

Isolasi dan Karakterisasi Penyebab *Damping-off* Semai *Acacia mangium* Willd.

INTISARI

Persemaian *A. mangium* di RAPP (*Riau Andalan Pulp and Paper*) terserang *damping-off*. Penggunaan fungi antagonis *Trichoderma* spp. dikembangkan sebagai alternatif pengendalian patogen tular tanah. Penelitian ini bertujuan untuk mengetahui penyebab *damping-off* semai *A. mangium* di RAPP dan efektivitas *Trichoderma* spp. dari tempat yang sama dengan asal patogen dibanding *Trichoderma* spp. dari tempat yang berbeda. *Trichoderma reesei* (T₁₃) koleksi Laboratorium Perlindungan dan Kesehatan Hutan, Fakultas Kehutanan, UGM, yang telah teruji efektif dalam menghambat pertumbuhan patogen tular tanah digunakan sebagai pembanding.

Prosedur penelitian yang dilakukan meliputi : (1a) isolasi patogen dari semai *A. mangium* sakit dan sampel tanah dari RAPP, (1b) karakterisasi patogen dengan diinkubasikan pada 4 suhu berbeda (5°C, 10°C, 28°C, dan 33°C) dan pengamatan bentuk spora, (2) isolasi fungi antagonis *Trichoderma* spp., (3) uji Postulat Koch pada semai *A. mangium*, (4) uji antagonistik *Trichoderma* spp. secara *in vitro*, dan (4) uji efektivitas *Trichoderma* spp. terhadap perkembangan fungi penyebab *damping-off* secara *in vivo*.

Dari hasil isolasi dan identifikasi dapat diketahui bahwa penyebab *damping-off* semai *A. mangium* di RAPP adalah *Fusarium* sp. Tiga isolat *Trichoderma* spp. dari RAPP yang paling efektif dalam menghambat pertumbuhan *Fusarium* F₁ dan F₂ secara *in vitro* dibandingkan dengan isolat T₁₃ koleksi lab. Perlindungan dan Kesehatan Hutan yang diisolasi dari tanah di lingkungan Kampus UGM (daya hambat 73,99 %) adalah isolat T₆₂ (96,07%), T₆₇ (91,53%), dan T₇₀ (87,04%). Secara *in vivo*, tiga isolat yang paling efektif dibandingkan dengan isolat T₁₃ (serangan *damping-off* 33,33%; hidup 91,67%; rerata pertambahan tinggi 1,87 cm/minggu) adalah isolat T₇₀ (0%; 100%; 2,11 cm), T₇₁ (22%; 100%; 1,735 cm), dan T₆₅ (22%; 83%; 1,979 cm).

Kata kunci : semai *A. mangium*, *damping-off*, *Trichoderma* spp.



Isolation and Characterization the Damping-off Pathogen of *Acacia Mangium* Willd. Seedling

Abstract

A. mangium nursery in RAPP (Riau Andalan Pulp and Paper) were suffered from damping-off. The using of *Trichoderma* spp. antagonist fungi was expanded as a control alternative of soil-borne pathogen. The research was aimed to evaluate the damping-off pathogen of *A. mangium* seedling in RAPP and to compare *Trichoderma* spp. from the same area with the origin area of pathogen with *Trichoderma* spp. from the different area in their effectiveness. *Trichoderma reesei* (T₁₃), the collection of Forest Health and Protection Laboratory, Faculty of Forestry, Gadjah Mada University that had put to a test effectively in suppressing the growth of soil-borne pathogen, was used as a comparison.

The procedur research has been done, involving: 1a) isolation the pathogen from infected *A. mangium* seedling and soil example from RAPP, 1b) the pathogen characterization by incubation at 4 different temperatures (5°C, 10°C, 28°C, and 33°C) and observation the spore shape, 2) isolation of *Trichoderma* spp., 3) Postulat Koch test on the *A. mangium* seedling, 4) antagonistic test of *Trichoderma* spp. in vitro, and 4) effectiveness test of *Trichoderma* spp. against developing damping-off pathogen in vivo.

The result showed that the pathogen of damping-off disease of *A. mangium* seedling in RAPP was *Fusarium* sp. The most three effective *Trichoderma* isolates in suppressing the growth of *Fusarium* sp. (F₁ and F₂) than T₁₃ isolate belonged to Forest Health and Protection Laboratory collection which were isolated from the soil of Gadjah Mada University area in vitro (inhibit ability was 73,99%) were T₆₂ isolate (96,07%), T₆₇(91,53%), and T₇₀ (87,04%). The most three effective *Trichoderma* isolates than T₁₃ isolate in vivo (the damping-off attack was 33,33%, the living rate was 91,67%, the height growth ayerage was 1,87 cm/week) were T₇₀ isolate (0%; 100% and 2,11cm), T₇₁(22%; 100%, and 1,735cm), and T₆₅(22%; 83%, and 1,979cm).

Keywords: *A. mangium* seedling, damping-off disease, *Trichoderma* spp.