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 **Conference Title:** ICVSAB 2020: International Conference on Veterinary Science and Animal Behavior

Conference Location : Dubai, United Arab Emirates

Conference Dates: February 13-14, 2020