Effects of cellulase and pectinase hydrolyzed corncob based diets on performance and carcass yield of broiler chickens


Abstract

This study was conducted to assess the effects of feeding locally produced cellulase and pectinase hydrolyzed corncob based diets on performance and carcass characteristics of one day-old chicks with initial average body weight of 60g ± 1.25. Corncobs were pretreated with NaOH to remove the lignin contents and later hydrolyzed. The degradation of the high fibre components was done for five days using locally produced cellulase and pectinase enzymes. Completely Randomized Design was the experimental design. Four experimental diets (T1, T2, T3 and T4) were formulated in all. The first diet (T1) was a standard diet that did not contain corncob and served as the control, while other three diets (T2, T3 and T4) had cellulase and pectinase hydrolyzed corncobs at 5, 10 and 15 % levels respectively. Each treatment had 45 chickens divided equally to three replicates while each replicate had fifteen birds. Diets and water were given ad libitum. The chickens had positive growth rate. However, dry matter (DM) intake varied significantly (P<0.05) in chickens on control diets and those on enzyme treated corncob diets. Birds on control diets consumed higher (2273.38 g ± 83.41) feeds than those on enzyme treated corncob diets but had lower performance indices in all parameters measured at the end of the eight week feeding trial. Broilers fed hydrolyzed corncob based diets had significantly (P<0.05) higher and better performance in terms of feed conversion efficiency (0.82 compared with 0.48 ± 0.09) in control chicks. Protein efficiency ratio (4.17 compared with 1.69 ± 0.94) in chickens on control diet, dry matter digestibility and final body weight of (2383.38g compared 1666.67g ± 41.67). Chickens fed enzyme treated corncob diets also had higher dressing percentage (80.22% versus 73.93% ± 0.71) higher, cut-up parts and organ proportions. The result showed that locally produced cellulase and pectinase hydrolyzed corncob diets at 5 to 15 % levels improved broilers performance and carcass quality. It was concluded that for optimum performance, enzyme treated corncob could be included in diets of broiler chickens up to 15 % level.

Keywords: Performance, Broiler chickens, Corncob, Cellulase and Pectinase