

Molecular Characterization of *Dirofilaria repens* in Dogs from Karnataka, India

Authors : D. S. Malatesh, K. J. Ananda, C. Ansar Kamran, K. Ganesh Udupa

Abstract : *Dirofilaria repens* is a mosquito-borne filarioid nematode of dogs and other carnivores and accidentally affects humans. *D. repens* is reported in many countries, including India. Subcutaneous dirofilariosis caused by *D. repens* is a zoonotic disease, widely distributed throughout Europe, Asia, and Africa, with higher prevalence reported in dogs from Sri Lanka (30-60%), Iran (61%) and Italy (21-25%). Dirofilariasis in dogs was diagnosed by detection of microfilariae in blood. Identification of different *Dirofilaria* species was done by using molecular methods like polymerase chain reaction (PCR). Even though many researchers reported molecular evidence of *D. repens* across India, to our best knowledge there is no data available on molecular diagnosis of *D. repens* in dogs and its zoonotic implication in Karnataka state a southern state in India. The aim of the present study was to identify the *Dirofilaria* species occurring in dogs from Karnataka, India. Out of 310 samples screened for the presence of microfilariae using traditional diagnostic methods, 99 (31.93%) were positive for the presence of microfilariae. Based on the morphometry, the microfilariae were identified as *D. repens*. For confirmation of species, the samples were subjected to PCR using pan filarial primers (DIDR-F1, DIDR-R1) for amplification of internal transcribed spacer region 2 (ITS2) of the ribosomal DNA. The PCR product of 484 base pairs on agarose gel was indicative of *D. repens*. Hence, a single PCR reaction using pan filarial primers can be used to differentiate filarial species found in dogs. The present study confirms that dirofilarial species occurring in dogs from Karnataka is *D. repens* and further sequencing studies are needed for genotypic characterization of *D. repens*.

Keywords : *Dirofilaria repens*, molecular characterization, polymerase chain reaction, Karnataka, India

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