

## EVALUATION OF BASELINE DIAGNOSTIC LETHAL CONCENTRATION FOR ADULT *Aedes albopictus* IN KUANTAN, PAHANG

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### ABSTRACT

Infectious diseases carried by mosquitoes remain a major threat to global public health. Adult bioassays using WHO standard concentration are the essential studies for early detection in insecticide resistance. Prior to the overreliance of insecticide-based vector control, this study was conducted to establish new diagnostic concentration for deltamethrin against *Aedes albopictus* using a known susceptible reference strain in Kuantan mosquito population. A lab strain species of *Ae. Albopictus* at F2 generation, which was originated from the locality in Kuantan was used according to the requirement for a susceptible strain. Following the WHO protocol, a series of 5 concentration tests were conducted toward adult female mosquito. The mortalities of mosquitoes were recorded for each bioassay after 24-h exposure of insecticide. Results were analysed using Probit analysis and doubling the LC<sub>99</sub> value obtained was used as a diagnostic concentration for the respective population. Diagnostic concentration for deltamethrin was established at 0.10%, which differs from the WHO guideline. The findings of the current study may assist local authorities by providing an updated susceptibility baseline and data to be used for choosing the insecticide rate for different localities.

**Keywords:** *Aedes albopictus*, deltamethrin, diagnostic concentration, insecticide resistance, susceptible strain.

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