

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

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Animal Science

By

KARTHIKA SRIKANTHITHASAN

**Department of Animal Science
Faculty of Animal Science and Export Agriculture
Uva Wellassa University**

2016

ABSTRACT

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 35th 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.

Key words: Broilers, Growth performance, Phosphorus utilization, *Aspergillus* extracted phytase, Tibia bone