

## **Molecular Study of *Babesia* in Canine Blood and Comparison between Conventional and Molecular Diagnostic Methods**

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### **Abstract**

A molecular study was conducted to detect the presence and determine the prevalence of *Babesia* species in stray and pet dogs in Kuala Lumpur using the Polymerase Chain Reaction (PCR) method. Seventy dogs, 35 from pet dogs presented to clinics around Kuala Lumpur and 35 from stray dogs from the Dewan Bandaraya Kuala Lumpur (DBKL) dog pound, were included in this study. Thin blood films were made, stained with Giemsa and examined under a light microscope for the detection of *Babesia* organisms. Two out of 70 dogs (2.8%) were positive for canine *Babesia*. One was identified as *Babesiacanis* positive and the other *Babesiagibsoni* positive. Genus-specific screening PCR was performed on DNA extracted from all 70 samples followed by *Babesia canis*-specific and *Babesia gibsoni*-specific PCR. Nine out of 70 dogs (12.8%) were positive following genus-specific screening PCR but of the 9, only one was positive for *Babesia canis* and one for *Babesia gibsoni*. The two positive samples were the same as those detected using light microscopy. Both of the positive samples were from the stray group. Haematological abnormalities in the two *Babesia* positive dogs included anemia and thrombocytopaenia. The prevalence rate of canine babesiosis was 5.8% for the stray group and 0% for the pet group. The overall prevalence of canine babesiosis in Kuala Lumpur was found to be 2.85%. This is the first molecular study of canine *Babesia* in Malaysia.

**Keywords:** Canine babesiosis, *Babesia canis*, *Babesia gibsoni*, dogs, thin blood films, polymerase chain reaction