

Dengue vector mosquito surveillance and dengue risks based on environmental factors in Kelaniya MOH area

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ABSTRACT

Potential dengue vector mosquito surveillance was conducted at 25 sites in Kelaniya Medical Office of Health area that contains 37 Divisional secretariat areas and 6 PHI divisions, from April 2008 to Feb 2010 at monthly intervals. Sites were selected based on census using GPS. The abundance of *Aedes albopictus* and *Ae. aegypti* was determined using ovitraps installed in out door and indoor at each site and by adult emergence rate from eggs and field caught mosquitoes. Adult mosquito species were identified morphologically. Recorded dengue cases within the Kelaniya MOH area were obtained after a written approval from Regional Director of Health Services of Gampaha.

Based on the ovitrap study it was revealed that oviposition prevalence of *Aedes* mosquitoes in outdoor was higher than that of indoor in all the study sites. It was highest in Hunupitiya PHI division followed by Dalugama, Kiribathgoda, Peliyagoda, Kelaniya and Wedamulla divisions. The study also revealed that indoor and outdoor adult mosquito populations based on the emergence rate are dominated by *Ae.albopictus* (75%) in the study sites. The highest abundance of *Ae.albopictus* was recorded in Hunupitiya PHI division in the outdoor site. There were positive correlations between the number of suspected dengue patients and the abundance of *Ae.aegypti* ($P=0.027$) and *Ae.albopictus*($P=0.049$) in indoor sites of each PHI divisions.the least number of patients and mosquito populations were recorded at Wedamulla PHI division.

Within the each year of study period, there were two peaks of the outdoor mean number of eggs per ovitrap each in April and December. Indoor mean number of eggs per ovitrap was significantly correlated with number of wet days ($P=0.033$). However, outdoor mean number of eggs per ovitrap was significantly correlated with humidity ($P=0.049$).Recorded dengue cases and environmental factors were linked to GIS database and presented in digitized maps.

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