

## ABSTRAK

### Uji Efektivitas Ekstrak Metanol Daun Api-api Putih (*Avicennia marina*) Sebagai Larvasida Nyamuk *Aedes aegypti*

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Upaya pengendalian populasi *Aedes aegypti* sebagai vektor utama Demam Berdarah Dengue (DBD) masih menjadi tantangan, terlebih karena penggunaan larvasida kimia sintetis sering menimbulkan resistensi dan dampak lingkungan, pencemaran lingkungan, serta toksisitas terhadap organisme non-target. Oleh karena itu, diperlukan alternatif larvasida berbasis bahan alam yang lebih aman dan ramah lingkungan. Salah satu kandidat potensial adalah daun *Avicennia marina*, yang diketahui mengandung berbagai metabolit sekunder seperti alkaloid, flavonoid, tanin, saponin, dan steroid. Penelitian ini bertujuan untuk menguji kandungan metabolit sekunder ekstrak metanol daun *A. marina* melalui uji fitokimia, serta menganalisis efektivitasnya sebagai larvasida terhadap larva instar III *A. aegypti*. Penelitian dilakukan dengan Rancangan Acak Lengkap (RAL) yang terdiri atas enam perlakuan, yaitu kontrol negatif, kontrol positif, dan empat konsentrasi ekstrak (6%, 9%, 12%, dan 15%) dengan masing-masing tiga ulangan. Data mortalitas larva akan dianalisis menggunakan ANOVA untuk melihat perbedaan mortalitas larva antar perlakuan. Analisis probit untuk mengetahui efektivitas ekstrak dengan menentukan nilai  $LC_{50}$ . Hasil uji fitokimia menunjukkan bahwa ekstrak metanol daun *A. marina* mengandung senyawa saponin, flavonoid, dan steroid. Uji ANOVA menunjukkan adanya pengaruh yang signifikan terhadap mortalitas larva *Ae.aegypti* antar perlakuan, uji tukey menunjukkan konsentrasi tertinggi yaitu 12% dengan jumlah mortalitas larva sebesar 92%. Hasil analisis probit yang terbukti efektif membunuh larva *Ae.aegypti* dengan nilai  $LC_{50}$  sebesar 7,737%.

**Kata kunci:** Metanol, *Avicennia marina*, larvasida, *Aedes aegypti*, fitokimia

## **ABSTRACT**

### ***Effectiveness Test of Methanol Extract of White Mangrove Leaves (*Avicennia marina*) as a Larvicide Against *Aedes aegypti****

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*Efforts to control the population of *Aedes aegypti* as the primary vector of Dengue Hemorrhagic Fever (DHF) remain a challenge, particularly because the use of synthetic chemical larvicides often leads to resistance, environmental pollution, and toxicity to non-target organisms. Therefore, alternative larvicides derived from natural materials that are safer and more environmentally friendly are needed. One potential candidate is the leaves of *Avicennia marina*, which are known to contain various secondary metabolites such as alkaloids, flavonoids, tannins, saponins, and steroids. This study aimed to identify the secondary metabolite content of the methanol extract of *A. marina* leaves through phytochemical screening and to analyze its effectiveness as a larvicide against third instar larvae of *A. aegypti*. The research employed a Completely Randomized Design (CRD) consisting of six treatments: a negative control, a positive control, and four extract concentrations (6%, 9%, 12%, and 15%), each with three replications. Larval mortality data were analyzed using ANOVA to determine differences among treatments, while probit analysis was used to determine the effectiveness of the extract by calculating the  $LC_{50}$  value. The phytochemical screening results showed that the methanol extract of *A. marina* leaves contains saponins, flavonoids, and steroids. ANOVA results indicated a significant effect on *A. aegypti* larval mortality among treatments, and the Tukey test showed that the highest concentration (12%) resulted in a larval mortality rate of 92%. Probit analysis revealed that the extract was effective in killing *A. aegypti* larvae, with an  $LC_{50}$  value of 7.737%.*

**Keywords:** *Methanol, Avicennia marina, larvicide, Aedes aegypti, phytochemical analysis*