

**ISOLATION, IDENTIFICATION AND CHARACTERIZATION  
OF INFECTIOUS BURSAL DISEASE VIRUS ISOLATED  
FROM FIELD OUTBREAKS IN SRI LANKA.**

by

Chitranjane. Thamothersampillai

A thesis submitted in partial fulfillment of the requirement for  
the Degree of Master of Science in Microbiology

in Department of Microbiology, Faculty of Science, University of Kelaniya, Sri Lanka.

1997

## ABSTRACT

This dissertation consists the research undertaken for the isolation, identification and Characterization of Infectious bursal disease (IBD) viruses present in Sri Lanka. As IBD virus has 2 serotypes and many variants within serotype 1, it is very important to isolate viruses from various parts of the country and Characterize them to select a suitable vaccine strain and a proper vaccination schedule.

Samples of bursae collected from dead or diseased chicken from various places were identified as infected with infectious bursal disease by agargel precipitation test (AGPT) and immunofluorescent antibody test (IFAT). Disease was further identified by passaging bursal homogenates in embryonated chicken eggs which showed very distinct embryo lesions once infected. When chick embryo fibroblast (CEF) cells were infected with suspected samples cytopathic effect was observed in fifth passage. AGPT was further used with bursal homogenates as unknown antigens, standard serotype 1 antigen as known antigen and serotype 1 antiserum to characterize the field isolates

The isolates of IBD virus were studied for their pathogenicity in three weeks old broiler chicks. Six field virus isolates were taken for this study and they showed the same pattern of pathogenicity. The clinical signs, mortality rate, and gross lesions in internal organs were found to be same. All six isolates caused marked enlargement of bursae with gelatinous yellowish transudate on the 2nd day post infection which is due to inflammation. There was no significant difference ( $p < 0.05$ ) found in bursa / body weight indices of chicks infected with different isolates. However, the histopathological lesions were studied only for two isolates & these isolates caused extensive lesions in bursae & thymus.

The antigenic relatedness of these isolates was determined by cross neutralization test in embryonated chicken eggs and in CEF cell cultures, and was found that there is an antigenic similarity between these isolates. Findings from these investigations including AGPT, pathological studies and neutralization studies suggest that the isolates responsible for field outbreaks are identical , belong to standard serotype 1.