A STUDY OF *LEPTOSPIRA INTERROGANS* INFECTION IN DEER AND GOATS IN NEW ZEALAND

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ABSTRACT

In order to determine the prevalence of leptospirosis in deer and goats both serological tests and the culturing of bacteria from urine samples were used. The serological tests enabled an assesment to be made as to the nature and extent of antibody levels. To ensure confidence in the serological results, it was necessary to validate the standard microscopic agglutionation test (MAT). Repeat tests demonstrated reproducible results that were within one two-fold serial dilution. Enzyme linked immunosorbent assays (ELISA) were investigated as alternatives for both the detection of antibodies and *Leptospira* antigens. These assays demonstrated greater sensitivity than the MAT for the detection of antibodies, but were less sensitive than standard methods for the detection of antigen.

Using the MAT, antibodies to *australis, ballum, bratislava, copenhageni, hardjo, pomona,* and *tarassovi* were detected in serological surveys of deer and goats. In deer, the most frequently recorded antibody titres were to *ballum, bratislava* and *copenhageni*. As 87% of the antibody titres <80, there appears to be a low level of active infection. In some areas there was a high prevalence of antibody titres to *hardjo*. In goats, 70% were found to have antibody titres ≥10 to one or more serovars with antibodies to *ballum* and *bratislava* the most frequently recorded. As 90% of the antibody titres were <80, there appears to be a low level of active infection in goats.

Antibodies to *bratislava*, a serovar that has not been isolated in New Zealand, were widespread in both deer and goats. The possibility

that these resulted from mixed infections was considered but not resolved. Unsucessful attempts were made to purify mixed cultures using specific antisera. The possibility of serological cross reactions of antibodies to other serovars with *bratislava* was supported by the increased serological response of deer and goats to vaccination with *hardjo* and *pomona* antigens. Western blot studies identified several common antigens between *bratislava* and *pomona*.

A study of a deer farm showed a high prevalence of antibody titres to *hardjo* corresponding to a similar prevalence of antibody titres to *balcanica* believed to be due to the antigenic similarity of these two serovars. *Balcanica* was isolated from urine samples from these deer and is believed to be the first isolation of this serovar from deer.

Studies of six goat farms showed low antibody levels and no *Leptospira* were isolated from urine samples.

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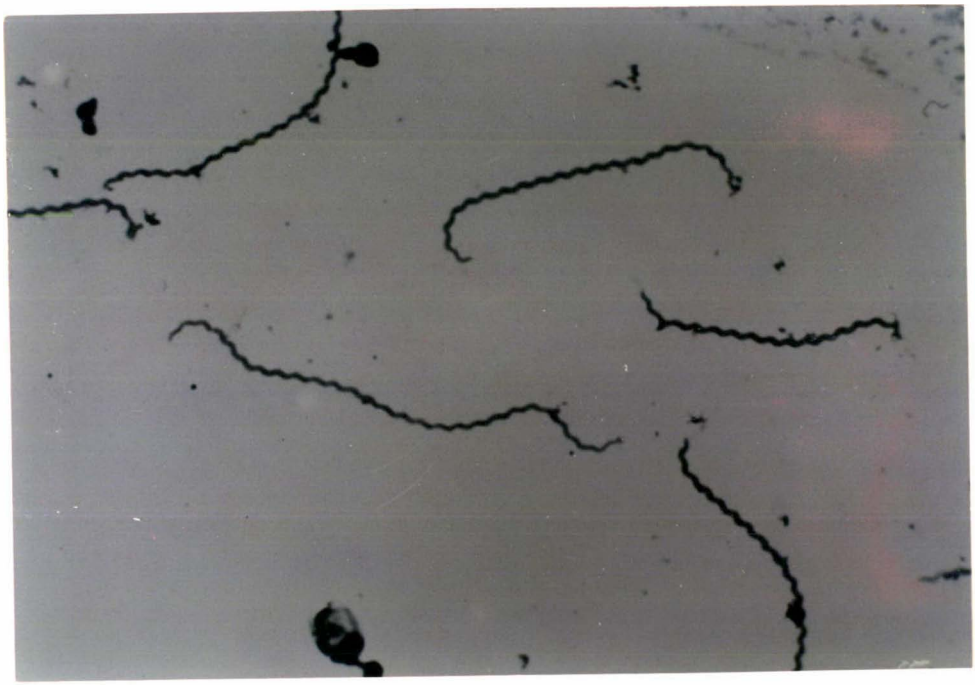
FRONTPIECE : *Leptospira interrogans*



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