Effect of dietary sodium zeolite A and graded levels of calcium and phosphorus on growth, plasma, and tibia characteristics of chicks.

Authors: Watkins KL; Department of Animal Science, Louisiana State University Agricultural Center, Baton Rouge 70803.
Southern LL


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Alkaline Phosphatase/blood ; Animals ; Bone Density.drug effects ; Calcium/analysis ; Calcium/blood ; Chicks/blood ; Eating/drug effects
; Phosphorus/analysis ; Phosphorus/blood ; Tibia/chemistry ; Tibia/drug effects
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Abstract: Sodium zeolite A (SZA), a synthetic sodium aluminosilicate having a high ion exchange capacity, has been shown to influence Ca and P utilization in chickens. A 3 x 2 x 2 factorial arrangement of treatments was used to investigate the effect of dietary P (.41, .55, and .69% total P), Ca (.6 and 1%), and SZA (0 and .75%) on growth, plasma, and tibia characteristics of chicks from 5 to 15 days of age. Growth, feed intake, gain:feed ratio, and tibia characteristics were influenced by dietary Ca and P in a manner consistent with dietary recommendations for these macro minerals. The addition of Ca, SZA, or both exacerbated the adverse effects of
feeding low-P diets, yet alleviated the adverse effects of feeding a low-Ca, high-P diet. Dietary SZA had no effect (P greater than .5) on plasma Ca or alkaline phosphatase; however, SZA reduced (P less than .01) plasma P. Dietary SZA increased (P less than .02) tibia Mn, Zn, Cu, and Al. The SZA-induced increase in tibia Al was most evident in chicks fed low levels of P (SZA by P interaction, P less than .02). The overall response to dietary SZA addition paralleled the response observed from Ca supplementation, indicating that SZA increased Ca utilization, reduced P utilization, or contributed to both of these effects. These data demonstrate that the effects of SZA are influenced by the dietary concentration of Ca and P and that the addition of SZA to diets low in P results in bone Al accumulation.

Substance 0 (Aluminum Silicates)
Nomenclature: 0 (Calcium, Dietary)
0 (Phosphorus, Dietary)
1318-02-1 (Zeolites)
27YLU75U4W (Phosphorus)
EC 3.1.3.1 (Alkaline Phosphatase)
SY7Q814VUP (Calcium)

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