Public Abstract

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Department:Animal Sciences

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Title:Effects of aflatoxin on hepatic gene expression in poultry model

Effects of dietary aflatoxin on hepatic gene expression was determined in seventy five day old-male broiler chicks fed with three dietary treatments (0, 1 and 2 mg/kg aflatoxin/kg of feed) from hatch to day 21. At the end of the study, feed intake, body and liver weights and serum chemistry were evaluated and hepatic RNA was used to determine the hepatic gene expression associated with aflatoxin diet intake using microarrays and real time PCR. Aflatoxin diet reduced feed intake, body weight, serum total proteins, calcium and phosphorus and increased liver weights in dose dependent manner. The diet down-regulated the genes associated with energy metabolism, growth and development, antioxidant and immune protection and upregulated the genes associated with cell proliferation. In the subsequent study, beneficial effects of boosting the antioxidant system through feeding a diet containing turmeric (1.48% *Curcuma longa*) to aflatoxin diet fed birds on physiological and hepatic gene expression was evaluated. Aflatoxin reduced feed intake and body weight gain, and increased relative liver weight. Addition of curcumin to the AF diet ameliorated the negative effects of AF on growth performance and liver weight. Decreased expression of antioxidants genes and increased expression of interleukins and cytochrome P450s due to AF was alleviated by the inclusion of curcumin in the diet. The current study demonstrates a protective effect of curcumin on gene expression in livers of chicks fed AF.