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**SEROLOGICAL DETECTION AND IDENTIFICATION OF
RICKETTSIAL SPECIES INFECTING HUMANS**

A PROJECT REPORT PRESENTED BY

DEVATHRI M. NANAYAKKARA

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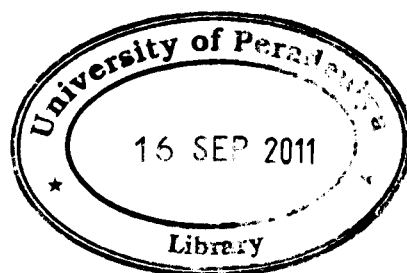
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SEROLOGICAL DETECTION AND IDENTIFICATION OF RICKETTSIAL SPECIES INFECTING HUMANS

Devathri M. Nanayakkara

Postgraduate Institute of Science

University of Peradeniya

Peradeniya

Sri Lanka

Human rickettsiosis is a vector borne infection transmitted by a group of gram negative proteobacteria and is a common cause of febrile infections all around the world. A study was conducted to investigate the types of rickettsial agents prevalent in Sri Lanka as information on the rickettsial species in the country is limited.

The study was conducted in patients with clinical rickettsioses (n=272) from Teaching Hospital Peradeniya (THP), patients visiting medical clinics at Mahiyanganaya (n=50) and Karapitiya (n=34) General Hospitals, apparently healthy residents from AGA divisions of Udunuwara (n=57), Yatinuwara (n=68) and gramaniladhari divisions of Rajawatta (n=83) and Thambavita (n=118), dogs from Unawatuna (n=50), Rajawatta (n=32), Thambavita (n=18), Western Slopes of, Central hilly country (n=24) which includes Manikdiwela, Hatharaliyadda, Kadugannawa, Wattapola, Hingula, Muruthalawa and Mawanella, cattle from Kandy slaughter house (n=32) and a farm in Anuradhapura (n=24). Immunofluorescence antibody assay (IFA) was used for serological analysis and molecular studies were done using Polymerase chain reaction (PCR).

The rickettsial agent causing clinical infection in majority of the patients attending the THP belonged to the spotted fever group. Forty-eight percent of the patients were from Udunuwara and Yatinuwara AGA divisions in the Kandy district and 19% of apparently healthy humans from these two divisions also had rickettsial antibodies. The local rickettsial species showed close homology to a strain identified as "*Candidatus Rickettsia kellyi*" from Tamil Nadu, South India. Considering the geographical proximity, it is possible that the species responsible for spotted fever group rickettsioses

in Sri Lanka and India are related. Fifty-seven percent of patients visiting General hospitals at Mahiyanganaya and Karapitiya, 54% of healthy humans from Rajawatta and Thambavita had antibodies against rickettsiae indicating the existence of the pathogen in those areas and possibly subclinical infection among them. Areas of Central hilly country showed the existence of Spotted fever group (SFG) predominantly. Towards the south of the country both SFG and scrub typhus group co-existed equally whereas in areas of Uva province scrub typhus was predominant.

Rickettsial antibodies were also observed in dogs and cattle. Seropositivity in canines was always higher than humans in a given area.

The study indicates the importance of rickettsia as a zoonotic disease in Sri Lanka. Presence of antibodies among domestic animals will enable the identification of endemic zones. Whether these animals play a role as reservoirs in the natural rickettsial cycle, should be determined by molecular techniques and animal models.