

# INSECTICIDE SUSCEPTIBILITY STATUS OF FIELD-COLLECTED *Aedes (Stegomyia) aegypti* (L.) AT A DENGUE ENDEMIC SITE IN SHAH ALAM, SELANGOR, MALAYSIA

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**Abstract.** Biweekly ovitrap surveillance (OS) was conducted for a year (August 2007 - September 2008) at two different dengue endemic sites in Shah Alam, Selangor, Malaysia, 50 km from Kuala Lumpur. *Aedes aegypti* collected from these 2 locations were raised to the F3 stage and subjected to a WHO standard bioassay method to determine lethal time (LT) against pyrethroids (permethrin 0.75%, cyfluthrin 0.15%), organophosphates (malathion 5.0%, fenitrothion 1.0%), carbamates (propoxur 0.1%, bendiocarb 0.1%) and organochlorine (DDT 4.0%). Insecticide susceptibilities were analyzed for one year. *Aedes aegypti* were resistant to DDT with a mortality range of 0 - 13.3% throughout the year at both sites. Susceptibilities to pyrethroids and carbamates varied throughout the year. In contrast, susceptibilities to pyrethroids and carbamates varied throughout the year: resistant to propoxur, bendiocarb and permethrin with mortality of < 80% in most months; but, showed incipient resistant to cyfluthrin in most months. Mosquitoes were consistently susceptible to malathion and fenitrothion, with complete mortality during most months. They were especially susceptible to malathion with LT<sub>50</sub> values of 21.32 - 36.37 minutes, suggesting effectiveness of malathion for control of dengue.

**Keywords:** *Aedes aegypti*, ovitrap surveillance, WHO standard bioassay, susceptibility

## INTRODUCTION

Dengue and dengue hemorrhagic fever (DF/DHF) are a major public health problem in Malaysia and have been since the first outbreak in 1973. In the absence

of a dengue vaccine, control of dengue vectors, *Aedes aegypti* (L.) and *Aedes albopictus* Skuse, with chemical insecticides is the only means of combating DF/DHF. However, insecticide resistance has hampered the effectiveness of the vector control program.

Development of insecticide resistance among insects generally occurs due to selection of individuals that can survive a lethal dosage of insecticide. When an

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