

## A preliminary virological surveillance of field-caught adult *Aedes aegypti* (L.) and *Aedes albopictus* (Skuse) mosquitoes in selected sites in the District of Colombo and Gampaha of Sri Lanka

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*Aedes aegypti* (L.) is widely recognized as the principal dengue vector. *Aedes albopictus* (Skuse) has also reported to mediate dengue outbreak situations in some countries. In Sri Lanka, *Ae. albopictus* predominates over *Ae. aegypti* in some areas of high dengue prevalence. As such, current study was aimed to conduct a virological surveillance of field caught *Ae. aegypti* and *Ae. albopictus* mosquitoes in two dengue endemic areas in Sri Lanka to assess their relative roles in dengue transmission. Adult mosquitos were collected weekly for 2-5 weeks from the Districts of Colombo (urban) and Gampaha (suburban) using Improved Prokopack Aspirator during 8.00–11.00 am and were identified, sexed and counted. The number of adult mosquitoes per house for each species was calculated and the statistical significance was determined by the Student's *t* test. RNA was extracted using pooled heads and thoraxes of 1-5 female *Aedes* mosquitoes and the presence of dengue virus was tested with nested reverse transcriptase PCR. A total of 4154 mosquitoes belonging to four species; *Culex quinquefasciatus* (3151; 75.9%), *Anopheles culcifaices* (204; 4.9%), *Ae. aegypti* (487; 11.7%), *Ae. albopictus* (312; 7.5%) was collected from 19 sampling sites in the two districts. In the District of Colombo, there were more ( $p < 0.05$ ) *Ae. aegypti* per house (male: 1.8, female: 1.36) compared to *Ae. albopictus* (male: 0.21, female: 0.23). In contrast, District of Gampaha had more *Ae. albopictus* per house (male: 0.9, female: 0.67) compared to *Ae. aegypti* (male: 0.32, female: 0.16). In both districts, the number of males were significantly higher than the females for the dominating *Aedes* species ( $P < 0.05$ ) in the district. None of the adult female *Aedes* mosquitoes collected were positive for dengue virus. Our results confirm the distorted sex ratio characteristic of Culicine mosquitoes and the preference of *Ae. aegypti* for more urban habitats compared to *Ae. albopictus*. The absence of dengue infection among the captured mosquitos, irrespective of the reported dengue incidences in the studied areas, might point at the ability of an infected *Aedes* mosquito to transmit the virus to many healthy individuals. Our results suggest that dengue epidemics are possible even with extremely low mosquito infection rates. However, further analysis is necessary to confirm this observation.

**Keywords:** *Aedes aegypti*, *Aedes albopictus*, dengue infection rates, nested RT PCR, virological surveillance

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