

INFECTIOUS BURSAL DISEASE ASSOCIATED WITH COCCIDIOSIS IN CHICKEN

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CERTIFICATE

This is to certify that the thesis entitled "INFECTIOUS BURSAL DISEASE ASSOCIATED WITH COCCIDIOSIS IN CHICKEN" 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 Mrs. N. JAYANTHI, 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.

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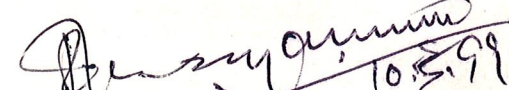
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ABSTRACT

INFECTIOUS BURSAL DISEASE ASSOCIATED WITH COCCIDIOSIS IN CHICKEN

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Considering the potential threat to poultry industry due to co-occurrence of infectious bursal disease (IBD) and caecal coccidiosis, the present work was undertaken in chicken to study the possible interaction of these diseases.

The overall incidence of IBD, coccidiosis and combined infection were found to be 51.85, 34.81 and 13.33 per cent respectively out of 135 poultry farms in and around Namakkal area.

The IBDV from field cases belonged to serotype 1 and CID_{50} value arrived at was $10^{4.49}$ for 4 wk old cockerels. The oocysts of *Eimeria tenella* were isolated from natural cases and propagated in chicken for experimental purpose.

The experimental WLH cockerels of two trials were divided into four groups viz., control (Gr. I), IBD (Gr. II), *E.tenella* (Gr. III), IBD and *E.tenella* (Gr. IV). The CID_{50} dose of IBDV was inoculated through ocular (50 μ L) and cloacal (50 μ L) route on the 22nd day in group II of both the trials. Group III was infected with 50,000 oocysts of *E.tenella* on the 29th day and 22nd day in trial I and II respectively. Group IV was infected with CID_{50} dose of IBDV on the 22nd day and 50,000 oocysts of *E.tenella* on the 29th day in trial I while in trial II, the two were inoculated simultaneously on the 22nd day.

Whitish or greenish diarrhoea, ruffled feathers, anorexia, depression and severe prostration before death were observed in group II and IV of trial I and II. Dullness, anorexia, huddling together, drooping of wings and blood mixed droppings were noticed from 5 to 7 DPI in group III and IV of trial I and II. However, the birds of group IV of trial II showed marked clinical signs and a mortality of 32 per cent.

Birds affected in group III and IV showed significant ($P < 0.05$) reduction of Hb, PCV, TEC, serum cholesterol, serum total protein and albumin but no effect on the levels of serum glucose and serum calcium when compared with the control group.

Lesion scores in group IV was increased by 12.05 per cent and 37.88 per cent in trial I and II respectively. The B/BW ratio of the IBDV inoculated chicks showed a decreasing trend from 5 to 10 DPI.

Gross lesions in IBD group were regressed BF in trial I and enlarged BF with creamy exudate, haemorrhagic plicae, haemorrhagic streaks in thigh, leg and pectoral muscles, haemorrhagic bands at the junction of the proventriculus and gizzard, splenomegaly and pale liver in trial II. The lesions in *E.tenella* group were mild caecal haemorrhage, necrosis and sloughing of the mucosa, while in the combined group of trial II marked caecal lesions including severe haemorrhage and sloughing of mucosa with severe distention were observed.

Histopathologically, IBD infected birds showed severe lymphoid depletion, moderate interfollicular fibrosis, atrophied and cystic follicles in BF, hyperemia, mild micro vesicular fatty changes in liver and mild to moderate lymphoid depletion in spleen and caecal tonsils. *E.tenella* infected groups showed degeneration of caecal epithelium, congestion and haemorrhage in the mucosa and the presence of various endogenous stages of the parasite in crypts along with infiltration of inflammatory cells. Severe haemorrhages in the mucosa, submucosa, presence of increased number of schizonts and merozoites in the crypts and submucosa and severe denudation of caecal mucosa with infiltration of inflammatory cells were observed in group IV of trial II.

In general, gross and histopathological lesions of coccidiosis were more severe in the combined groups.