

Effect of Supplemental Phytase on the Digestibility of Crude Protein and Phosphorus of Rice Husk in Broiler Chicken

Authors : Ibinabo I. Ilaboya, Eustace A. Iyayi

Abstract : Phosphorus (P) is an indispensable mineral in broiler diets. Rice husk contains phytate-P and other nutrients like protein, carbohydrates, which are poorly digested in broiler chickens. Broiler chickens (BC) lacks sufficient phytase to help hydrolyse phytate-bound P. Hence excess of P is excreted by these chickens into the environment causing environmental pollution. Supplementation of such diets with microbial phytase helps to improve the digestibility of these nutrients. The study was conducted to determine the effect of phytase supplementation on the digestibility of crude protein (CP) and P of rice husk in BC. Six semi-purified diets of three levels of total P (3.46, 4.91 and 6.37g/kg) without and with 1,000 units of phytase per kg were formulated. Titanium dioxide was added to the diets at the rate of 5g/kg as an indigestible marker. At 20dposthatch, 288 broilers (Abor Acre) were weighed and allotted to the diets with 6 replicates of 8 birds each in a randomized complete block design. The birds had free access to the experimental diets until day 26 post-hatch. Phytase supplementation increased ($p < 0.05$) digestibility of P from 75-93%. Rice husk and its interaction with phytase had no significant ($p > 0.05$) effect on P digestibility, whereas there was significant ($p < 0.01$) effect on the interaction of rice husk with phytase on CP digestibility. There were linear increases ($p < 0.01$) in digested P and CP with phytase supplementation. The P and CP losses from the BC was reduced with the addition of phytase. Results suggest that supplementation of rice husk-based diets with microbial phytase improved pre-caecal digestibility of P and CP in broilers.

Keywords : crude protein, phosphorus, phytase, rice husk

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