 days, blood was collected from the jugular vein. Serum metabolites were analyzed using CRD, and results showed significant ($p < 0.05$) differences among dietary treatments. Birds were fed the T1 diet recorded the highest values for triglycerides (40.10 mg/dL), HDL (73.50 mg/dL), LDL (57.43 mg/dL), total cholesterol (138.47 mg/dL), and serum protein (3.90 g/dL), compared to the T1 (30.43 mg/dL, 59.03 mg/dL, 40.23 mg/dL, 105.50 mg/dL, and 2.77 g/dL, respectively). Birds fed the commercial finisher diet (T6) exhibited intermediate levels. In contrast, serum glucose concentration decreased significantly ($p < 0.05$) with higher ghee residue inclusion, declining from 240.33 mg/dL in T1 to 221.10 mg/dL in T5. Haematological parameters were also significantly ($p < 0.05$) affected by dietary treatments. The highest red blood cell count ($3.96 \times 10^6/\mu\text{L}$), haemoglobin (12.96 g/dL), PCV (40.10%), and MCV (129.67 fl) were observed in T5, compared to lower values in T1. White blood cells differentials, including neutrophils and lymphocytes, also differed significantly among treatments. In contrast, eosinophil and monocyte counts were not significantly affected ($p > 0.05$), and basophils were not detected in any of the treatments. The findings indicate that inclusion of ghee residue in broiler finisher diets at levels up to 12% significantly influenced the blood profile without causing any harmful effects and indicating that it can be considered a promising alternative feed ingredient in broiler production.

Keywords: Blood serum, Cholesterol, Finisher, Triglycerides