

## RESEARCH ARTICLE

**The Resistance of *Aedes aegypti* to Permethrin 0.25% Insecticide, Malathion 0.8%, and Transfluthrin 25% in the Universitas Islam Bandung Tamansari Campus**Ratna Dewi Indi Astuti,<sup>1</sup> Ismawati,<sup>1</sup> Listya Hanum Siswanti<sup>2</sup><sup>1</sup>Department of Parasitology, Faculty of Medicine, Universitas Islam Bandung, Bandung, Indonesia,<sup>2</sup>Department of Histology and Biomedical Sciences, Faculty of Medicine, Universitas Islam Bandung, Bandung, Indonesia**Abstract**

Massive and long term insecticide use causes resistance of mosquitos to insecticides. This research has a goal for assessing the resistance of *Aedes aegypti* to the insecticides of permethrin 0.25%, malathion 0.8%, and transfluthrin 25% in the Universitas Islam Bandung Tamansari campus. The *Aedes aegypti* resistance in the Universitas Islam Bandung Tamansari campus Bandung city to insecticides measured with the susceptibility test in September 2015. The susceptibility test to the permethrin 0.25% and malathion 0.8% insecticides implemented by using WHO standard instruments and methods. The susceptibility test to transfluthrin 25% implemented by using commercial insecticide according to the usage suggestion. The total mosquitos that died after the exposure of permethrin 0.25%, transfluthrin 25%, and malathion 0.8% for 60 minutes were 20%, 23%, and 80%. The WHO criteria state that mosquitos were still susceptible to insecticides if the death rate is 98–100%, tolerant if the death rate is 80–97%, and mosquitos are resistant if the death rate is less than 80%. In conclusion, the *Aedes aegypti* mosquitos in the Universitas Islam Bandung Tamansari campus are already resistant to the insecticides permethrin 0.25% and transfluthrin 25% and tolerant to malathion 0.8%.

**Key words:** *Aedes aegypti*, insecticide, resistance**Resistensi *Aedes aegypti* terhadap Insektisida Permethrin 0,25%, Malathion 0,8%, dan Transfluthrin 25% di Kampus Universitas Islam Bandung Tamansari****Abstrak**

Penggunaan insektisida secara masif dan jangka panjang menimbulkan resistensi nyamuk terhadap insektisida. Penelitian ini bertujuan menilai resistensi *Aedes aegypti* terhadap insektisida permethrin 0,25%, malathion 0,8%, dan transfluthrin 25% di kampus Universitas Islam Bandung Tamansari. Resistensi *Aedes aegypti* di kampus Universitas Islam Bandung Tamansari Kota Bandung terhadap insektisida diukur dengan uji kerentanan pada bulan September 2015. Uji kerentanan terhadap insektisida permethrin 0,25% dan malathion 0,8% dilakukan menggunakan alat dan metode uji standar WHO. Uji kerentanan terhadap transfluthrin 25% dilakukan menggunakan insektisida komersial sesuai dengan anjuran penggunaan. Jumlah nyamuk yang mati dalam jangka waktu 60 menit setelah paparan permethrin 0,25%, transfluthrin 25%, dan malathion 0,8% berturut-turut adalah 20%, 23%, dan 80%. Kriteria WHO menyatakan nyamuk dikategorikan masih rentan terhadap insektisida jika tingkat kematiannya 98–100%, toleran jika kematiannya 80–97%, dan resisten apabila jumlah kematian nyamuk kurang dari 80%. Simpulan, nyamuk *Aedes aegypti* yang terdapat di kampus Universitas Islam Bandung Tamansari telah resisten terhadap insektisida permethrin 0,25% dan transfluthrin 25%, serta toleran terhadap malathion 0,8%.

**Kata kunci:** *Aedes aegypti*, insektisida, resistensi

Received: 6 April 2018; Revised: 19 August 2019; Accepted: 25 December 2019; Published: 31 December 2019

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