ABSTRACT BOOK & PROGRAM

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Theme:
MAJOR HEALTH PROBLEMS IN SOUTHEAST ASIA:
ARE THERE SIMILARITIES RELATED TO ETHNICITY AND CULTURE?

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Biochemical detection of propoxur resistance in *Culex quinquefasciatus* Say Populations in Malaysia

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Abstract

**Background:** There has been no comprehensive study on biochemical characterization of insensitive acetylcholinesterase in field populations of Malaysian *Culex quinquefasciatus*. The aim of the present study was to investigate the mechanism involving insensitive acetylcholinesterase towards resistance to propoxur in *Cx. quinquefasciatus* from all states in Malaysia.

**Methods:** A modified Ellman’s method was adopted to detect the presence of insensitive acetylcholinesterase in adult mosquitoes.

**Results:** 11 out of 14 populations demonstrated a significant increase in acetylcholinesterase activity in the control test (absence of propoxur). In comparison to the laboratory strain, all populations revealed a significant increase in acetylcholinesterase activity in the presence of propoxur. Remaining activity data indicated that RS was detected in all 14 populations. The RS genotype was also the most prevalent, with 246 individuals from a total sample size of 336, followed by SS genotype (55 individuals) and RR genotype (35 individuals).

**Conclusions:** Biochemical detection of insensitive acetylcholinesterase provides significant insights into the evolution and adaptation of the Malaysian *Cx. quinquefasciatus* populations.

**Keywords:** *Culex quinquefasciatus*, propoxur resistance, insensitive acetylcholinesterase, Malaysia