

SHORT COMMUNICATION

Serological Prevalence of Leptospiral Infection in Wildlife in Sarawak, Malaysia

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ABSTRACT

Leptospirosis is a zoonotic disease caused by pathogenic leptospiral bacteria, which are transmitted directly or indirectly from animals to humans or animal to animal. The first phase of this proposed study was carried out to determine the extent of exposure to leptospirosis in wild mammals surrounded by human settlements around wildlife or tourism area (Wind Cave, Fairy Cave, Bako National Park and Matang Wildlife Center). This study reports an incident of leptospirosis among primates (three captive and two free ranging), rats, bats, squirrels and mongoose around Kuching, Sarawak area, which has been screened for Leptospirosis. Blood samples were obtained to determine the presence of antibodies through the microscopic agglutination test (MAT) using eighteen serovars of *Leptospira* commonly found in Malaysia as antigens. It was observed that four out of the five monkeys (80%), rats (9/4) (44%), bats (20/5) (20.8%), squirrels 4/4 (100%) and mongoose (1) (100%) reacted against one or more serovars of *Leptospira*. In this study antibody of five serovars of *Leptospira interrogans* Copenhageni, *Leptospira interrogans* Lai, *Leptospira interrogans* Pomona, *Leptospira interrogans* Pyrogenes, Lepto 175* were detected. Serovars Copenhageni, Lai, Pomona and Pyrogenes were considered pathogenic for different mammals including human beings. No information about serovars lepto 175 and further studies going on. This is providing information on the possible zoonotic importance of mammalian species in maintaining this disease in Sarawak. The transmission of leptospires in rats reported several incidents and between primates, bats, squirrels, mongoose and human is not reported elsewhere but this could create new reservoir and transmission routes and may affect the tourism, conservation effort and public health.

Keywords: Leptospirosis, wildlife, mammals, Sarawak, Borneo

Leptospirosis can affect both humans and animals throughout the world resulting in morbidity and mortality (Russ et al. 2003; WHO Headquarters, Geneva, 2006). The important epidemiological feature of leptospirosis in domestic animals and wildlife can lead to economic loss and potentially spread to the human communities.

Leptospirosis can be transmitted in human by direct contact with infected blood, tissues, organs or urine of infected hosts or through indirect contact with contaminated fomites, soil, mud, fresh water, vegetation and food stuffs or working in places infested with rodents (Terpstra 2003; Zavitsanou & Babatsikou 2008). Transmission can also occur via the direct penetration of the leptospires

through the conjunctiva or surface epithelium (Russ et al. 2003). The role of rats as a source of human infection was discovered in 1917 (Levett 2001) and subsequently some researchers have identified that flying foxes can carry pathogenic leptospires in Australia (Cox, Smythe, & Leung 2005; Smythe et al. 2002). The bacteria can cause polymorphic disease conditions in wild, domestic animals and in human (Terpstra 2003). However, to date there has been little research on the role of wildlife in outbreak throughout the world. Due to the current significant levels of reforestation occurring and the involvement of humans in the jungle, there is the potential for exposure of humans to new serovars of leptospires.

Trapping of monkeys, rats, bats, squirrels and mongoose were carried out around Wind

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