

ABSTRAK

EKSPLORASI DAN IDENTIFIKASI BAKTERI SIMBION *Oryctes rhinoceros* SEBAGAI KANDIDAT AGENS HAYATI PENGENDALI HAMA PADA TANAMAN KELAPA SAWIT

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Penelitian ini bertujuan untuk mengisolasi, mengidentifikasi, dan mengkaji potensi bakteri simbion dari tubuh *Oryctes rhinoceros* sebagai agens hayati pengendali hama. Penelitian dilaksanakan di Laboratorium Bioteknologi Pertanian, Fakultas Pertanian, Universitas Lampung, pada Juni 2025–April 2026, dengan sampel larva dan imago yang diperoleh dari kebun rakyat dan kebun perusahaan. Hasil isolasi didapatkan 94 isolat bakteri simbion. Karakterisasi dilakukan melalui uji biokimia, meliputi pewarnaan Gram, uji oksidatif/fermentatif, *soft rot*, hipersensitif, dan hipovirulen. Uji potensi sebagai agens hayati dilakukan melalui uji patogenisitas terhadap *Tenebrio molitor* sebagai skrining awal, kemudian dilanjutkan pada larva *O. rhinoceros*. Hasil penelitian menunjukkan beberapa isolat mampu menyebabkan mortalitas pada larva *O. rhinoceros* dengan tiga isolat terbaik yaitu i1u1.5 (27,7%), i2i2.1 (20,9%), dan i4u2.6 (25,2%). Identifikasi molekuler terhadap isolat unggul i4u2.6 menggunakan gen 16S rDNA menunjukkan kekerabatan dengan *Pseudomonas aeruginosa*. Secara keseluruhan, bakteri simbion pada *O. rhinoceros* memiliki keanekaragaman tinggi dan berpotensi sebagai agens hayati yang ramah lingkungan dalam pengendalian hama.

Kata kunci: agens hayati, bakteri simbion *Oryctes rhinoceros*, *Pseudomonas aeruginosa*.

ABSTRAK

EXPLORATION AND IDENTIFICATION OF SYMBIOTIC BACTERIA OF *Oryctes rhinoceros* AS CANDIDATE BIOLOGICAL CONTROL AGENTS FOR PEST MANAGEMENT IN OIL PALM PLANTS

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This study aimed to isolate, identify, and evaluate the potential of symbiotic bacteria associated with *Oryctes rhinoceros* as biological control agents. The research was conducted at the Agricultural Biotechnology Laboratory, Faculty of Agriculture, University of Lampung, from June 2025 to April 2026, using larval and adult specimens collected from smallholder and company-owned oil palm plantations. A total of 94 symbiotic bacterial isolates were successfully obtained. Characterization was performed through biochemical tests, including Gram staining, oxidative/fermentative tests, soft rot tests, hypersensitivity tests, and hypovirulence tests. The potential of the isolates as biological control agents was evaluated through pathogenicity assays against *Tenebrio molitor* as a preliminary screening, followed by bioassays on *O. rhinoceros* larvae. The results showed that several isolates were capable of causing mortality in *O. rhinoceros* larvae, with the three most effective isolates being i1u1.5 (27.7%), i2i2.1 (20.9%), and i4u2.6 (25.2%). Molecular identification of the superior isolate i4u2.6 based on 16S rDNA gene sequencing revealed a close relationship with *Pseudomonas aeruginosa*. Overall, the symbiotic bacteria associated with *O. rhinoceros* exhibited high diversity and demonstrated potential as environmentally friendly biological control agents for pest management.

Keywords: biological control agent, *Oryctes rhinoceros*, symbiotic bacteria, *Pseudomonas aeruginosa*.