

Risk of *Aedes aegypti* (Linnaeus) Development of Breeding in Polluted Drainage Systems of Urban Cities of Sri Lanka**Chandrasiri P.K.G.K., Fernando H.S.D, De Silva B.G.D.N.K.****Center for Biotechnology, Department of Zoology, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka***nissanka@sci.sjp.ac.lk***Abstract**

Dengue Fever (DF) is a major public health problem at present in Sri Lanka. Drastic environmental changes due to rapid and unplanned development, extended rainfall during rainy seasons, and ambient relative humidity and temperature that favor for the breeding of *Aedes aegypti* (Linnaeus), the main vector of DF are the major factors contributing high incidence of dengue in the country. Dengue control programs mainly target the removal or treatment of fresh water holding artificial or natural breeding containers for controlling *Ae. aegypti*. Negligence of the polluted water drains during vector control programs has raised concerns and suggested the possibility of *Ae. aegypti* breeding. The present study was designed and conducted to evaluate the presence of *Ae. aegypti* in the polluted water drains in some urban areas in Sri Lanka. A preliminary entomological survey was carried out in urban areas from Chilaw to Galle to detect *Ae. aegypti* larvae. The drains that marked as the positive for *Ae. aegypti* larvae, were further surveyed for a period of three months from June to August in 2017. *Ae. aegypti* was recorded in drains containing polluted water in Galle city for the first time in Sri Lanka. From total of 26,949 mosquitoes, predominant species in the preliminary survey was *Cx. quinquefasciatus* (97.38%) followed by *Cx. gelidus* (0.98%), *Ae. albopictus* (0.62%) and *Ae. aegypti* (0.59%). Other species recorded were *Armigeres sp.*, *Cx. hutchinsoni* and *Ae. vittatus* which accounted for only 0.4% of the specimens collected. *Ae. aegypti* was only recorded in polluted water drains with four other species during further studies carried out in the Galle district. *Cx. quinquefasciatus* (97.2%) was predominately recorded from all the polluted drains sampled with a total of 9594 mosquitoes collected in Galle. This was followed by *Ae. aegypti* (1.58%) with 156 mosquitoes and *Ae. vittatus* (0.78%) with 77 mosquitoes. Highly deteriorated water quality characteristics were detected as low dissolved oxygen and high conductivity with visible organic pollutants at every study site. Destruction of breeding grounds during vector control programs and constant stress due to insecticidal control leads to adapt *Ae. aegypti* to new breeding environments. Therefore, further in-depth studies that are based on behavioral changes in the mosquitoes for selecting oviposition need to be carried out by which the control program can be well targeted to lower the disease burden.

Keywords: *Aedes aegypti*, Polluted water drains, Insecticidal pressure