EFFECT OF DIETARY ZINC SOURCE AND LEVEL ON GROWTH PERFORMANCE, MINERAL DEPOSITION AND TIBIA BREAKING STRENGTH IN MALE BROILER CHICKENS

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Zinc (Zn) is an essential trace mineral for normal intestinal function and bone integrity. Currently, ZnSO4 and ZnOare used in trace mineral premixes with low bioavailability, thus nearly half of the supplemental Zn remains undigested. Hydroxy trace minerals have higher bioavailability and lower environmental impact. The current study was designed to compare the efficacy of different levels of IntelliBond Zn (IBZn - zinc hydroxychloride) with ZnSO4 and ZnO on performance, tibia breaking strength and tissue mineralization in broiler chickens. Seven wheat-SBM based diets differing in Zn source and level were formulated and fed to seven replicate pens of 18 chicks from d 1 to 35. The dietary treatments included: positive control (PC) supplemented with inorganic zinc (50 mg/kg ZnO + 50 mg/kg ZnSO4), negative control (NC) with no supplemental zinc, and five IBZn treatments with Zn as IBZn at 20, 40, 60, 80, 100 mg/kg diet. Inclusion of 100 ppm of IBZn in the diet resulted in higher BW compared to NC and 20 ppm IBZn and improved FCR compared to PC, NC and 20 ppm IBZn (P < 0.01). Supplementation of 100 ppm IBZn enhanced tibia breaking strength, tibia Zn concentration, liver Zn and Ca concentration (P < 0.05). Accordingly, it could be concluded that supplementation of 40 ppm IBZn in broiler chickens diet can support growth performance of the birds equal to that of 100 ppm of ZnSO4 and ZnO. Supplementation of 100 ppm IBZn significantly enhances feed efficiency compared to 100 ppm of ZnSO4 and ZnO.