

Oviposition Preference of *Aedes albopictus* (Diptera: Culicidae) at Domestic and Peri-Domestic Settings in Gampaha Medical Officer of Health (MOH) of Sri Lanka

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There are varying ranges of water filled man-made and natural container habitats with varying physico chemical parameters available for the breeding of *Aedes* mosquitoes. House to house cross-sectional entomological survey was carried out monthly in Gampaha MOH area from April 2017 to June 2018 in order to investigate oviposition preference of dengue vector mosquitoes in domestic and peri-domestic areas. Larval collections were done indoors and outdoors using random sampling technique for minimum 100 houses within a radius of 300 m and potential breeding places in each site were identified and categorized accordingly. Out of 1500 premises examined, 17.4% (n= 261) premises were found positive for *Ae. albopictus* and *Ae. aegypti* was not recorded during the study period. The House Index (HI), Container Index (CI), and Breteau Index (BI), varied from 3 - 39, from 5.4 - 44.4, and from 4 - 67, respectively during the study period and there was a strong correlation between the HI and the number of dengue patients reported in Gampaha MOH area according to pearson correlation analysis. (r = 0.64). Overall 2828 potential breeding places were examined in which 18.2% (n=405) containers were found positive for *Ae. albopictus* larvae. The result indicates that most of these positive breeding places were located outdoors 91.2% (n=369) and only 8.8 % (n=36) positive breeding places were located indoor which includes non- used cisterns/ commodes and refrigerator trays. There were 26.5% (n=750) discarded receptacles, 22.6% (n=640) temporary removal items, 13.2% (n=373) natural breeding places, 8.6% (n=242) water storage items, 8.3% (n=235) covering polythenes, 6.2% (n=176) pet feeding cups, 4.8% (n=136) ornamentals, 2.8% (n=78) tyres, 2.4% (n=68) non used cisterns and commodes and 1.9%(n=53) refrigerator trays. Results Indicates that tyres (51.9%), non- used cisterns/commodos (47.7%), ornamentals (26.2%) were the most preferred breeding localities for *Ae. albopictus* followed by discarded receptacles (24.3%) irrespective to the number of potential breeding places found. According to the results CI for discarded items, temporary removals and covering items increased drastically prior to dengue epidemics and four to five weeks lag period was identified between increased container index and increased number of dengue patients. Non- used cisterns/commodos and natural breeding places showed year around productivity and positivity for *Ae. albopictus* which indicated that they contributed to maintain and survival of mosquito vector population between intermediate dry periods. Therefore, this study emphasizes the control of mosquito breeding in key breeding places such as non-used cisterns, commodos and, natural breeding places may be beneficial to reduce vector densities during dry period hence, leading to reduce the spreading mosquito vectors in to other made artificial containers during rainy season leading to major out breaks.

Keywords: *Aedes albopictus*, Breeding Preference, Dengue, Entomology, Gampaha

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