

## ABSTRACT

Title : "EPIDEMIOLOGY OF BOVINE LEPTOSPIROSIS IN NAMAKKAL, SALEM, ERODE DISTRICTS OF TAMIL NADU AND IMMUNE RESPONSE IN CALVES TO INACTIVATED LEPTOSPIRAL VACCINES"

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In the present study the sero-positivity to leptospirosis was assessed in 626 bovines to identify predominant leptospiral serovars. The risk associated with sero-positivity in Namakkal, Salem and Erode districts of Tamil Nadu was determined. Infection with serovar *L.pomona* (14.5 percent) and *L.autumnalis* (5.9 percent) was higher in these districts. The relative risk (RR), odds ratio (OR) and attributable risk (AR) associated with the risk factors were calculated. Multiple risk factors identified were tested by logistic regression analysis using SPSS software 9.0. Age of the animal, disinfection practices, grazing, contact with dogs, proximity to forest or thick vegetation were the risk factors important in sero-positivity to leptospirosis. Based

on sero-positivity serovar *pomona* and *autumnalis* were selected for preparation of inactivated vaccines. These serovars were adapted to low-protein and protein-free-media. Two vaccines, Vaccine I (antigen alone) and Vaccine II (adjuvanted with aluminium hydroxide) were prepared. The safety and potency of the vaccines were tested. The efficacy of the vaccine was tested in experimental calves for six months and also in a private dairy farm (field study) for 2 months. The vaccines were found to be safe and potent. Detectable levels of antibodies were observed by microscopic agglutination test, 2 Me microscopic agglutination test and growth inhibition test. The adjuvanted vaccine produced significantly high level of antibodies than the plain vaccine. These vaccines are suitable for use in cattle and buffaloes of Namakkal, Salem and Erode districts of Tamil Nadu, to prevent leptospirosis.

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