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Identification of cattle/buffalo and rats as reservoir animals of pathogenic *Leptospira* in the Gampaha District

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Leptospirosis is an important emerging infectious disease in Sri Lanka. This disease has had a significant effect on the livelihoods of people living in endemic areas of the country. It is caused by various serovars of pathogenic *Leptospira* species infection. Rats are known to be the most important reservoirs and maintenance hosts of *Leptospira* but domestic and wild animals may also act as maintenance or accidental hosts. However, knowledge on the reservoir animal of *Leptospira* is poor. The objective of this study was to identify the reservoir animals of pathogenic *Leptospira* species in the Gampaha District.

The study was conducted in a high risk area for leptospirosis in Mirigama from May 2012 to February 2013. Cattle/buffalo urine samples (n = 50) and rat blood samples (n = 38) were collected in the selected area. Middle stream urine samples were collected to sterile plastic vials and transported to the laboratory for molecular-based assays. Rats were trapped alive, anaesthetized using diethyl ether and 2-3 ml of cardiac blood was extracted into EDTA vial. Each rat blood sample was tested by conventional Polymerase Chain Reaction (PCR), real time PCR and by a serological assay, Microscopic Agglutination Test (MAT). Each cattle/buffalo urine sample was tested by conventional PCR and real time PCR. Of the 50 urine samples tested, 2% (1/50) and 10% (5/50) were positive by conventional and real time PCR, respectively. Of the 38 rat blood samples captured and tested, 5% (2/38) and 16% (6/38) were positive by conventional and real time PCR, respectively. None of the rat blood samples was positive by MAT. The results of the molecular based assays showed that *Leptospira* are circulating among the rats tested in this study, although at the time of collection, their antibody levels were too low to be detected by MAT, which has the lowest detection titer of 1:800. Further, results of the molecular assays confirmed cattle as a reservoir for *Leptospira*. Therefore, there is a potential zoonotic risk to the population in this area.

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