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PAPER

**Assessment of Dengue Risk by means of Larval Indices and Insecticide Susceptibility in two Localities of Batticaloa District, Sri Lanka**

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Dengue is the most important vector borne disease in Sri Lanka and globally due to its increasing incidence over the years. Climate changes coupled with rapid urban development result in increasing the breeding and survival of *Aedes* mosquitoes, the vector for dengue, hence the success of dengue virus transmission.

This study aims to identify the relationship between *Aedes* larval indices (House Index [HI], Container Index [CI] and Breteau Index [BI]) and dengue risk, and study the insecticide susceptibility to strengthen future mosquito control strategies in the Batticaloa district. The two locations selected for collection of *Aedes* larvae were Batticaloa and Oddamavadi, in Batticaloa District.

Larval collections were made fortnightly using conventional ovitraps for nine months covering the dry and wet seasons. 15 Ovitrap were placed in randomly selected houses on each locality based on the data obtained from Anti Malaria Campaign where dengue cases were available. WHO kit with insecticide impregnated papers with the following concentration recommended by WHO were used for the susceptibility test (Malathion – 0.8%, DDT – 4% and Permethrin – 0.25%).

This study demonstrates that all larval indices HI, CI and BI were higher than WHO standard. This indicated a high risk of DF/DHF transmission in both localities. Present investigations revealed that, *Ae. aegypti* and *Ae. albopictus* from all study sites were completely resistant to 4% DDT, moderate to high level resistance to 0.8% Malathion but were susceptible to 0.25% Permethrin. This study suggests that regular and continuous monitoring of resistance should be conducted in all dengue-endemic sites, to confirm the continued efficacy of insecticides, and to help choose the most effective insecticides for dengue control.