

ABSTRACT

Background

Dengue fever (DF) is a disease that happens worldwide with an increased incidence rate and high mortality rate. In an attempt to control and reduce the incidence of DF, permethrin insecticide is used for vector control. However, resistance to insecticides is emerging among mosquitoes.

Aim

To study the resistance status and mechanisms of *Aedes spp.* to permethrin insecticide.

Method

The method of this study is a systematic review. It was obtained from PubMed based on keywords, inclusion, and exclusion criteria. Inclusion criteria include journals or articles written in English, free-access articles, and published from the year 2020-2021.

Result

There were 146 journal articles obtained from PubMed based on keywords and 126 journal articles were excluded due to not being relevant to the inclusion and exclusion criteria. The resistance status of dengue vector *Aedes spp.* showed different results. Resistance mechanisms to permethrin were metabolic resistance and *kdr* mutation in target-site resistance.

Conclusion

Aedes spp. resistance to permethrin insecticide and the major of resistance mechanism of *Aedes spp.* to permethrin were metabolic resistance and *kdr* mutation

Keyword

Dengue, *Aedes spp.*, Resistance status, Permethrin

INTISARI

Pendahuluan

Demam dengue adalah suatu penyakit yang terjadi di seluruh dunia dengan kenaikan angka kejadian dan kematian. Untuk mengurangi dan mengontrol kejadian demam dengue, insektisida jenis permetrin digunakan sebagai vektor kontrol. Penggunaan jangka panjang insektisida menyebabkan adanya kerentanan insektisida yang terjadi di nyamuk.

Tujuan

Untuk mempelajari status kerentanan dan mekanisme *Aedes spp.* terhadap insektisida permetrin

Metode

Telaah kritis digunakan dalam penelitian ini. Jurnal didapat dari PubMed berdasarkan kata kunci, kriteria inklusi dan eksklusi. Kriteria inklusi meliputi jurnal berbahasa Inggris, jurnal bebas berbayar, dan jurnal yang dipublikasikan pada tahun 2020-2021.

Hasil

146 jurnal didapatkan dari PubMed berdasarkan kata kunci dan 126 jurnal dieklusi dikarenakan tidak relevan dengan kriteria inklusi dan eksklusi. Kerentanan vektor dengue *Aedes spp.* menunjukkan berbagai hasil. Mekanisme kerentanan terhadap permethrin dikarenakan resistensi metabolik dan mutasi *kdr*

Kesimpulan

Aedes spp. rentan terhadap insektisida permetrin dan mayoritas mekanisme kerentanan terhadap permetrin adalah resistensi metabolik dan mutasi *kdr*.

Kata kunci

Dengue, *Aedes spp.*, Status kerentanan, Permetrin