

Effect of Supplemental Bacterial Phytase at Different Dietary Levels of Phosphorus on Tibial Bone Characteristics and Body Weight Gain in Broilers

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Abstract : A 5- weeks feeding trial was carried out to determine the effectiveness of Bacterial Phytase (Phyzyme®) in broilers, at different dietary levels of Phosphorous. 140 d-old broilers (Hubbard) were randomly divided into 4 groups (n=4). Birds were fed corn-based basal diet or the same diet supplemented with 3 different levels of non Phytate Phosphorous (NPP) (0.45 %, 0.30 % and 0.15 %). Furthermore, the diets were supplemented with bacterial Phytase. Birds were fed ad libitum and kept under thermo neutral conditions. The parameters studied were; body weight gain (BWG), tibial bone characteristics (TBC), serum Calcium (Ca), Phosphorus (P) and Alkaline Phosphatase (AP) levels and tibia ash percentage (TAP). BWG of the broilers was calculated at weekly interval and remaining parameters were calculated after slaughtering the birds at 35thday. Results suggested that Phytase supplementation at 0.30% NPP (Non Phytate Phosphorus + Bacterial Phytase) increased ($P < 0.05$) the BWG, bone length, bone weight, tibiotarsal index, medullary canal diameter and diaphysis diameter however, rubosticity index was reduced to minimum ($P < 0.05$) at this dietary level of phosphorous when compared with other groups. Maximum ($P < 0.05$) rubosticity index was observed in control group with 0% Phytase. Furthermore, Phytase addition at 0.30 % NPP also improved ($P < 0.05$) Ca, P and AP levels in the blood. Phytase supplementation at lower phosphorus level (0.30%NPP) improved BWG and TBC including bone density and bone quality in broilers hence it can be concluded that addition of Phytase at 0.30% NPP may prove beneficial for bone and overall performance in broilers.

Keywords : diaphysis diameter, phytase, rubosticity index, tibia

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