

LIVER HISTOPATHOLOGY OF TURKEY POULTS FED WITH AFLATOXIN-CONTAMINATED DIETS SUPPLEMENTED WITH NEVATOX BINDER

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Introduction

- ❖ Aflatoxins are secondary toxic metabolites of 2 fungal species namely *Aspergillus flavus* and *Aspergillus parasiticus*
- ❖ Aflatoxins are of different types and forms but among the different types of aflatoxins, aflatoxin B1 is the most prevalent and the most carcinogenic and is often found in cereal grains and peanut meal
- ❖ Aflatoxin has become a nightmare in poultry industry affecting the birds as a result of various diseases caused by ingestion of the toxin.
- ❖ Aflatoxicosis in poultry causes mortality, listlessness, anorexia, decrease growth rates, negative feed conversion, fatty liver, decreased egg production among other problems.
- ❖ While there are several studies in the past to determine the potencies of these adsorbing agents in broilers and other livestock species, information on effects on histopathology of liver in turkey is scanty.



Fig. 1: (a) *Aspergillus flavus*, (b) *Aspergillus* infested corn, (c) aflatoxin infected bird, (d) Liver hepatocellular Carcinoma cycle

Methods

- The experiment was carried out at the poultry unit of the Teaching and Research Farm of the University of Ibadan in the South western part of Nigeria.
- Aflatoxin quantification was done at the pathology
- Histopathology was carried out at the department of Veterinary Pathology, University of Ibadan, Ibadan Nigeria.
- A total of 80 turkey poulters were weighed and randomly allotted to five dietary treatments with four replicates and four poulters per replicate in a completely randomized design.
 - Diet 1 (Positive control with no aflatoxin or Nevatox);
 - Diet 2 (negative control with 0.2mg/kg aflatoxin);
 - Diet 3 (negative control + 2.0g/kg Nevatox);
 - Diet 4 (negative control + 4.0g/kg Nevatox) and
 - Diet 5 (negative control + 6.0g/kg Nevatox).



Fig. 2: Laboratory procedures for the quantification of aflatoxin in inoculated maize

Results

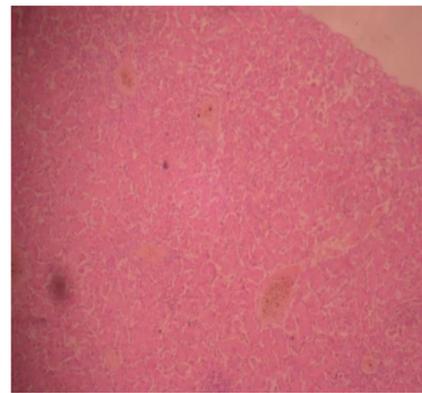


Plate 1: The photomicrograph of liver of turkey poults fed with control diet without aflatoxin showing no significant lesion

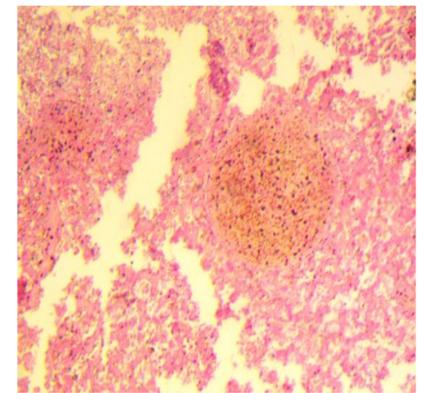


Plate 2: The photomicrograph of liver of turkey poults fed with diet 2 (0.2mg/kg aflatoxin) showing vascular congestion and areas with loss of hepatic cord arrangement (H & E x40)

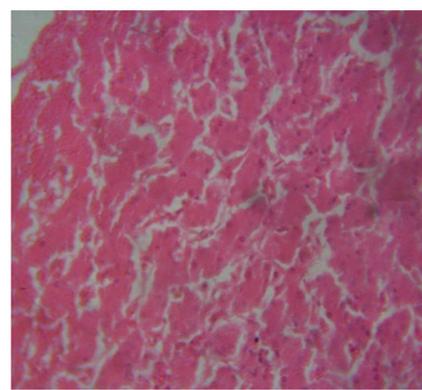


Plate 3: The photomicrograph of liver of turkey poults fed with Diet 3 (0.2mg/kg aflatoxin + 2.0g/kg Nevatox) showing widening of the sinusoids and thinning of cords observed here

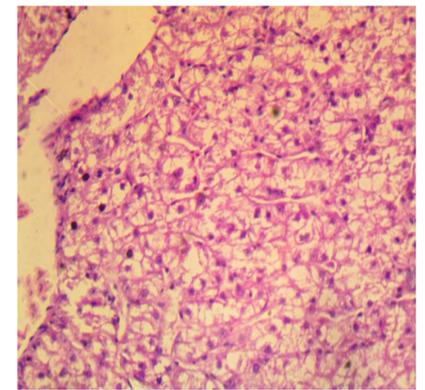


Plate 4: The photomicrograph of liver of turkey poults fed with diet 4 (0.2mg/kg aflatoxin + 4.0g/kg Nevatox). White arrow shows widespread vascular congestion with hepatic degeneration

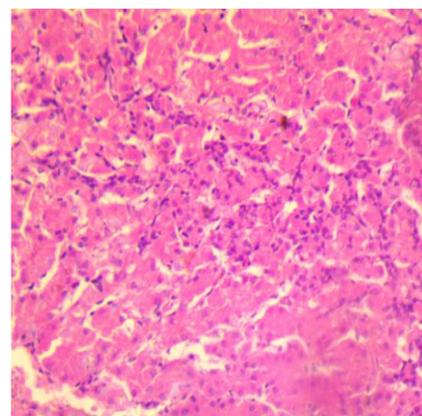


Plate 5: The photomicrograph of Liver of turkey poults fed with diet 5 (0.2mg/kg aflatoxin + 6.0g/kg Nevatox) showing dissociation of hepatic cords, dilated sinusoid

Conclusions

- ✓ Nevatox binders at levels of 2, 4, 6g/kg of the diet could not prevent the effect of 0.2mg/kg aflatoxin B1 on the liver cancer.
- ✓ Further studies is recommended to determine if lower concentration of the aflatoxin or higher concentration of the Nevatox binder could make an impact in ameliorating the effect of aflatoxin on liver cancer

Bibliography

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