

Insecticide Resistance Detection on Filarial Vector, *Simulium (Simulium) nobile (Diptera: Simuliidae)* in Malaysia

Authors : Chee Dhang Chen, Hiroyuki Takaoka, Koon Weng Lau, Poh Ruey Tan, Ai Chdon Chin, Van Lun Low, Abdul Aziz Azidah, Mohd Sofian-Azirun

Abstract : Susceptibility status of *Simulium (Simulium) nobile* (Diptera: Simuliidae) adults obtained from Pahang, Malaysia was evaluated against 11 adulticides representing four major insecticide classes: organochlorines (DDT, dieldrin), organophosphates (malathion, fenitrothion), carbamates (bendiocarb, propoxur) and pyrethroids (etofenprox, deltamethrin, lambdacyhalothrin, permethrin, cyfluthrin). The adult bioassay was conducted according to WHO standard protocol to determine the insecticide susceptibility. Mortality at 24 h post treatment was used as indicator for susceptibility status. The results revealed that *S. nobile* obtained was susceptible to propoxur, cyfluthrin and bendiocarb with 100% mortality. *S. nobile* was resistant or exhibited some tolerant against lambdacyhalothrin and deltamethrin with mortality ranged $\geq 90\%$ but $< 98\%$. *S. nobile* populations in Pahang exhibited different level of resistant against 11 adulticides with mortality ranged from 60.00 ± 10.00 to 100.00 ± 0.00 . In conclusion, *S. nobile* populations in Pahang were susceptible to propoxur, cyfluthrin and bendiocarb. The susceptibility status of *S. nobile* in descending order was propoxur, cyfluthrin > bendicarb > deltamethrin > lambdacyhalothrin > permethrin > etofenprox > DDT > malathion > fenitrothion > dieldrin. Regular surveys should be conducted to monitor the susceptibility status of this insect vector in order to prevent further development of resistance.

Keywords : black fly, adult bioassay, insecticide resistance, Malaysia

Conference Title : ICABE 2016 : International Conference on Applied Biology and Ecology

Conference Location : Stockholm, Sweden

Conference Dates : July 11-12, 2016