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Assessment of the Efficacy of Bentonite-Montmorillonite Binder as Biosystemic Sequestering Agent at High Dietary Aflatoxin Load in Turkey Poults

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Abstract

Aflatoxin is implicated in the aetiology of many diseases in poultry and turkey. The use of clay mineral has been reported to improve performance of broiler chickens during aflatoxicosis. However, information on the mitigation of aflatoxicosis in turkey using clay and yeast has not been adequately documented. Therefore, the use of Bentonite-montmorillonite binder (BB) to mitigate aflatoxicosis in turkey was investigated. Eighty 21-day old Nicholas turkey poults were randomly assigned to five treatments of four replicates with each replicate having four turkey poults. The experimental diets which were formulated to meet the standard dietary requirement of turkey poults were: positive control (PC) with no aflatoxin or BB, negative control (NC) with 0.2 mg kg^{-1} of total aflatoxin, NC + 2 g kg^{-1} BB, NC + 4 g kg^{-1} BB and NC + 6 g kg^{-1}g BB. The experiment was observed for 21 days during which necessary poultry management practices were observed. Data on feed intake, body weight gain, feed conversion ratio and mortality were collected as performance indicators while 5ml blood samples were collected via jugular venopuncture for serum biochemical analysis. Aflatoxin significantly reduced feed intake and body weight gain in poults that were treated with aflatoxin and BB. Mortalities were 0 %, 56 %, 44 %, 56 % and 38 % for diets 1, 2, 3, 4 and 5, respectively. Serum protein and albumin were also reduced significantly in poults that received aflatoxin alone and with binder. In conclusion, there was no significant effect of inclusion of bentonite-montmorillonite binder up to 0.6 % on the response criteria measured in this study.

Keywords: Aflatoxicosis, bentonite-montmorillonite, turkey poults

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