Leptospirosis is an infectious disease caused by pathogenic bacteria called leptospires, that are transmitted directly or indirectly from animals to humans. Leptospirosis is probably the world’s most widespread zoonosis (Turner, 1970). Human-to-human transmission occurs only very rarely (WHO, 2003). Leptospirosis occurs worldwide but is most common in tropical and subtropical areas with high rainfall. The disease is found mainly wherever humans come into contact with the urine of infected animals or a urine-polluted environment (Ratnam, 1994). The number of human cases worldwide is not known precisely. According to currently available reports, incidence ranges from approximately 0.1 - 1 per 100,000 per year in temperate climates to 10-100 per 100,000 in the humid tropics. During outbreaks and in high exposure risk groups, disease resistance may reach over 100 per 100,000 (WHO, 2003).

Leptospirosis may present with a wide variety of clinical manifestations. These may range from a mild “flu”-like illness to a serious and sometime fatal disease. It may also mimic many other diseases, e.g. dengue fever and other viral haemorrhagic diseases. Icterus (jaundice) is a relatively common symptom in leptospirosis. The leptospires multiply in blood and may reach and affect any organ or tissue (Turner, 1967).

Some of them escape hosts’ immune surveillance and settle in convoluted tubules of the kidneys and is shed in the urine for a period of few weeks to several months and occasionally even longer. They are then cleared from the
kidney and other organs but may persist in the eyes for much longer (WHO, 2003). The involvement of liver and kidney are the commonest findings in human and animal leptospirosis. There is an extensive damage in the renal tubules which may or may not bring about oligureal anurea in human patients (Ooi et al., 1972). Leptospirosis is one of the important diseases in India particularly in Tamil Nadu where several outbreak of this disease had been reported in 1992, 1993 and 1997 (Ratnam, 1993a, b; Balakrishnan et al., 1994; Natarajaseenivasan et al., 1997, 2002).

Adolf Weil described leptospirosis as a disease entity in 1886 and named this disease as Weils disease. To-day leptospirosis is called by several names viz. Autumnal Fever, Bushy Creek Fever, Cane Field Fever, Canecutter Fever, Canicola Fever, European Swamp Fever, Field Fever, Fort Bragg Fever, Haemorrhagic Jaundice, Icteroheamorrhagic Fever, Mud Fever, Pea-picker's Disease, Rice field Fever, Seven Day Fever-Leptospirosis, Spirochaetosis, Stuttgart Disease, Swamp Disease, Swineherd Disease, Weil's Disease and Wycon Fever.

Leptospires are corkscrew shaped bacteria, which differ from other spirochaete by the presence of end hooks. They belong to the order Spirochaetales, family Leptospiraceae, genus Leptospira. They are too thin to be visible under the ordinary microscope. Dark field microscopy is most often used to observe leptospires. Leptospires are both pathogenic and saprophytic. Pathogenic forms have the potential to cause disease in animals and humans but saprophytes are generally non-pathogenic. Initially, two species of leptospires namely pathogenic Leptospira interrogans and saprophytic Leptospira biflexa were recognised. Recently several species of Leptospira have been differentiated on the basis of DNA relatedness (WHO, 2003).
Pathogenic leptospires are maintained in nature in the renal tubules of certain animals and humans. The basic systematic unit of leptospires is serovar. Each serovar has a characteristic antigenic make-up. The serovar having antigenic similarities are formed into serogroups and over 230 pathogenic serovars divided into 25 serogroups have been described (WHO, 2003). Today, based on DNA relationship twelve genomo species [L. interrogans, L. weilii, L. borgpetersenii, L. noguchii, L. santarosai, L. inadai, L. kirschneri, L. meyeri, L. alexanderi, L. feini, L. wolbachii and L. biflexa] and four unnamed new genomospecies are recognised (Ramadass et al., 1992; Sehgal et al., 2003).

However, the classification of leptospires is still complicated. Both serovar and species concept of classification are not always in agreement and strains belonging to the same serovar may belong to different Leptospira species. Leptospires are not particularly host specific, however they adopt certain hosts due to some biological compromise. Rodents act as carrier for most of the serovars but some serovars particularly Pomona, Tarassovi, Grippotyphosa and Hardjo are adapted to domestic animals. Aquatic animals like frogs and snakes too were identified as host for leptospires (Ratnam, 1994).

Due to wide range of natural hosts and their survival in aquatic body, it poses serious threat to people associated with these environments. Agricultural workers, livestock workers, sewage workers or others associated with public health services are often the targets for leptospirosis. Due to the shedding of leptospire microbes from the urine of rodents, humans or other infected animals, after rainy season it forms outbreaks and all those people who drink contaminated water are
affected. From Andaman and Nicobar Islands, Kerala, Tamil Nadu, Gujarat and Rajasthan several serious outbreaks had been reported (Sehgal et al., 1995; Muthusethupathi, et al., 1995; Kuriakose et al., 1997; WHO, 2000; Babu et al., 2001; Varaiya et al., 2002; John et al., 2004).

So it has become imperative to explore both prophylactic and anaphylactic measures to contain leptospiiral outbreak and human sufferings. In order to find out suitable solutions for these problems, it has become essential to identify the seroprevalence of this pathogen in different areas in India and to develop diagnostic tool for rapid identification of leptospirosis. To develop rapid diagnostic tool, the type of serovar that predominates in a particular region must be identified. With an intention to fulfill the above target, the present study was conceived and executed in Salem and Namakkal districts of Tamil Nadu, India, where neither to no attempts has been made to study the epidemiology of leptospirosis. As these two districts are the major centre for livestock in India, a study on the epidemiology of leptospirosis in this districts could provide valuable information on this infectious disease.