

EFEKTIVITAS EKSTRAK AIR DAN ETANOL DAUN MAHONI (*Swietenia mahagoni* (L.) Jacq.) TERHADAP LARVA DAN IMAGO *Aedes aegypti* L.

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ABSTRAK

Nyamuk *Ae. aegypti* merupakan vektor utama penyakit Demam Berdarah Dengue (DBD). Tumbuhan mengandung berbagai senyawa metabolit sekunder yang dapat dijadikan alternatif yang lebih aman sebagai insektisida. Daun *S. mahagoni* diketahui berpotensi sebagai insektisida. Penelitian ini bertujuan untuk mengevaluasi efektivitas ekstrak daun *S. mahagoni* terhadap larva dan imago *Ae. aegypti*, berdasarkan konsentrasi dari jenis ekstrak daun *S. mahagoni* dan mengetahui senyawa metabolit sekunder daun *S. mahagoni*. Ekstraksi daun *S. mahagoni* dilakukan dengan menggunakan pelarut etanol dan air, dan dianalisis kandungan metabolit sekunder dengan Kromatografi Lapis Tipis (KLT). Hasil dari penelitian ini menunjukkan bahwa ekstrak etanol daun *S. mahagoni* mengandung alkaloid, tanin, saponin, flavanoid, dan terpenoid, sedangkan ekstrak air mengandung tanin, saponin, dan flavanoid. Ekstrak etanol daun *S. mahagoni* lebih efektif membunuh larva daripada ekstrak air. Hasil perhitungan *Lethal Concentration* 50 dan 90 ( $LC_{50}$  dan  $LC_{90}$ ) menunjukkan bahwa nilai  $LC_{50}$  ekstrak etanol terhadap larva instar kedua dan ketiga secara berurut adalah 488 ppm dan 544 ppm serta  $LC_{90}$  secara berurut adalah 732 ppm dan 797 ppm, sedangkan nilai  $LC_{50}$  ekstrak air terhadap larva instar kedua dan ketiga secara berurut adalah 9.756 ppm dan 10.899 ppm serta  $LC_{90}$  secara berurut adalah 17.560 ppm dan 18.284 ppm. Nilai  $LC_{50}$  dan  $LC_{90}$  ekstrak etanol daun *S. mahagoni* terhadap imago adalah 11.450 ppm dan 16.790 ppm. Dari perhitungan tersebut diatas dapat disimpulkan bahwa ekstrak etanol daun *S. mahagoni* lebih efektif terhadap larva instar kedua daripada larva instar ketiga dan imago *Ae. aegypti*.

Kata Kunci : *Ae. aegypti*, *S. mahagoni*, insektisida nabati

EFFICACY OF AQUEOUS AND ETHANOL EXTRACT OF MAHONI  
LEAVES (*Swietenia mahagoni* (L.) Jacq.) AGAINST LARVAE AND IMAGO  
OF *Aedes aegypti* L.

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ABSTRACT

*Aedes aegypti* is a main insect vector of Dengue Haemorrhagic Fever (DHF) disease. Plants have varieties of secondary metabolites that can be used as insecticide. *Swietenia mahagoni* leaves have been known to have an insecticides potency. The aims of the research were to evaluate the efficacy of botanical insecticide of *S. mahagoni* leaves extracts against larvae and imago of *Ae. aegypti*, based on concentration of the type of leaves *S. mahagoni* extract, and in additional to determine secondary metabolites compounds of *S. mahagoni* leaves extract. The extraction of *S. mahagoni* leaves was done by using ethanol and water solvents and than was analyzed by using Thin Layer Chromatography. The result indicated that ethanolic extract of *S. mahagoni* leaf contained alkaloid, tannin, saponin, terpenoid, and flavonoid compounds, while the water extract contained tannin, saponin, and flavanoid. The effectivity tests showed that the ethanolic extract was more effective than water extract on larvae mortality. The value of LC<sub>50</sub> and LC<sub>90</sub> calculation showed that LC<sub>50</sub> of ethanolic extract over second and third instar larvae respectively were 488 ppm and 644 ppm. However the value of LC<sub>90</sub> of both instar larvae were 732 ppm and 797 ppm. The value of LC<sub>50</sub> of water extract over second and third instar larva were 9.756 ppm and 10.899 ppm. Whereas the value of LC<sub>90</sub> were 17.560 ppm and 18.284 ppm. The value of LC<sub>50</sub> and LC<sub>90</sub> of *S. mahagoni* leaves ethanolic extract against imago were 11.450 ppm and 16.790 ppm. Based on the above result, it can be concluded that ethanolic extract of *S. mahagoni* leaf was more effective against the second instar larvae than third instar larvae, and imago of *Ae. aegypti*.

Key words: *Ae. aegypti*, *S. mahagoni*, botanical insecticide