

# **PATHOLOGY OF OCHRATOXICOSIS AND ITS INTERACTION WITH COCCIDIOSIS IN BROILERS**

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**Department of Pathology**  
Veterinary College and Research Institute  
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# TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY

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## CERTIFICATE

This is to certify that the thesis entitled **"PATHOLOGY OF OCHRATOXICOSIS AND ITS INTERACTION WITH COCCIDIOSIS IN BROILERS"** submitted in part fulfilment of the requirements for the degree of **Master of Veterinary Science in Veterinary Pathology** to the Tamil Nadu Veterinary and Animal Sciences University, Chennai, is a record of bona fide research work carried out by **Thiru. K. MUTHUSAMY**, under my supervision and guidance and that no part of this thesis has been submitted for the award of any other degree, diploma, fellowship or other similar titles or prizes and that the work has not been published in part or full in any scientific or popular journal or magazine.

Place: Namakkal  
Date: 23.11.2000


  
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## ABSTRACT

### **PATHOLOGY OF OCHRATOXICOSIS AND ITS INTERACTION WITH COCCIDIOSIS IN BROILERS**

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The present work was undertaken to study the effect of interaction of ochratoxicosis and coccidiosis in broilers due to their possible additive immunosuppressive effect, which may lead on to a grave situation.

Experimentally, ochratoxicosis and coccidiosis were induced singly and in combination in six groups of broilers each consisting of 25 chicks. Ochratoxicosis was produced by feeding with dietary ochratoxin A (OA) at a concentration of 0.5 and 1 ppm for a period of 23 d. Coccidiosis was induced by inoculating 50,000 sporulated oocysts of *E. tenella* at 14 d. The combination of ochratoxicosis and coccidiosis was induced in two groups by feeding them with dietary OA at 0.5 and 1 ppm and subsequently infecting with 50,000 oocysts of *E. tenella* at 14 d of age.

The OA was produced on wheat using *Aspergillus ochraceus* NRRL 3174 and oocysts of *E. tenella* were isolated from natural cases and propagated in chickens for experimental purpose.

Decreased feed consumption, reduced body weight, anaemia and severe haemorrhagic enteritis were observed in birds of Group V and VI. Mortality rate observed in the group V and VI was higher than group II and IV.



Severe reduction of Hb, PCV, TEC, serum total protein, albumin and immunoglobulins (Ig) and increased level of uric acid were observed in combined groups. Serum glucose level was significantly reduced in group - II, while ochratoxicosis affected chicks showed elevation of glucose levels.

Grossly, kidneys were pale, enlarged and tumified, liver was enlarged, pale yellowish in colour, spleen and bursa of Fabricius showed atrophic changes. Grossly *E. tenella* produced more pronounced caecal lesions by the presence of dietary OA.

Histopathologically, severe tubular dilatation, degeneration, glomerular atrophy thickening of the GBM and deposition of Ig in the GBM were noticed in kidney. Degeneration, necrosis and acinar transformation of hepatocytes in liver, Severe lymphoid depletion, follicular edema, cyst formation and follicular atrophy with increased inter follicular fibrous tissue in the bursa of Fabricius, isolated cell necrosis and cyst formation in pancreas and severe depletion of plasma cells and haemorrhage in Harderian gland were observed in combined groups.

Extensive sloughing of mucosa with severe haemorrhage and increased number of various developmental stages of oocysts in the crypts and submucosa were observed in the caeca of birds which received both OA and oocysts of *E. tenella*, on both 5 and 7 DPI. Sloughing of mucosa, fibrous tissue proliferation with oocysts and cellular infiltration were noticed on 9 DPI.

In another experimental trial, improved feed consumption, feed conversion, body weight gain, significant increase in Hb, PCV, TEC, total protein and albumin, globulin and Ig with a significant decrease in uric acid levels were recorded in OA and levamisole treated group when compared with OA alone treated group.

Significant decrease in relative kidney weight and significant increase in relative weight of lymphoid organs were also observed in group IV when compared with group III which indicates the immunostimulant effect of levamisole.