

DIAGNOSIS PERFORMANCE OF CONVENTIONAL PCR VERSUS BLOOD SMEARS FOR HEMOPARASITES IN DOGS WITH OR WITHOUT CLINICAL SIGNS

**P.S. Jayatilaka^{1*}, R.A.S. Ranatunga², R.S. Rajakaruna², A.D.S. Fernando³,
A.G.M.L.K. Dayananda⁴, M.C.K. Mallawa⁵ and A. Dangolla⁵**

¹Sri Lanka Air Force Base, Katunayake, Sri Lanka

²Department of Zoology Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

³Government Veterinary Office, Wennappuwa, Sri Lanka

⁴Department of Molecular Biology, Faculty of Science, University of Peradeniya, Peradeniya, Sri Lanka

⁵Department of Veterinary Clinical Studies, Faculty of Veterinary Medicine and Animal Science, University of Peradeniya, Peradeniya, Sri Lanka

*vet_sam@yahoo.com

Canine hemoparasites are a significant health problem among dogs globally. Current diagnosis relies mainly on microscopic examination of blood smears which may not detect the parasites in early infections and at low parasitemia. We assessed the diagnosis performances of conventional PCR vs blood smears in detecting hemoparasites in dogs with or without clinical signs. Blood samples from 82 dogs were collected, comprising 20 military dogs of the Sri Lanka Air Force (ten with signs), 32 free-roaming (two with signs), and 30 privately-owned dogs (ten with signs). Giemsa stained blood smears were prepared, and the results were compared with PCR amplified 18S rDNA gene of *Babesia* and *Hepatozoon* and 16S rDNA gene of *Ehrlichia* and *Anaplasma* and kDNA gene of *Leishmania*. Results showed that 37 dogs were infected with hemoparasites, comprising 27 *Babesia* spp., five *Ehrlichia canis*, one *Hepatozoon canis*, two *Anaplasma platys* and two *Leishmania* sp. infections. Among *Babesia*-infected dogs, only 37% showed clinical signs, of which 90% were both smear and PCR positive, while 63% were without signs, of which 47% were both smear and PCR positive and 53% were smear-negative but PCR positive. A high number of stray dogs showed smear-negative but PCR positive results. All five dogs infected with *E. canis* showed signs. Of which, two dogs with signs (40%) had both smears and PCR positive results while three (60%) had only smear-positive results. The two dogs infected with *A. platys* showed symptoms. Of which, one was both smear and PCR positive and the other was smear-positive but PCR negative. *Leishmania* and *H. canis* infected dogs showed signs; both smear and PCR results were positive. Of the two methods, the conventional PCR method gave a higher sensitivity for *Babesia* infections, especially in those stray dogs that did not show clinical signs but may act as reservoirs of infections.

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