

## **Pyrethroid and Organophosphate Susceptibility Status of *Aedes aegypti* (Linnaeus), *Aedes albopictus* (Skuse) and *Culex quinquefasciatus* (Say) in Penang, Malaysia**

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**Abstract :** Dengue is a serious problem in Malaysia, particularly in high-density urban communities with lower socio-economic levels. This study evaluated the susceptibility of local populations of *Aedes aegypti* (Linnaeus), *Aedes albopictus* (Skuse) and *Culex quinquefasciatus* (Say) from the traditional community of Bagan Dalam, Penang, Malaysia to lambda-cyhalothrin and pirimiphos-methyl using standard World Health Organization (WHO) adult bioassay test. Unfed female mosquitoes aged 3-5 days were exposed to WHO recommended dosages of insecticides over fixed time periods with results presented as knock-down time (KT50) for each strain. The insecticide susceptible VCRU laboratory strain was used as control. All three species were highly resistant to lambda-cyhalothrin with less than 10% mortality at 24 hours after treatment. In contrast, *Ae. aegypti* and *Ae. albopictus* were susceptible to pirimiphos-methyl, showing 100% mortality recorded 24 hours after treatment. *Cx. quinquefasciatus* was classed as 'suspected resistant' to pirimiphos-methyl as mortality recorded 24 hours after treatment was 94-96%. The results indicate that organophosphates such as pirimiphos-methyl might be used as alternative to pyrethroid for dengue vector control in this dengue-prone area.

**Keywords :** vector control, *aedes aegypti*, *aedes albopictus*, dengue, *culex quinquefasciatus*, residuals insecticides, pyrethroid, organophosphate, resistant, mosquito

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