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“Bridging the gap between increasing knowledge and decreasing resources”

Carcass, Organ and Palatability Characteristics of Broiler Fed with Graded Levels of Cowpea Testa Based Diets

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Abstract

The over dependency on soybean meal or any other protein source in most developing country like Nigeria, as one of the key conventional proteins for feeding livestock especially poultry is currently threatening the development of the industry and has resulted in an increase in price and consequently cost of livestock feeds and livestock products. To combat the problem of food insecurity, alternative feed stuffs / non conventional feed stuffs are used to reduce cost of feed and livestock product. Cowpea testa is a relatively cheap feedstuff with crude protein of 17 % and 1005 kcal kg⁻¹ dry matter metabolisable energy. One hundred and twenty (120) one-day old Arbor acre broiler birds were used for this study, they were randomly allocated to 4 treatments of cowpea testa meal (CTM) to substitute soyabean meal at 0 %, 15 %, 30 % and 50 % as T1, T2, T3 and T4 respectively, having 30 birds per treatments with 3 replicates with 10 birds each. Results showed that T2 had significantly lower weight for heart, kidney, spleen, intestine, and liver as compared to T1, T3 and T4. But T2 had significant higher ($p < 0.05$) values for proventriculus of 0.99 g, against 0.60 g, 0.81 g and 0.85 g for T1, T3 and T4, respectively. For the carcass analysis, T2 had significant lowest values of breast weight with 14.89, than T1, T3 and T4 with 17.52g, 15.71g and 16.28g respectively; however, the differences between the three latter treatments was not significant. The thigh, drumstick, wings and back weight was found to be highest for T3 with 12.32 g, 10.66 g 10.34 g and 21.04 g, respectively; against (9.80 g, 9.39 g, 8.32 g, and 21.37 g), (10.00 g, 8.71 g, 9.05 g and 17.71 g) and (11.22 g, 9.58 g, 9.63 g and 17.89 g) for T1, T2, and T4, respectively. The cholesterol level of T3 appeared to be the significantly highest while T4 had the significantly lowest cholesterol level. Palatability value score for T1 and T2 had higher values for colour, flavour, tenderness, juiciness, texture and overall acceptability as compared to T3 and T4. Cowpea testa could be an alternative feedstuff in broilers nutrition to replace soybean meal up to 15 % without significant differences in organ, carcass analysis and palatability / sensory characteristics.

Keywords: Broilers, carcass analysis, cholesterol, cowpea, palatability study