

## KARAKTERISASI TEMPAT PERINDUKAN DAN STATUS RESISTENSI *Aedes* spp. TERHADAP INSEKTISIDA SIPERMETRIN DI KELURAHAN PRENGGAN, KECAMATAN KOTAGEDE, KOTA YOGYAKARTA

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### INTISARI

DBD (*Demam Berdarah Dengue*) merupakan penyakit yang disebabkan virus dengue dan nyamuk *Aedes* spp. sebagai salah satu vektor DBD. Persebaran nyamuk dipengaruhi faktor lingkungan dan faktor manusia. Pengendalian vektor dilakukan dengan teknik *fogging* dan penggunaan obat abate. Penelitian ini bertujuan mengetahui katakteristik tempat perindukan dan status resistensi larva nyamuk *Aedes* spp. terhadap insektisida sipermetrin di Kelurahan Prenggan Kecamatan Kotagede Kota Yogyakarta. Pengambilan sampel dan pengamatan tempat perindukan larva nyamuk dilakukan pada bulan September-Oktober 2020 pada lima RW dengan kasus tertinggi. Rearing dilakukan pada laboratorium Sistematika Hewan bagian Parasitologi. Pengujian status resistensi menggunakan metode CDC menggunakan 100 nyamuk betina *Aedes* spp. dan 25 nyamuk betina sebagai kontrol, metode kedua menggunakan pengujian biokemis sampel larva instar 3 dan nyamuk betina. Sebanyak 143 kontainer diperiksa, terdapat 8 kontainer positif terhadap larva nyamuk *Aedes* spp. hal tersebut dapat disebabkan oleh beberapa faktor antara lain: faktor lingkungan seperti temperatur dan kelembaban. Faktor manusia juga dapat mempengaruhi seperti kepadatan penduduk, mobilitas penduduk, jarak antar rumah, dan perilaku Pemberantasan Sarang Nyamuk (PSN). Pengujian melalui *CDC bottle assay* diperoleh hasil bahwa nyamuk *Aedes* spp. dari Kelurahan Prenggan sebanyak 86% mengalami *knockdown* pada menit ke-30. Hal tersebut menunjukkan nyamuk toleran terhadap insektisida sipermetrin. Pada pengujian biokemis menggunakan sampel larva terdapat 14 sampel resisten, 8 sampel toleran dan 57 sampel rentan. Pengujian biokemis yang menggunakan sampel nyamuk diperoleh 6 sampel resisten, 10 sampel toleran dan sampel lainnya masuk kategori rentan. Faktor yang mempengaruhi resistensi antara lain terdapat perubahan *target site* yang disebabkan oleh mutasi pada gen seperti *Voltd Gated Sodium Chanel* (VGSC). Peningkatan laju metabolisme juga dapat menyebabkan resistensi, meningkatnya enzim monooksigenase dapat mendetoksifikasi racun dalam tubuh nyamuk.

Kata Kunci: *Aedes* spp., *Breeding place*, resistensi, *CDC Bottle assay*, biokemis.

**CHARACTERIZATION OF *Aedes* spp. BREEDING PLACES AND ITS  
RESISTANT STATUS TO CYPERMETRIN INSECTICIDE IN PRENGGAN  
VILLAGE, KOTAGEDE SUB-DISTRICT, YOGYAKARTA CITY**

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**ABSTRACT**

DHF (*Dengue Hemorrhagic Fever*) is a disease caused by dengue virus and *Aedes* spp. as one of the dengue vectors. Distribution of mosquito influenced by environmental factors and human factors. Vector control is done by fogging techniques and the use of larvicides. This study aims to determine the characteristics of breeding places and resistant status of larvae of *Aedes* spp. against cypermetrin insecticide in Prenggan Village, Kotagede District, Yogyakarta City. Sampling and observation of mosquito larvae breeding sites were conducted in September-October 2020 on five RW with the highest cases. Rearing conducted in laboratory animals systematic of parasitology. Test the resistant status using the CDC method using 100 female *Aedes* spp. and 25 female mosquitoes as controls, the second method uses biochemical testing of 3<sup>rd</sup> instar larvae and female mosquitoes. A total of 143 containers were inspected, 8 containers were positive for *Aedes* spp. This is caused by several factors including environmental factors such as temperature and humidity. Human factors can also influence such as population density, population mobility, the distance between houses, and behavior of eradicating mosquito nests (PSN). Testing through CDC bottle assay the results that *Aedes* spp. From urban village prenggan 86 % had as many as knockdown ke-30 on minutes This shows mosquito tolerant of an insecticide cypermetrin. In biochemical testing, larvae samples obtained 14 resistant sample, 8 tolerant samples, and 57 susceptible samples. Biochemical testing using mosquito samples obtained 6 tolerant sample, 10 tolerant sample and the other sample susceptible. Factors that influence resistant include changes in target sites caused by mutations in genes such as *Voltd Gated Sodium Chanel* (VGSC). Increased metabolic rate can also cause resistant, increasing the enzyme monooxygenase can detoxify toxins in the body of mosquitoes.

**Keyword:** *Aedes* spp., *Breeding place*, resistant, *CDC Bottle assay*, biochemical.