

**Effect of *Aspergillus* Extracted Phytase Enzyme Incorporated Diets on Growth Performance, Meat Quality and Phosphorus Utilization in Broilers**

S. Karthika<sup>1</sup>, H.K.T. Awanthika<sup>1</sup>, A.S. Kumar<sup>1</sup>, R.M.H. Tharangani<sup>1</sup>, Dinesh D. Jayasena<sup>1</sup>, L. Ang<sup>2</sup>, A. Geerththana<sup>1</sup>, W.H.D.S.P. Macelline<sup>2</sup>

<sup>1</sup>Department of Animal Science, Uva Wellassa University, Badulla 90000, Sri Lanka

<sup>2</sup>New Hope Lanka Ltd, Sri Lanka

Phytate is a major unavailable form of phosphorus for broilers. Addition of microbial phytase in poultry diets has increased recently to reduce the usage of Di Calcium Phosphate (DCP). A total of 810 day old (Sex ratio 1:1) Indian River chicks were used in 35 days experiment to determine the effect of *Aspergillus* extracted phytase (Natuphos ® E) enzyme on growth performance, meat quality, phosphorus utilization and investigate the phytase is a suitable replacement for DCP usage in the diets of broilers. Birds were randomly allotted for 3 groups in a complete randomized design. The control group (T1) were fed with basal feed and three levels of DCP (Booster 0.82%, Starter 0.75%, Finisher 0.80%) while other two groups were fed with basal diet with 0.01% (T2) and 0.02% (T3) phytase levels (DCP replaced by limestone). Average final body weight and feed intake were recorded and feed conversion ratio (FCR) was calculated. Feces analysis was conducted in last 3 days of metabolic trial. Blood collected and birds were slaughtered to estimate length of Shank and Tibia, meat quality traits of thigh and tibia ash analysis on the 35<sup>th</sup> day. Data were analyzed by one way ANOVA (Minitab 17). The highest feed intake, P% and Ca% of tibia bone was shown by T2 (P <0.05). The highest body weight gain, shank length and crude protein% were shown by T2 and T3 (P <0.05). The lowest FCR was given by T3 (P <0.05). The highest tibia bone length, P availability, Ca% and P% of thigh meat were shown by T3 (P <0.05). The lowest Ca% in serum analysis was given by T2 and T3 (P <0.05). In sensory evaluation, T2 and T3 are most preferable in juiciness and tenderness of the leg meat (P <0.05). It can be concluded that fed with *Aspergillus* extracted phytase diet enhanced the availability of phosphorus that supported the growth performance, increased P content, retention of Ca and P. These results showed that the feasible supplementation of 0.02% (T3) phytase diet can be replaced DCP usage by adding limestone.

**Keywords:** Broilers, Growth performance, Phosphorus utilization, *Aspergillus* extracted phytase, Tibia bon