

Evaluasi Tanggapan Lima Provenans Mangium (*Acacia mangium*) Terhadap Tujuh Isolat Jamur *Ceratocystis* sp. Penyebab Penyakit Layu

Oleh:

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Abstrak

Mangium (*Acacia mangium*) merupakan jenis tanaman cepat tumbuh kehutanan yang dipilih menjadi salah satu jenis utama dalam pembangunan Hutan Tanaman Industri (HTI) di Indonesia, khususnya Sumatra dan Kalimantan. Dalam perkembangannya, jamur *Ceratocystis* sp. penyebab penyakit layu telah menimbulkan kerusakan yang serius pada pertanaman mangium, sehingga penanaman mangium pada tapak yang terserang parah secara ekonomis tidak mungkin dilakukan. Pengendalian penyakit dengan metode seleksi untuk menemukan genotipe yang tahan atau toleran merupakan cara yang dianggap efektif untuk dilakukan. Tujuan penelitian (1) mendeskripsi karakter morfologi tujuh isolat jamur *Ceratocystis* sp., (2) mengevaluasi tingkat patogenisitas tujuh isolat jamur *Ceratocystis* sp., dan (3) mengevaluasi tanggapan lima provenans mangium terhadap tujuh isolat jamur *Ceratocystis* sp. lokal Kalimantan Timur.

Penelitian dilakukan di Laboratorium Perlindungan dan Kesehatan Hutan Fakultas Kehutanan Universitas Gadjah Mada Yogyakarta dan persemaian sementara Karangmojo, Gunungkidul. Trubusan semai mangium umur 4 bulan dari lima provenans: Gubam-Bimadibun (PNG), Claudie River (QLD), Kini (PNG), Wipim (PNG), dan Pascoe River (QLD), diinokulasi dengan tujuh isolat jamur *Ceratocystis* sp. yang berasal dari Muara Toyu, Kalimantan Timur. Rancangan penelitian menggunakan rancangan acak lengkap (RAL) dengan dua faktor berupa 5 provenans dan 7 isolat masing-masing sebanyak 4 ulangan sehingga terdapat 140 unit sampel.

Hasil penelitian menunjukkan bahwa morfologi tujuh isolat jamur *Ceratocystis* sp. yang diperoleh bervariasi. Patogenisitas tujuh isolat jamur *Ceratocystis* sp. dapat dikategorikan menjadi patogenik (FSS 1 dan FSS 2) dan sangat patogenik (FSS 3, FSS 4, FSS 5, FSS 6, FSS 7). Tanggapan lima provenans mangium terhadap inokulasi tujuh isolat jamur *Ceratocystis* sp. dapat dikategorikan menjadi rentan (provenans Kini (PNG)) dan sangat rentan (provenans Gubam-Bimadibun (PNG), Wipim (PNG), Claudie River (QLD), dan Pascoe River (QLD)).

Kata kunci: *Ceratocystis* sp., *A. mangium*, inokulasi, patogen, penyakit

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Responses of Five Mangium (*Acacia mangium*) Provenances to Different *Ceratocystis* sp. Isolates Causing Wilt Disease

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Abstract

Mangium (*Acacia mangium*) is a fast growing species grown as one of the main species in plantation forest (HTI) in Indonesia, especially in Sumatra and Kalimantan. Along with the development of mangium plantations, wilt disease caused by *Ceratocystis* sp. fungi resulted in serious damage and growing mangium is no longer economically feasible on ex-site of mangium plantation severely damaged by wilt disease. Genetic selection to find resistant or tolerant genotype is considered the most effective method to control this disease. The objectives of this study were: (1) to describe the morphological characteristics of the collected *Ceratocystis* isolates, (2) to evaluate the pathogenicity level of the *Ceratocystis* sp. fungi isolates, and (3) to evaluate the responses of five mangium provenances to seven *Ceratocystis* sp. isolates from East Kalimantan.

The study was conducted at the Forest Protection and Health Laboratory of the Faculty of Forestry, Universitas Gadjah Mada, Yogyakarta and at a temporary nursery in Karangmojo, Gunungkidul. Four-month-old seedling of mangium from five provenances: Gubam-Bimadebun (PNG), Claudie River (QLD), Kini (PNG), Wipim (PNG), and Pascoe River (QLD), which were inoculated with seven isolates of *Ceratocystis* sp. collected from East Kalimantan. The experiment was laid out in a completely randomized design (CRD) in two factorial arrangement consisted of five provenances and seven isolates each with four replications so that there were 140 sample units in total.

The result showed that the morphologies of seven *Ceratocystis* sp. fungi isolates were varied. Pathogenicity seven isolates of *Ceratocystis* sp. fungi can be categorized as pathogenic (FSS 1 and FSS 2) and highly pathogenic (FSS 3, FSS 4, FSS 5, FSS 6, FSS 7). Responses of five mangium provenances to the inoculation of seven *Ceratocystis* sp. can be categorized as susceptible (provenance Kini (PNG)) and very susceptible (provenance Gubam-Bimadebun (PNG), Wipim (PNG), Claudie River (QLD), and Pascoe River (QLD)).

Keyword: *Ceratocystis* sp., *A. mangium*, inoculation, pathogen, disease

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