Effect of natural zeolite on performance, and tibia composition of broiler chicks

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Abstract

An experiment was carried out to determine the effects of different levels of natural zeolite, and calcium on performance, apparent digestibility of calcium, and tibia ash of 480 Ross male broiler chicks. Eight experimental diets were tested in a factorial arrangement with four levels of zeolite (0, 1, 2, and 3 percent) and two levels of calcium (NRC recommended level, and 70 percent of NRC level) in a completely randomized design with 5 replicates and 12 chicks per replicate. During the experimental period feed consumption, weight gain, feed conversion ratio were measured weekly. Mortality rate were recorded throughout the experiment. At 28 days of age, two chicks per replicate were slaughtered, ileum content were collected, and tibia were separated from the carcass to determine apparent digestibility of calcium, and tibia ash. The results indicated that with adding zeolite to diet, feed consumption were reduced in grower and whole period of experiment ($P<0.05$), but there wasn't significant difference between control diet (0 percent zeolite), and the diet containing 1 percent of zeolite. Adding zeolite to diets improved feed conversion ratio, but it wasn't significant. Use of zeolite in diets hadn't significant effects on carcass percentage, apparent digestibility of calcium, and tibia ash, but increased abdominal fat percentage ($P<0.05$). With decreasing calcium levels, feed consumption was increased, and weight gain decreased in grower period ($P<0.05$), feed conversion ratio reduced significantly in this phase too. Decreasing calcium level in diets reduced carcass percentage, and tibia ash significantly ($P<0.05$). Interaction of zeolite and calcium on tibia ash was significant ($P<0.05$).