

**Vectorial potential of *Mansonia* species in the transmission of
Wuchereria bancrofti and evaluation of mosquito collection
methods in Tana-Delta, Coastal Kenya**

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ABSTRACT

Different mosquito species have been incriminated as vectors of lymphatic filariasis (LF). On the Kenyan coast, *Anopheles*, *Culex* and *Aedes* species have been identified as vectors of LF. This study aimed at determining whether *Mansonia* species are also vectors of LF in Tana-Delta district of Kenya. Secondly, the study also evaluated mosquito sampling methods. A cross-sectional study was carried out in six villages in the district, where mosquitoes were collected by three methods: Pyrethroid sprays, CDC light Traps and CDC Gravid Traps. Mosquitoes from each collection method were counted to determine the method with the highest catch. A total of 1632 mosquitoes were collected, with 1265 being collected by light traps (77.55%), 311 (19.1%) by pyrethrum sprays, and 56 (3.4%) by gravid traps. The collected mosquitoes were identified to the level of genera. Five mosquito genera were collected: *Culex* species, 1048 (64.2%), *Aedes* species, 188 (11.5%), *Mansonia* species, 236 (14.5%), *Anopheles* species 148 (9.1%), and *Ficalbia* species 12 (0.7%). The prevalence of *Wuchereria bancrofti* in *Mansonia* species was also determined. Fifty *Mansonia* mosquito species were dissected to determine presence of *W. bancrofti* stage III larvae (L₃). To identify filarial worms in mosquito specimen, Deoxyribonucleic acid (DNA) was extracted from filarial larvae, amplified by the PCR assays using *W. bancrofti* species-specific primers. Only two out of 50 *Mansonia* species dissected had stage II filarial larvae. Deoxyribonucleic acid (DNA) was also extracted from individual *Mansonia* species, and analyzed by PCR to determine *W. bancrofti* infectivity rates. The PCR analysis was negative for *W. bancrofti*. Light traps were found to be the most efficient method for mosquito sampling. There was no evidence that

Mansonia species have significant medical importance in the transmission of *W. bancrofti* since both dissection and PCR assays did not indicate any transmission potential in the mosquitoes. It is therefore recommended that light traps should be used in collecting large numbers of mosquitoes for parasite screening purpose.