Prevalence and insecticide susceptibility of dengue vectors in the district of Batticaloa in eastern Sri Lanka

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Abstract

Unprecedented incidences of dengue have been reported in Sri Lanka in recent years. The district of Batticaloa which was devastated by the 2004 Asian tsunami is one of the districts affected by dengue. One option to curtail this disease is to implement appropriate vector control measures. A nine-month study was carried out within the Batticaloa Municipal Council limit from April to December 2008. Larval collections were conducted fortnightly using conventional ovitraps for nine months covering the dry and wet seasons. Ovitraps (indoor and outdoor) were placed in 15 randomly selected houses. The collected larvae were brought to the laboratory and reared under laboratory conditions. The larval forms and emerged adults were identified on the basis of reported morphological descriptions. The identified adults of 2-3 d old were exposed to common insecticides following the WHO protocol. During the study period a total of 10,685 Aedes aegypti and Ae. albopictus mosquitoes were collected with the former constituting 57% of the total sample. Both species were collected from indoor and outdoor ovitraps and their prevalence was recorded throughout the study period. A seasonal shift was observed in the density with Ae. aegypti predominating during the dry season and Ae. albopictus during the wet season. Both species were highly resistant to 4% DDT and susceptible to 0.25% permethrin. The continuous presence of potential dengue vectors may have contributed to the dengue prevalence in the district. Since both species can oviposit in indoor and outdoor ovitraps public awareness and participation should be promoted in the vector control programme of the Ministry of Health along with continuous vector surveillance.

Author keywords

Ae. albopictus; Aedes aegypti; Dengue; Insecticide resistance; Ovitrap; Sri Lanka; Vector

Indexed keywords

EMTREE drug terms: chlorphenotane; insecticide; malathion; permethrin

EMTREE medical terms: Aedes aegypti; Aedes albopictus; article; controlled study; dengue; disease surveillance; drug sensitivity; health education; larva; nonhuman; seasonal variation; Sri Lanka; vector control; world health organization