3. SCOPE OF THE STUDY

Based on the careful review of the literature it is clear that leptospirosis has emerged as one of the common causes of febrile illness in Tamil Nadu during the monsoons and post-monsoon periods assuming in an epidemic proportion. During rainy seasons, constant epidemics of leptospirosis were found to be responsible for 38% of all cases of pyrexia of unknown origin (PUO) attending clinics and hospitals of Chennai. Allergy due to Penicillin and febrile inflammatory reaction known as the Jarisch–Herxheimer reaction (JHR) initiated by Doxycycline are main obstacles in treating leptospirosis by the drug of choice and with other conventional therapeutic practices. Multi-drug resistance and side effects conferred the need to develop alternate antimicrobial drugs for the treatment of Leptospirosis. Commonly available Indian medicinal plants such as Phyllanthus amarus and Eclipta alba etc, are known for their analgesic, anti-inflammatory, antibacterial, anti-oxidant, hepatoprotective and renoprotective effects. In fulfilling some of the existing lacunae in the leptospiral literature the scopes and aims of the study were put forth as follows:

1. To study the incidence of pediatric urban, semi-urban and rural Leptospirosis by the WHO standard serological assay called MAT.

2. To standardize a simpler, easier, more economic and rapid serological diagnostic tool for the detection of leptospirosis than MAT.

3. To extract and identify some phytochemicals from the commonly available and widely studied Indian medicinal plants (Phyllanthus amarus and Eclipta alba) with anti-bacterial, hepatoprotective and renoprotective properties. To conduct an anti-leptospiral susceptibility study on MIC of a most common Leptospira interrogans serovar.
4. To analyze the SDS-PAGE protein profile of the herbal extracts' exposed *Leptospira interrogans* serovar to understand the amount of damage caused by the extracts on virulent proteins of the pathogen.

5. To conduct a molecular (PCR) study on gene/s responsible for production of the protein/s that are possibly damaged by the chosen herbal extracts.

6. To perform a qualitative analysis using Gas Chromatography-Mass Spectrometry (GC-MS) for understanding the active principles (phytochemical constituents) in the medicinal plant extracts for exploring their possible utilization as a candidate drug for Leptospirosis.
MATERIALS AND METHODS