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Some entomological aspects and physico-chemical characteristics of the breeding habitats of *Aedes aegypti* and *Aedes albopictus* in a dengue high risk area in the Colombo district, Sri Lanka

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Dengue and Chikungunya have emerged as important public health problems in Sri Lanka. Some entomological aspects and physico-chemical characteristics of the breeding habitats of *Aedes aegypti* and *Aedes albopictus*, vectors of dengue, were studied in the Narahenpita Public Health Inspector's area of the Colombo district from August to November 2007. Larval surveys were carried out in 352 (10%) randomly selected premises to investigate all possible *Aedes* breeding habitats. *Aedes* larvae were collected and identified using larval identification keys. The selected physico-chemical parameters in *Aedes* positive containers were measured *in situ* using standard instruments. All entomological and physico-chemical data were statistically analyzed.

Dengue vector breeding was observed in 81 premises. Of the 702 water holding containers encountered during the study, 127 were *Aedes* positive. The key breeding habitat of both *Aedes* species in the study area was plastic containers (18.9%). The rest with comparatively high percentage of larval breeding were glass bottles (16.54%), coconut shells (15.75%), tyres (9.45%), clay pots (8.66%), metal ware (6.3%), bamboo stumps (6.3%) and fish tanks (5.51%). For *Ae. aegypti* and *Ae. albopictus,* there were no significant differences either between the number of containers positive or in the mean number of larvae per positive container. Both vector species were prevalent in the study area.

The mean temperature of *Aedes* breeding water was 30.1 ± 0.8 ºC and the pH values were more or less neutral (mean 6.65 ± 0.47). The mean dissolved oxygen concentration was 4.09 ± 1.02 mg/l. The breeding sites had a wide range of conductivity (50.2- 1451 µS/cm), turbidity (6.94- 519 NTU) and salinity (0.1- 0.8 ppt). There was a significant positive relationship between the total *Aedes* larval density and the dissolved oxygen (DO). *Ae. albopictus* larval density was positively and significantly related to DO, but negatively related to pH. Hence, the container management to reduce oviposition sites as well as changing the water quality in essential water receptacles is among the best approaches for controlling *Aedes* breeding in order to prevent the transmission of dengue in densely populated urban areas.

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