

## Carrier status of pathogenic leptospires among swine slaughtered for human consumption in Sri Lanka

**B. D. S. Muthusinghe<sup>1</sup>, C. D. Gamage<sup>2\*</sup>, R. G. S. C. Rajapakse<sup>3</sup>, T. M. Gamage<sup>2</sup>, P. Fernando<sup>4</sup>, N. Koizumi<sup>5</sup>, K. Shiokawa<sup>6</sup>, K. Yoshimatsu<sup>6</sup> and J. Arikawa<sup>6</sup>**

<sup>1</sup>Post graduate Institute of Science, University of Peradeniya, Sri Lanka, <sup>2</sup>Department of Microbiology, Faculty of Medicine, University of Peradeniya, Sri Lanka, <sup>3</sup>Department of Molecular Biology & Biotechnology, Faculty of Science, University of Peradeniya, Sri Lanka, <sup>4</sup>Division of Bacteriology, Veterinary Research Institute, Gannoruwa, Sri Lanka, <sup>5</sup>Department of Bacteriology, National Institute of Infectious Diseases, Tokyo, Japan, <sup>6</sup>Laboratory of Infectious Diseases, Graduate School of Medicine, Hokkaido University, Hokkaido, Japan  
\*chandika@pdn.ac.lk

Leptospirosis is a zoonotic disease caused by pathogenic species of Genes *Leptospira* that affects humans and a wide range of domestic and wild animals. In livestock industry, infected animals possess a zoonotic threat to the workers. The aim of this study was to identify the carrier status of pathogenic leptospires among pigs slaughtered for human consumption in Sri Lanka.

Parts of kidneys from 105 pigs slaughtered for human consumption were initially collected from 4 provinces of Sri Lanka. Another 13 swine kidney portions including their blood (13) and urine (12) were collected from locations where Leptospirosis-positive results were detected from the initial screening. Extracted DNA were initially subjected to *flaB* nested-PCR to detect the presence of pathogenic leptospiral DNA. All positive kidney DNA samples were checked again using *secY* PCR. The *flaB* and *secY* PCR positive amplicons were sequenced, and phylogenetic tree was constructed. Serum samples of PCR positive pigs were subjected to Microscopic Agglutination Test (MAT) to determine the infective serogroup. DNA extracted from urine and serum of PCR positive pigs were subjected to Loop-mediated isothermal amplification (LAMP) to detect the presence of pathogenic leptospires DNA. All pigs were clinically normal at the ante-mortem examination.

Out of 105 kidney samples, 7 were *flaB* positive. All of the positive samples originated from a single farm. From the follow up collection, 11 out of 13 kidney samples were again *flaB* positive. All 18 samples were positive for *secY* PCR too. The phylogenetic analysis confirmed that the organism is *Leptospira interrogans*. MAT results of the sera showed that the serogroups of infected leptospires were Cannicola, Icterohaemorrhagiae and Autumnalis. LAMP results of sera and urine showed three positives and seven positives respectively.

The current study revealed that the pigs slaughtered for human consumption could be chronically infected with pathogenic leptospires. However, infection is not widely spread, and is localised to a single farm from which it can spread via transportation of animals and handling of raw meat. Therefore such contaminated farms can possess a great threat to both humans and other animals.