

ABSTRAK

UJI EFEKTIVITAS METABOLIT SEKUNDER *Ganoderma boninense* SEBAGAI INSEKTISIDA INOVATIF HAMA *Oryctes rhinoceros* PADA KELAPA SAWIT

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Kelapa sawit merupakan komoditas penting di Indonesia yang rentan terhadap serangan hama *Oryctes rhinoceros*. Pengendalian hama ini masih bergantung pada insektisida kimia sintetik yang berisiko menimbulkan resistensi dan dampak lingkungan. Penelitian ini bertujuan mengevaluasi efektivitas metabolit sekunder *Ganoderma boninense* sebagai insektisida terhadap larva *O. rhinoceros*. Penelitian dilakukan di Laboratorium Bioteknologi dan Ilmu Hama Tumbuhan, Fakultas Pertanian, Universitas Lampung. Uji pendahuluan menggunakan larva *Tenebrio molitor* dilakukan untuk menyeleksi tiga isolat terbaik, kemudian dilanjutkan pada larva *O. rhinoceros* instar II-III menggunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan dan 3 ulangan. Variabel yang diamati meliputi mortalitas larva dan kecepatan kematian. Data mortalitas dianalisis menggunakan ANOVA dan *Duncan's Multiple Range Test* (DMRT) taraf 5%, sedangkan kecepatan kematian dihitung menggunakan *Mean Time to Death* (MTD). Hasil penelitian menunjukkan bahwa metabolit sekunder *G. boninense* memiliki aktivitas insektisida terhadap larva uji. Isolat Km.08 menunjukkan efektivitas tertinggi dengan mortalitas larva sebesar 31,66% dan kecepatan kematian tercepat, yaitu 4,47 hari. Dengan demikian, metabolit sekunder *G. boninense*, khususnya isolat Km.08, berpotensi dikembangkan sebagai Insektisida ramah lingkungan untuk mendukung pengendalian berkelanjutan hama *O. rhinoceros* pada kelapa sawit.

Kata kunci: *Ganoderma boninense*, Insektisida, kelapa sawit. metabolit sekunder, *Oryctes rhinoceros*,

ABSTRACT

EFFECTIVENESS OF SECONDARY METABOLITES OF *Ganoderma boninense* AS AN INNOVATIVE INSECTICIDE AGAINST *Oryctes rhinoceros* ON OIL PALM

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*Oil palm is an important commodity in Indonesia that is vulnerable to attacks by the pest *Oryctes rhinoceros*. The control of this pest still largely depends on synthetic chemical insecticides, which may lead to resistance development and adverse environmental impacts. This study aimed to evaluate the effectiveness of secondary metabolites produced by *Ganoderma boninense* as an insecticide against *O. rhinoceros* larvae. The research was conducted at the Biotechnology and Plant Pest Science Laboratory, Faculty of Agriculture, University of Lampung. A preliminary bioassay using *Tenebrio molitor* larvae was carried out to select the three most promising isolates, followed by testing on second- to third-instar *O. rhinoceros* larvae using a Completely Randomized Design (CRD) consisting of five treatments and three replications. The observed variables included larval mortality and mortality rate. Mortality data were analyzed using Analysis of Variance (ANOVA) followed by Duncan's Multiple Range Test (DMRT) at the 5% significance level, while the mortality rate was determined using Mean Time to Death (MTD). The results demonstrated that the secondary metabolites of *G. boninense* exhibited insecticidal activity against the test larvae. Isolate Km.08 showed the highest effectiveness, resulting in a larval mortality rate of 31.66% and the fastest mortality time, with an MTD value of 4.47 days. Therefore, the secondary metabolites of *G. boninense*, particularly isolate Km.08, have the potential to be developed as an environmentally friendly insecticide to support the sustainable management of *O. rhinoceros* in oil palm plantations.*

Keywords: *Ganoderma boninense*, insecticide, oil palm, *Oryctes rhinoceros*, secondary metabolites.