

A study on the effect of chromium sources on thyroid hormones and blood parameters in broiler chicks under physiological stress

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Abstract

In poultry farms, the stresses are inevitable, therefore, it is very necessary to achieve an efficient and practical way to control and reduce its negatives effects. Thus, this study was conducted to evaluate the effects of different sources of chromium on thyroid hormones and some blood parameters of broiler chicks under physiological stress conditions. A total of 216 one day old Ross broiler chicks (male) were used in a 3×2 factorial arrangement with two stress conditions (no stress, stress) and three levels of additive (no Additive, 2000ppb chromium-methionine, and 2000ppb chrome-methionine mill) in a completely randomized design with 6 treatments, 3 replicates and 12 bird per each. Dexamethasone was added to the diet (1.5 mg/kg diet) during 24-18 days of age to induce physiological stress. The birds were fed with chromium diets from 18 d until the end of the experiment. Blood samples were taken at 24 and 46 days of age via brachial vein and then analyzed for blood glucose, lipids, cortisol, thyroxine (T4) and thyroid iodothyronine (T3). Physiological stress reduced the concentration of thyroid hormones, glucose, serum lipids and cortisol hormones. In stressed birds, the use of chrome methionine diet significantly reduced cholesterol of serum. Chromium supplementing diet increased thyroxine (T4) concentration. Dietary chromium methionine significantly decreased cortisol concentrations of serum. Based on the results, adding chromium ppb 2000 from various sources reduces the effects of physiological stress on thyroid hormones and cholesterol concentrations in the serum of birds under physiological stress.

Keywords: Physiological stress, Thyroid hormones, Blood parameters, Chromium, Broiler chickens

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