Susceptibility of Malaria Vectors to Insecticides in Ampara, Batticaloa, Trincomalee & Mannar Districts of Sri Lanka

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Background: The current status of insecticide resistance was studied for potential malaria vectors in four districts namely Ampara, Batticaloa, Mannar and Trincomalee of Sri Lanka.

Methods: Insecticide-susceptibility tests were carried out using WHO standard kits against various chemical compounds at ambient room temperature of $27+1^\circ C$ and relative humidity of 75-80% for adult and larvae separately. A total of 3629 adult female Anopheles mosquitoes belong to nine species (An. subpictus, An. vagus, An. nigerrimus, An. peditaeniatus, An. pallidus, An. annularis, An. jamesii, An. pseudojamesi and An. barbirostris) were exposed to cyfluthrin-0.15%, etofenprox-0.5%, bendiocarb-0.01%, malathion-5%, deltamethrin-0.05%, permethrin-0.75%,  \( \lambda \)-cyhalothrin-0.05%, fenitrothion-1.0% and propoxur-0.1%. A total of 610 larvae belong to five Anopheles species (An. subpictus, An. vagus, An. barbirostris and An. peditaeniatus) were exposed to 0.0025, 0.005, 0.125 and 0.625 mg/l of viz. temephos (Abate).

Results: All of the mosquito larvae or adult species used for the study were susceptible for selected insecticides (Mortality 98-100%). Adult Anopheles species showed a possibility of developing resistance to some chemicals (Mortality 97-80%): An. nigerrimus (lambdacyhalothrin and permethrin), An. peditaeniatus (malathion, deltamethrin and cyfluthrin) An. subpictus (deltamethrin, permethrin, propoxur, cyfluthrin, and etofenprox), An. vagus (deltamethrin, permethrin and etofenprox) and An. pallidus (deltamethrin). Anopheles larvae of An. subpictus, An. barbirostris and An. peditaeniatus showed the potential of developing resistance (Mortality 97-80%).

Interpretation & conclusion: As a result of resettlements and expanding commercial agriculture there can be a potentiality of developing insecticide resistance in mosquito individuals. Therefore, proper use of chemicals as pesticides should be adopted in these areas.

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