

Study on effect of the microfauna and some abiotic parameters for the prevalence of mosquito larvae inhabiting marshlands

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This study was carried out in selected marshlands of Kelaniya in Sri Lanka to determine the prevalence of various mosquito species larvae and their association with biotic and abiotic parameters of the habitat. Larval sampling, recording of physico chemical parameters and microfauna identification were done at monthly interval from March 2015 to August 2015.

The study was carried out in eight marshlands with varying Biochemical Oxygen Demand (BOD) levels and total number of 893 mosquito larvae were collected (n=144). *Culex gelidus*, *Cx. whitmorei*, *Cx. tritaeniorhynchus*, *Cx. quinquefasciatus*, *Cx. fuscocephala* and *Anopheles* sp. 1 were the species/taxa identified. *Cx. gelidus*, *Cx. whitmorei*, *Cx. quinquefasciatus* were found in meshes with BOD level ranging from 1.5-2 mg/L and *Cx. fuscocephala* with 1-1.5 mg/L. *Anopheles* sp. 1 was found in significantly low level. pH levels in these habitats did not vary significantly and lied between 6.5-7.0. When *Cx. whitmorei* and *Cx. gelidus* co-existed in one habitat, it was found a significant negative correlation between the populations of two species. Similar results were found when *Cx. quinquefasciatus* with *Cx. gelidus* present together in same habitat. However, *Cx. fuscocephala* and *Cx. gelidus* when present together in same habitat, it was shown a positive correlation.

In marshlands, 14 genera of microfauna were identified (n=144). Among them *Zoothamnium* sp 1 was most common and found higher densities and followed by *Diffflugia* sp 1, Nauplius larva, *Cyclops* sp 1, and *Daphnia* sp 1. Pearson correlation showed that there was a correlation between the density of mosquito larvae and associated microfauna. *Zoothamnium* sp. 1 was given negative correlation with the *Cx. gelidus* when they present in higher density. A significant positive correlation was obtained between *Daphnia* sp. 1, *Diffflugia* sp. 1, Nauplius larva and *Keratella* sp. 1 with mosquito larvae. Hence, there is no relationship between microfauna and mosquito populations. However, this may depend on the BOD of the habitat.

Keywords: Correlation, Microfauna, Mosquito larvae