

Rice Field and Marshland Inhabiting Mosquitoes and Some Physico-Chemical and Biological Parameters Affecting Their Abundance

W G I S Weerakkodi and L D Amarasinghe*

Department of Zoology, University of Kelaniya, Sri Lanka, *deepika@kln.ac.lk

Mosquito larval survey was carried out in rice fields and marshlands in Kelaniya area, Gampaha District, Sri Lanka from March to July 2012 to determine the variation of mosquito larval density and diversity. Further, the study investigated the physico-chemical and biological parameters associated with mosquito larval density in the two habitats. Larval sampling and recording of physico-chemical and biological parameters was carried out biweekly within the study period in five sampling sites per habitat within an extent of 20 km² in Kelaniya area. Larval samples were identified up to the species level using keys in the laboratory using 4th instars and adult mosquitoes. Morphological identification of 1071 mosquito larvae collected from rice fields and 576 mosquito larvae collected from marshlands (150 scoops per habitat) revealed 08 species of mosquitoes of 04 genera in rice fields and 08 species of 03 genera from marshlands. Both habitats were dominated by Genus *Culex* (97.5% in rice fields and 95.4% in marshlands). *Culex tritaeniorhynchus* and *Culex gelidus* were represented the majority of samples. Mosquito larval density in rice field and marshland habitats in Kelaniya area was not significantly different ($P > 0.05$). Rice fields are the most diverse habitats from two selected habitat types in Kelaniya area (Shannon wiener diversity index/ $H^1 = 1.35$ in rice fields and $H^1 = 1.25$ in marshlands). However, they were mainly associated with high Total Dissolved Solid (≥ 10.00 mg/L), 6-8 pH level, low Dissolved Oxygen (5.0-6.0 mg/L), ≤ 5.0 mg/L nitrate and less than 1.0mg/L phosphate levels. They can tolerate a range of BOD levels in water. Further their habitats were positively associated with Chironomid larvae, phytoplanktons of Family Zygnemataceae, Clamydomonadeceae and Family Oscillatoriaceae and zooplanktons of Family Acanthocystis and Daphniidae, whereas negatively associated with larvae of Family Libellulidae of Order Odonata. Fourteen families of phytoplankton and 16 families of zooplankton were recorded associating mosquito larvae from rice fields and marshlands.