

Investigating insecticide resistance status of malaria vectors using CDC Bottle Bioassay at selected recreational parks in Peninsular Malaysia

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INTRODUCTION

- Recreational parks visitors could be exposed to mosquito-borne diseases such as malaria, dengue, and Zika virus if the mosquitoes that transmit these diseases are present at these parks (1).
- Therefore, to **ensure effective vector control activities**, understanding the **insecticide resistance status** is vital.
- The **presence of insecticide resistance** of mosquito populations in a given area could be a contributing factor in preventing malaria transmission interruption (2).

OBJECTIVE

To investigate the status of **insecticide resistance** of malaria vectors at selected recreational parks in Peninsular Malaysia

MATERIALS & METHODS

- This study was conducted at four selected recreational parks from April 2017 until April 2018. Study sites were Chemerong Reserved Forest, Terengganu, Piah Reserved Forest, Perak, Panti Reserved Forest, Johor and Sedayu Recreational Park, Selangor.
- CDC Bioassay test** was performed on **wild caught** and **adult F1** aged 2 to 7 days mosquito.
- Three insecticides of pyrethroid class: 1) **lambda cyhalothrin**, 2) **deltamethrin** and 3) **permethrin** were tested in this study.

RESULTS

Species tested	Insecticides exposed	% mortality	Resistance status
<i>Anopheles cracens</i>	Delthamethrine	100	Susceptible
<i>Anopheles maculatus</i>	Delthamethrine	100	Susceptible
<i>Anopheles maculatus</i>	Lambdacyhalothrine	100	Susceptible
<i>Anopheles introlatus</i>	Permethrine	100	Susceptible
<i>Anopheles introlatus</i>	Delthamethrine	100	Susceptible

Table 1: Mosquitoes resistance status towards insecticides tested

DISCUSSION

- This study showed that malaria vectors such as ***Anopheles cracens*, *Anopheles maculatus* and *Anopheles introlatus*** demonstrated **full susceptibility** towards all insecticides demonstrated by 100% mortality when exposed to all insecticides.
- Thus, it indicated that any **vector control activity** performed using this insecticide **will effectively kill the malaria vectors** in the area (3).
- Therefore, evidence from this study, findings from this study can be utilised as **preparedness of vector control activities** and as a **surveillance baseline data for insecticide resistance** status at recreational parks in Malaysia.

CONCLUSION

All mosquitoes tested demonstrated 100% mortality when exposed to insecticides tested. Therefore, suggesting that malaria vector in these parks is susceptible to all insecticides tested.

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