

## Molecular Identification of Vector Mosquitoes of *Dirofilariasis* in Matala District, Sri Lanka

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### Abstract

*Dirofilariasis* is a vector-borne parasitic disease with a worldwide distribution. In Sri Lanka, only one study has been recorded so far corresponding to vector identification which has only been conducted by standard entomological techniques. Therefore, the present study for the first time records the molecular identification of the vector mosquito of *Dirofilariasis* in Sri Lanka. Entomological sampling was performed at randomly selected mosquito breeding sites in two selected Medical Officer of Health (MOH) areas; Ambanganga-korale and Matala, in Matala district. Sampling was during October to December 2022 and 156 adult female mosquitoes were collected of *Armigeres*, *Culex*, *Mansonia* and *Anopheles* genera. Mosquitoes were separated into pools based on the species, sampling location and the date of collection. Genomic DNA was extracted from 200  $\mu$ l of the mosquito homogenate, Polymerase Chain Reaction (PCR) amplification was performed using designed primers specific to *Dirofilaria repens*. The PCR products were subjected to agarose gel electrophoresis and one positive sample was identified to be compatible with the *Dirofilariasis* band size. Sequencing was performed to further confirm the presence of *Dirofilaria* in the amplified product. *Anopheles* was the most abundant genera (27.56%), followed by both *Mansonia* and *Culex* (25.64%) while *Armigeres* was the least abundant (21.15%) in the study sites. Analyzed sequence results confirm the presence of *Dirofilaria repens* in the mosquito samples of *Armigeres subalbatus* collected from Ambanganga-korale MOH. Present study confirms the presence of *Dirofilaria repens* in the study area of the Matala district and *Armigeres subalbatus* as the responsible vector for disease transmission. Moreover, study findings are effective in implementing vector-controlling measures against human infection of *Dirofilariasis*, targeting the exact vector that transmits the disease condition.

**Keywords:** *Diagnosis, Dirofilariasis, Mosquito, Parasitic, Polymerase Chain Reaction*