



## Research Article

# Occurrence of *Leptospira* Species from Rodents, Soil and Water from an Oil Palm Plantation in Northern Sarawak

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## Abstract

**Background and Objectives:** Leptospirosis is a death-causing disease caused by corkscrew-shaped bacteria, *Leptospira* especially in tropical countries. Current study was aimed to detect pathogenic, intermediate and saprophytic *Leptospira* species using polymerase chain reaction (PCR) assay from an oil palm plantation in Borneo, specifically in Miri, Malaysia. **Materials and Methods:** A total of 63 samples from rodents (n = 3), water (n = 30) and soil (n = 30) were isolated from an oil palm estate in Northern Sarawak, Borneo. All samples were inoculated into modified semisolid Ellinghausen-McCullough-Johnson-Harris (EMJH) broth with 5-fluorouracil and incubated for a month. Polymerase chain reaction (PCR) was performed using primer targeting *lipL32* (423 bp) for pathogenic, *16S rRNA* (331 bp) for intermediate and *rrs* (240 bp) for saprophytic species. **Results:** pathogenic *Leptospira* was found in 33.3% rodents (1/3) *Rattus tiomanicus*, 23.3% soil samples (7/30) and 16.7% water samples (5/30). Intermediate species were demonstrated in the other 66.7% rodents (2/3), *Sundamys muelleri* and *Rattus exulans* and 10% soil samples (3/30). Saprophytic species was found in only 3.3% soil sample (1/30). Results from DNA sequencing analysis indicated that the most dominant pathogenic *Leptospira* species discovered in the study was *Leptospira interrogans*, followed by *Leptospira noguchii* and *Leptospira weilii*. **Conclusion:** These preliminary findings provide baseline data on the occurrence of *Leptospira* species in captured rodents and the environment. These findings could assist in control and prevention of leptospirosis among oil palm estate workers in Sarawak. Awareness and knowledge on leptospirosis should be promoted among oil palm workers for prevention and mitigation.

**Key words:** *Leptospira*, oil palm plantation, polymerase chain reaction, DNA sequencing, leptospirosis

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**Data Availability:** All relevant data are within the paper and its supporting information files.