

EFFECTS OF OCHRATOXIN A AND PREVENTIVE ACTION OF A MYCOTOXIN-DEACTIVATION PRODUCT IN BROILER CHICKENS

Yang Don Joo¹, Chang Won Kang¹, Byoung Ki An¹, Jong Sung Ahn², Radka Borutova³

¹*Animal Resources Research Center, College of Animal Bioscience and Technology, Konkuk University
143-701 Seoul, Korea*

²*National Agricultural Products Quality Management Service, Seoul, Korea*

³*Biomin Holding GmbH, Industriestrasse 21, 3130 Herzogenburg, Austria*

Corresponding author: Radka Borutova

E-mail: radka.borutova@biomin.net; Phone: +436 64 814 3805

Abstract. Effects of dietary contamination with various levels of ochratoxin A (OTA) and potential preventive action of mycotoxin-deactivation product were investigated on two hundred one-day-old male broiler chicken. The birds were divided into 20 groups (5 treatment x 4 replication x 10 bird each) and fed 5 different diets for 5 weeks. Group 1: control (OTA free); group 2: OTA (1 mg/kg) without mycotoxin deactivator; group 3: OTA (1 mg/kg) with addition of mycotoxin deactivator at 0.2 % of the diet; group 4: OTA (2 mg/kg) without mycotoxin deactivator; group 5: OTA (2 mg/kg) with mycotoxin deactivator at 0.2 % of the diet. As dietary OTA increased, feed intake and weight gain were gradually and significantly decreased. These negative effects were partially counteracted by feeding the mycotoxin deactivator. The relative weights of liver and kidney, the activities of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) in the groups fed diets containing OTA alone were significantly higher compared to the control group. The level of serum total-cholesterol was significantly reduced by feeding OTA contaminated diets. As dietary OTA increased, the levels of OTA in liver and kidney tissue were significantly higher. Presence of mycotoxin deactivator in contaminated diets significantly decreased the OTA accumulation in organs. Moreover the fecal excretion of OTA and its metabolite OT α were significantly increased by feeding the mycotoxin deactivator. These results demonstrated that feeding the mycotoxin deactivator reduced the organ accumulation of OTA and OTA - induced performance reduction. In conclusion the contents of OTA in liver and kidney tissue were found to be a suitable indicator of OTA presence in broiler feed.

Keywords: broiler, ochratoxin A, mycotoxin-deactivation product.