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Detection of dengue viruses in vector mosquitoes collected from localities with reported dengue cases in the Gampaha District, 2008-2009

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Dengue is an important mosquito-borne flaviviral infection in Sri Lanka. *Aedes aegypti* is considered as the predominant vector of dengue and *Ae. albopictus* is considered as a subsidiary vector of dengue in Sri Lanka. Detection of dengue virus in these two vector species is important for control activities. Objective of this study was to examine transmission of dengue viruses by *Ae. aegypti* and *Ae. albopictus* mosquitoes in the field. Hundred dengue patients confirmed by both clinically and serologically were selected. Mosquito surveillance was conducted by visiting patient's premise within one week of notification of a case. A buffer zone covering 500 m radius in each confirmed patient's premise was surveyed. Larvae and adults were collected using standard larval surveillance techniques and a back-pack aspirator respectively. Adult and larvae were pooled (1-50 larvae/adult per pool). Single step single tube RT-PCR assay followed by Semi-Nested-PCR agarose gel electrophoresis was performed. Ethical permission for this study was obtained from the Ethical Review Committee of the Faculty of Medicine, University of Kelaniya. Informed written consent was obtained from each patient for conducting mosquito surveillance at his/her premise. From 100 confirmed dengue case reported stations, 10% (10/100) and 60% (60/100) pools of *Ae. aegypti* and *Ae. albopictus* larvae were collected respectively. Adult mosquito collection showed 8% (8/100) and 30% (30/100) of *Ae. aegypti* and *Ae. albopictus* respectively. These results showed high density of *Ae. albopictus* mosquitoes. Dengue 3 viral infection was detected in 1 and 7 pools of *Ae. aegypti* and *Ae. albopictus* respectively. Transmission of dengue serotype 3 virus by *Ae. albopictus* and high density of this species in selected areas were observed. Although *Ae. aegypti* is still the main vector initiating outbreaks and transmitting the disease in city centers, the possibility of *Ae. albopictus* playing a major role in this region should not be ignored. These adult mosquitoes may acquire dengue viruses through horizontal or vertical transmission. A large number of mosquito pools needed to test for confirmation.

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