

Effects of inclusion of different doses of *Persicaria odorata* Leaf Meal (POLM) in broiler chicken feed on biochemical and haematological blood indicators and liver histomorphological changes

ABSTRACT

This research was conducted to estimate the effects of *Persicaria odorata* leaf meal (POLM) on haematological indices, serum biochemical attributes, and internal organs parameters, including histomorphological features of the liver, in broiler chickens. A total of 120 one-day-old male broiler chicks (Cobb-500) were randomly allocated into four experimental groups. The dietary treatments were basal diet (BD), which served as the control (C), along with BD + 2 g/kg POLM (Po2), BD + 4 g/kg POLM (Po4), BD + 8 g/kg POLM (Po8), which were the supplemented groups. The body weight gain (BWG) showed a linear increase and feed conversion ratio (FCR) showed a linear decrease with increasing POLM dosage at day 42 ($p < 0.05$) and for the overall growth performance period ($p < 0.01$). On day 21 and day 42, the values of red blood cells (RBCs), white blood cells (WBCs), haemoglobin (Hb), and packed cell volume (PCV) showed linear increases ($p < 0.05$) as the dosage of POLM increased in the diet. On day 21, dietary supplementation of POLM linearly decreased ($p < 0.05$) the serum activity of alkaline phosphatase (ALP), aspartate aminotransaminase (AST), alanine aminotransaminase (ALT), and serum levels of urea and creatinine. On the other hand, serum levels of total protein (TP), albumin, and globulin showed a linear increase ($p < 0.05$) as the POLM dosage increased. On day 42, the serum activity of AST and ALT and serum levels of glucose, cholesterol, triglycerides, urea, and creatinine showed linear decreases ($p < 0.05$) with increased levels of POLM in the diet. However, POLM supplementation linearly increased ($p < 0.05$) the serum levels of TP and globulin. Dietary inclusion of POLM did not influence the organ parameters and showed no adverse effects on the liver histomorphology. In conclusion, supplementation of POLM increased the growth performance, improving haematological indices and serum biochemistry profiles of broiler chickens without any deleterious effects on the liver histomorphology. The results of the present study provide evidence that POLM can be safely used at a dose rate of 8 g/kg of feed as an alternative to conventional antimicrobial growth promoters (AGPs).

Keyword: Broiler chicken; Feed additive; Blood haematology; Phytobiotics; Serum biochemistry