Effects of feeding graded levels of hydrolyzed corncob based diets on growth performance, serum and haematological indices of broiler chickens under a single phase feeding regime


Department of Animal Production, Federal University of Technology, Minna, Nigeria.
Department of Biochemistry, Federal University of Technology, Minna, Nigeria
*Corresponding Author: davidsontsado@yahoo.com
Target Audience: Animal nutritionists, Feed millers, Poultry farmers

Abstract
The effects of feeding graded levels of cellulase and pectinase hydrolyzed corncob based diets on growth performance, serum and haematological parameters of growing broiler chickens over a period of 8 weeks was investigated. Four dietary treatments were formulated such that diets 1, 2, 3 and 4 contained 0, 5, 10 and 15% cellulase and pectinase hydrolyzed corncobs respectively. Diet 1 served as the control. One hundred and eighty one day-old chicks with an average initial weight of 60g ±0.63 were randomly distributed into four treatment groups in three replicates. Each replicate had fifteen birds. Crushed corncobs were pretreated with NaOH to remove the lignin contents and later subjected to hydrolysis using locally prepared cellulase and pectinase solution for the degradation of the non-starch polysaccharides (NSPs) in a plastic drum for five days. Chemical and fibre compositions of corncobs, enzyme treated corncobs and diets were determined. The sample was periodically stirred/turned for 30 minutes on 3 hourly basis at room temperature (25°C) for five days for hydrolysis to take place. Data were collected on growth indices, digestibility, carcass components, organ proportions and some haematological and serum parameters. An average weekly feed intake of 571.45g ± 15.22 was recorded for the control group, while an average feed consumption of 567.69g ± 14.06, 548.54g ±13.10 and 535.74g ± 13.24 were recorded for enzymes treated groups respectively. The results showed that high levels of lignins, cellulose, hemicellulose and pentosans contained in corncobs were degraded into smaller monomers (glucose and other disaccharides). Broilers fed the control diet (T1) had significantly (P<0.05) reduced performance indices when compared to that of the broilers (P>0.05) fed enzyme treated corncob diets (T2, T3 and T4). Enzyme treated corncob diets significantly (P<0.05) increased packed cell volume, haemoglobin concentration, red blood cell count, white blood cell count, serum protein, aspartate amino transaminase, alanine amino transaminase, and lowered albumin and blood cholesterol levels of the birds when compared to the control diet. This study suggests that enzyme treated corncob inclusion at the levels of 5 to 15 % improved broiler growth performance and lowered blood cholesterol levels.

Keywords: Broiler chickens, Growth, Hydrolyzed Corn cob, Serum and haematological indices