

CHAPTER II

OBJECTIVES

The objectives of this research were:

1. To determine the difference of proteins expressed by non-pathogenic and pathogenic *Leptospira* spp. which are currently used as antigens for microagglutination test (MAT) by using two-dimensional difference gel electrophoresis (2D DIGE) system.
2. To identify epitopes of specific monoclonal antibodies to pathogenic *Leptospira* spp. (epitopes unique to pathogenic *Leptospira* spp.) by using 2DE-immunoblotting and proteomics.
3. To identify antigenic components and immunomes of *Leptospira* spp. by 2DE and 2DE-immunoblotting using hyperimmune serum of a mouse immunized with whole cell homogenate of pathogenic *Leptospira*.
4. To identify *in vivo* expressed antigens (proteins) of pathogenic *Leptospira* spp. using 2DE-immunoblotting of *Leptospira* homogenates probed with sera (acute and convalescence) of patients with leptospirosis, and protein identification by mass spectrometry and bioinformatics
5. To develop a broad-spectrum leptospirosis DNA vaccine that protects against heterologous *Leptospira* challenge.