PATOGENISITAS JAMUR ENTOMOPATOGEN (*Colletotrichum*, *Curvularia*, *Lecanicillium*, DAN *Trichoderma*) TERHADAP RAYAP TANAH (*Macrotermes gilvus*, Hagen)

SKRIPSI

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Sarjana Sains
Program Studi Biologi

oleh:

Dini Indriani
NIM. 2101321

PROGRAM STUDI BIOLOGI
FAKULTAS PENDIDIKAN MATEMATIKA DAN ILMU PENGETAHUAN ALAM
UNIVERSITAS PENDIDIKAN INDONESIA
2025

LEMBAR HAK CIPTA

PATOGENISITAS JAMUR ENTOMOPATOGEN (*Colletotrichum*, *Curvularia*, *Lecanicillium*, DAN *Trichoderma*) TERHADAP RAYAP TANAH (*Macrotermes gilvus*, Hagen)

Oleh
Dini Indriani

Sebuah Skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Sains pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam

Universitas Pendidikan Indonesia
Agustus 2025

LEMBAR PENGESAHAN

DINI INDRIANI

PATOGENISITAS JAMUR ENTOMOPATOGEN (*Colletotrichum*, *Curvularia*, *Lecanicillium*, DAN *Trichoderma*) TERHADAP RAYAP TANAH (*Macrotermes gilvus*, Hagen)

Disetujui dan disahkan oleh pembimbing

Pembimbing I

Dr. Hj. Peristiwati, M.Kes.

NIP. 196403201991032001

Pembimbing II

Dr. Any Aryani, M.Si.

NIP. 197105302001122001

Mengetahui,

Ketua Program Studi

Dr. Wahyu Surakusumah, M.T.

NIP. 197212301999031001

LEMBAR PERNYATAAN

Dengan ini saya menyatakan bahwa skripsi dengan judul "Patogenisitas Jamur Entomopatogen (*Colletotrichum*, *Curvularia*, *Lecanicillium,* dan *Trichoderma*) Terhadap Rayap Tanah (*Macrotermes gilvus,* Hagen)" ini beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, Agustus 2025

Yang membuat pernyataan,

Dini Indriani

NIM 201321

KATA PENGANTAR

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Dini Indriani
NIM 2101321

PATOGENISITAS JAMUR ENTOMOPATOGEN (*Colletotrichum, Curvularia, Lecanicillium,* DAN *Trichoderma*) TERHADAP RAYAP TANAH (*Macrotermes gilvus*, Hagen)

ABSTRAK

Produk hasil hutan berupa kayu merupakan salah satu bahan baku bangunan yang sampai saat ini masih dimanfaatkan sebagai bahan bangunan utama maupun pendukung seperti mebel pada sektor pembangunan, namun penggunaan kayu ini menghadapi ancaman hama, salah satunya adalah rayap. Rayap merupakan salah satu jenis serangga yang tergolong dalam *Ordo* Isoptera yang terdiri dari beberapa jenis, salah satunya adalah rayap tanah *Macrotermes gilvus* Hagen yang sangat merugikan secara ekonomi karena merusak kayu dan bahan bangunan. Pengendalian rayap yang umum dilakukan adalah menggunakan insektisida kimia yang berbahaya bagi kesehatan manusia dan lingkungan. Pemanfaatan agen biologi atau biokontrol sebagai musuh alami pengendalian serangga masih terus dilakukan sebagai salah satu upaya pengendalian rayap *M.* gilvus dengan cara alami, salah satunya menggunakan jamur entomopatogen. Penelitian ini bertujuan untuk memperoleh informasi mengenai patogenisitas empat jamur entomopatogen *Colletotrichum* sp., *Curvularia* sp., *Lecanicillium* sp., dan *Trichoderma* sp. pada tingkat konsentrasi 10^6, 10^7, 10^8 konidia/ml terhadap rayap *M. gilvus*. Metode yang digunakan dalam penelitian ini adalah eksperimen Rancangan Acak Lengkap (RAL) faktorial dengan 13 perlakuan dan 3 ulangan untuk setiap perlakuan. Hasil penelitian menunjukkan bahwa *Trichoderma* sp. merupakan jamur entomopatogen yang paling efektif dalam menekan aktivitas makan dan mempercepat mortalitas rayap *M. gilvus* diikuti dengan jamur *Lecanicillium* sp., *Curvularia* sp. dan *Colletotrichum* sp. pada konsentrasi 10^8 konidia/ml. Rasio 1:1 pada transmisi horizontal rayap *M. gilvus* yang terinfeksi jamur entomopatogen merupakan perlakuan terbaik dalam penyebaran infeksi. Secara morfologis, pada rasio tersebut juga ditemukan hifa jamur pada tubuh rayap *M. gilvus.*

Kata kunci: Pengendalian hayati, Jamur entomopatogen, *Macrotermes gilvus*

PATHOGENICITY OF ENTOMOPATHOGENIC FUNGI (*Colletotrichum, Curvularia, Lecanicillium*, AND *Trichoderma*) AGAINST SUBTERRANEAN TERMITES (*Macrotermes gilvus*, Hagen)

ABSTRACT

Wood based forest products are still widely used as primary or supporting building materials, such as meuble in the construction sector. However, the use of wood faces threats from pests, particularly termites. Termites are a group of insect classified under the Ordo Isoptera, which includes several species. One economically damaging species is the subterranean termites Macrotermes gilvus Hagen, known for its ability to destroy wood and building materials. Conventional termite control often relies on chemical insecticides, which pose health and environmental risk. As more environmentally friendly alternative, biological control using entomopathogenic fungi continues to be explored. This study aims to evaluate the pathogenicity of four entomopathogenic fungi are Colletotrichum sp., Curvularia sp., Lecanicillium sp., and Trichoderma sp at three levels concentrations of 10^6, 10^7.10^8 conidia/ml against M. gilvus. The study was conducted using a RAL factorial experimental design with 13 treatments and 3 replications per treatment. The result showed that Trichoderma sp. was the most effective fungus in suppressing the feeding activity and accelerate mortality of M. gilvus, followed by Lecanicillium sp., Curvularia sp., and Colletotrichum sp. fungus at a concentration of 10^8 conidia/ml. 1:1 ratio in the horizontal transmission of M. gilvus infected with entomopathogenic fungi was the most effective treatment for infection spread. Morphologically, fungal hypae were also observed on the bodies of M. gilvus at this ratio.

***Keyword**: Biological control, entomopathogenic fungi, Macrotermes gilvus*

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