

INTISARI

Latar Belakang. Dengue adalah penyakit tular vektor yang masih menjadi masalah kesehatan masyarakat di Indonesia. Pada tahun 2016, Kota Bengkulu merupakan 1 dari 3 kota yang mengalami KLB DBD di Indonesia. Tidak adanya obat dan vaksin yang efektif, pengendalian vektor merupakan tindakan yang paling efektif untuk mencegah penularan dan KLB. Insektisida malation telah digunakan sejak tahun 1990-an secara massal di Kota Bengkulu dalam program pengendalian vektor dengue *Aedes aegypti* dan *Aedes albopictus* serta belum memiliki laporan evaluasi mengenai kerentanan *Ae. aegypti* terhadap malation. Pemakaian insektisida secara terus menerus dalam waktu lama dapat menyebabkan timbulnya resistensi. Disamping itu, deteksi virus dengue pada populasi nyamuk *Ae. aegypti* di suatu daerah penting dilakukan untuk memprediksi keberadaan virus dengue di daerah tersebut.

Tujuan Penelitian. Penelitian ini bertujuan untuk menentukan status kerentanan nyamuk *Ae. aegypti* terhadap insektisida malation dan menentukan serotipe virus dengue pada nyamuk *Ae. aegypti* dari daerah endemis dan sporadis DBD di Kota Bengkulu

Metode Penelitian. Koleksi telur nyamuk *Ae. aegypti* dilakukan dengan menggunakan *ovitrap* dari daerah endemis (Kelurahan Sidomulyo) dan daerah sporadis (Kelurahan Tanjung Jaya) di Kota Bengkulu. Telur *Ae. aegypti* dikolonisasi dan nyamuk dewasa dilakukan uji resistensi terhadap insektisida malation dengan metode CDC *Bottle Bioassay*. Deteksi serotipe virus dengue dilakukan dengan metode RT-PCR dan *Nested PCR* menggunakan primer spesifik Lanciotti.

Hasil Penelitian. Status resistensi *Ae. aegypti* terhadap insektisida malation pada daerah endemis dan daerah sporadis adalah resisten sedang/perlu konfirmasi. Pada daerah endemis angka kematian sebesar 92,66%, nilai $LT_{50,90,99}$ (20,346 menit, 30,735 menit, 43,062 menit), nilai $ERR_{50,90,99} < 5$ (rentan). Pada daerah sporadis angka kematian sebesar 95,16%, nilai $LT_{50,90,99}$ (21,196 menit, 29,050 menit, 37,545 menit), nilai $ERR_{50,90,99} < 5$ (rentan). Serotipe virus dengue yang ditemukan pada daerah endemis dan daerah sporadis DBD adalah DENV-3.

Kesimpulan. *Aedes aegypti* di daerah endemis dan daerah sporadis DBD di Kota Bengkulu masih rentan terhadap insektisida malation dan berpotensi sebagai vektor dengue-3.

Kata kunci: *Aedes aegypti*, resistensi malation, *bottle bioassay*.

ABSTRACT

Background. Dengue is one of the most important vector-borne disease and is a public health problem in Indonesia. In 2016, Bengkulu City is 1 of 3 cities which had dengue hemorrhagic fever (DHF) suffered from outbreak in Indonesia. As there is no effective medicine and vaccine available, vector control remains the most effective measure to prevent its transmission and outbreak. Malathion has been used in Bengkulu City since 1900's for controlling the dengue vectors of *Aedes aegypti* and *Aedes albopictus*. There was no evaluation reports on the resistance status of *Ae. aegypti* to malathion. Long-term use of insecticides has led development of insecticide resistance in mosquitoes. Beside that, dengue virus detection in *Ae. aegypti* population is important to predict dengue virus in some areas.

Objectives. This study aimed to determine the resistance status of *Ae. aegypti* to malathion insecticide using bioassay and to detect serotypes of dengue virus in *Ae. aegypti* from endemic and sporadic areas in Bengkulu City.

Methods. *Aedes aegypti* eggs were collected by ovitraps from endemic area (Sidomulyo Village) and sporadic area (Tanjung Jaya Village) in Bengkulu City. The eggs were reared to adult and bioassay was done by CDC Bottle Bioassay method. Detection of dengue virus serotypes were done by RT-PCR and Nested PCR methods using specific primers Lanciotti.

Results. The status of resistance to malathion insecticide in endemic and sporadic areas were moderate resistant/verification required. In endemic area, the mortality rate was 92,66%, the values of $LT_{50,90,99}$ were (20,346 minutes, 30,735 minutes, 43,062 minutes), the values of $ERR_{50,90,99}$ were <5 (susceptible). In sporadic area, the mortality rate was 95,16%, the values of $LT_{50,90,99}$ were (21,196 minutes, 29,050 minutes, 37,545 minutes), the values of $ERR_{50,90,99}$ were <5 (susceptible). The serotypes of dengue virus in endemic and sporadic areas were dengue 3 (DENV-3).

Conclusions. *Aedes aegypti* in endemic and sporadic areas in Bengkulu City has been susceptible to malathion insecticide and potential as a dengue-3 vector.

Keywords: *Aedes aegypti*, malathion resistance, bottle bioassay.