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Effect of aflatoxin B1 and three potential adsorbents on intestinal morphology in broiler chicks

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One of the most important mycotoxins which are produced by toxigenic strains of different *Aspergillus* spp. is aflatoxin B_1 (AFB_1). The aim of this 3-wk study was to evaluate the ability of sodium bentonite (NaB), *Saccharomyces cerevisiae* (yeast) and *Lactobasillus rhamnosus* strain GG (LAB) to alleviate the deleterious effects of AFB_1 on intestinal morphology in broiler chicks. 321 day old as hatched broilers (Ross 308) were maintained in the cage litter and allowed ad libitum access to feed and water. A completely randomized design was used with 5 replicate pens of 8 chicks assigned to each of 8 dietary treatments from hatch to 21 days. Dietary treatments included: basal diet (BD) with no AFB_1 or any binder, contaminated diet (CD) with AFB_1 (2 mg/kg of feed), 3, 4, BD supplemented with NaB (0.5%), yeast and LAB 6, 7, CD supplemented with NaB (0.5%), yeast and LAB. Morphological characteristics were measured at different segments of intestinal lumen. AFB_1 decreased the villus height (700.05) in jejunum and villus height (2.71) to crypt depth ratio (3.68) in jejunum and ilium in comparison with control (P<0.05). However, addition of three binders could partially increase these features. In conclusion, it is suggested by this study that in feed contaminated with AFB_1, the use of sodium bentonite, yeast and LAB is an efficient strategy to reduce the adverse effects of aflatoxicosis in broiler chicks.

Biography

Hasan Kermanshahi has completed PhD in Saskatchewan University, Canada and has been working as a Professor for more than 20 years in Ferdowsi University of Mashhad, Iran. He has published more than 115 papers in reputed journals.

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