ID 631

Insecticide Susceptibility of *Aedes aegypti* in CMC Area for a Commonly used IRS Agent, Lambda Cyhalothrin

MMSMB Marasinghe[1#], APS Perera[1], GATA Rajathilaka[1], P Madhushan[1], I Weerasinghe[1], S Samaraweera[1] and DSAF Dheerasinghe[1]

[1]National Dengue Control Unit, Sri Lanka

[#] smbmara@gmail.com

Being a predominantly abundant area for primary vector of dengue, Colombo Municipal Council (CMC) has often exposed to chemical vector control strategies in successive periods of outbreaks to control *Aedes aegypti* density with space spraying and Indoor Residual Spraying (IRS) using Lambda cyhalothrin as IRS agent. The present study was conducted to assess the susceptibility of Aedes aegypti in CMC area towards Lambda cyhalothrin as an aspect of resistance monitoring for chemicals used in mosquito control in Sri Lanka by National Dengue Control Unit (NDCU). WHO standard test kits, procedures and 0.03 % (Discriminative dosage), 0.25 % (8 time higher than discriminative dosage) Lambda cyhalothrin impregnated papers were utilized to conduct susceptibility test on 500 mosquitoes in 2020 and 2022 where each test consisted with five replicates with 20 mosquitoes in each replicate. In 2020 *Aedes aegypti* in CMC area were 5% and 44% susceptible for the discriminative dosage (0.03%) of Lambda cyhalothrin where in 2022 they were 12% and 3% susceptible for repeat tests for the same which indicates very high resistance. With 0.25% the susceptibility has increased steeply up to 88% which still indicates the replaced resistant population. A resistant population of Aedes aegypti for Lambda cyhalothrin which even can tolerate higher dosages has almost established, where using Lambda cyhalothrin to control Aedes aegypti in CMC area is no longer productive. Irrational use of insecticide with no shifting between chemical classes has led to establishment of highly resistant mosquito population which should be a highly notable fact in vector control programmes in Sri Lanka.

Keywords: *insecticide resistance, susceptibility, Aedes aegypti*