

## Detection of *Leptospira* spp. in Selected National Service Training Centres and Paddy Fields of Sarawak, Malaysia using Polymerase Chain Reaction Technique

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### ABSTRACT

Leptospirosis is a zoonotic disease which is caused by spirochetes from the genus *Leptospira*. It can be transmitted to humans through direct contact with infected animals or indirect contact with an environment contaminated by the urine of infected animals. The objective of this study was to study the status of leptospirosis in two selected National Service Training Centres (NSTCs) and two paddy fields of Sarawak. A total of 31 captured rats, 210 soil samples and 210 water samples were collected from these study sites. All the samples were inoculated into a modified semisolid Ellinghausen-McCullough-Johnson-Harris (EMJH) broth with 5-fluorouracil. For soil and water samples, a specific polymerase chain reaction (PCR) was conducted after a one-month incubation period. Kidney and liver samples from rats were incubated and PCR was carried out monthly during the three-month incubation period. Representative PCR-positive samples which targetted LipL32, 16S rRNA and rrs genes at 423 bp, 331 bp and 240 bp in pathogenic, intermediate and saprophytic *Leptospira*, respectively, were further sequenced. From the PCR analysis, intermediate *Leptospira* was detected in one (3.2%) rat species, *Rattus exulans*, that was captured in a paddy field. A total of six (2.9%) pathogenic *Leptospira*, one (0.5%) each from intermediate and saprophytic *Leptospira*, were present in soil samples from the study sites. Six (2.9%) water samples were contaminated by pathogenic *Leptospira*, four (1.9%) by intermediate *Leptospira* and seven (3.3%) by saprophytic *Leptospira*. All the contaminated environmental samples

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