

Study on the resting preferences of *Aedes aegypti* (Linnaeus) and *Ae. albopictus* (Skuse) adult mosquitoes in the district of Colombo

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Aedes aegypti (Linnaeus) and *Aedes albopictus* (Skuse) are the world's most widely distributed mosquito species and, act as major contributors to many mosquito-borne diseases. Remarkable behavioral and ecological attributes make these mosquitoes as efficient vectors. Due to the behavioral and ecological plasticity of *Ae. aegypti* and *Ae. Albopictus*, it has become a major limitation in vector control and disease management measures in Sri Lanka. The objective of this study was to determine key bionomics aspects, namely resting preferences of *Ae. aegypti* and *Ae. albopictus* in the District of Colombo. Three Medical Officer of Health (MOH) areas were selected for the current study based on previous dengue cases. The two high risk areas (Maharagama and Kolonnawa) and a low-risk area (Padukka) were selected as study sites. Adult mosquito surveillance was conducted in outdoor and indoor settings using a mouth aspirator for one year (November, 2019-October, 2020). Adult mosquito collection included the aspiration from all rooms within the home including furniture, behind hanging clothes and curtains, behind and around cooking utensils and from dark and humid places, where mosquitoes were found resting. A total of 658 *Aedes* adult mosquitoes were collected from both indoor and outdoor resting locations (total number of resting sites= 432). The most abundant vector species was *Ae. aegypti* (65.0%; n=428), followed by *Ae. albopictus* (35.0%; n= 230) in Maharagama and Kolonnawa MOH areas. The most and least abundant *Aedes* mosquito collection MOH areas were Maharagama 44.5% (n=293) and Padukka 23.2% (n=153), respectively. *Ae. aegypti* adult mosquitoes denoted an endophilic behaviors (97.1%; n=416), while *Ae. albopictus* denoted an exophilic resting behavior (81.30% n= 187). In terms of resting places, *Ae. aegypti* was mostly found in resting places such as bedroom (36.0%; n=154), kitchen (26.2%; n=112) living room (21.3%; n=91), and outdoor vegetation (1.4%; n=06). Meanwhile, *Ae. albopictus* was conducive to rest on the vegetation (50.4%; n=116), front of the house-external (23.8%; n=109). The highest percentage of *Aedes* mosquitoes were found resting on wooden surfaces in both indoor and outdoor sites (52.3%; n=344), followed by clothes/curtains (24.2%; n=159) and cement surfaces (17.0%). Resting behavior of vectors is an important fact since they are prerequisites to determine their role in disease transmission in endemic settings. This study revealed that the resting behavior varied between the two *Aedes* vector species, were *Ae. aegypti* adult mosquitoes denoted highly endophilic nature, while *Ae. albopictus* demonstrated exophilic behavior. In this study *Ae. aegypti* was mainly found resting in bedrooms, living rooms and kitchens and *Ae. albopictus* was found resting mainly among outdoor vegetation. The outcome of this study facilitates the relevant health authorities who engage with dengue control programs, to successfully eradicate the vector from resting sites.

Keywords: Anthropophilic, *Aedes*, Colombo, Vector, Resting site

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