



Karakterisasi dan Uji Patogenesitas Isolat Jamur *Ceratocystis* spp. pada *Acacia mangium*

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Abstrak

Ceratocystis merupakan genera jamur penyebab penyakit layu yang memiliki distribusi inang luas baik dari jenis tanaman kehutanan, pertanian, dan perkebunan termasuk kelompok hortikultura. *Ceratocystis* telah menjadi patogen penting pada hutan tanaman terutama mangium di negara Indonesia sehingga mengakibatkan produktivitas tanaman menurun dan kerugian besar secara finansial. Mengingat bahwa *Ceratocystis* yang menyerang berbagai jenis inang dari asal lokasi yang berbeda memiliki tingkat patogenesitas bervariasi dan mampu menyerang serta mematikan jenis tanaman lainnya, maka penelitian mengenai karakterisasi dan uji patogenesitas berbagai isolat jamur *Ceratocystis* perlu dilakukan. Tujuan penelitian (1) mengkarakterisasi morfologi sepuluh isolat jamur *Ceratocystis* spp. dari berbagai tanaman berkayu di Indonesia, dan (2) mengevaluasi tingkat patogenesitas sepuluh isolat jamur *Ceratocystis* spp. pada semai *A. mangium*.

Penelitian dilakukan di Laboratorium Perlindungan dan Kesehatan Hutan Fakultas Kehutanan Universitas Gadjah Mada Yogyakarta. Semai mangium umur empat bulan yang berasal dari tegakan biji kandidat pohon plus, Hutan Pendidikan Wanagama, Gunung Kidul, diinokulasi dengan sepuluh isolat jamur *Ceratocystis* spp. yang berasal dari jenis tanaman inang mangium, ekaliptus dan duku dari beberapa lokasi di Indonesia. Rancangan penelitian menggunakan rancangan acak lengkap (RAL) dengan faktor 10 isolat dengan ulangan masing-masing sebanyak empat sehingga terdapat 40 unit sampel.

Hasil penelitian menunjukkan bahwa karakter sepuluh isolat jamur *Ceratocystis* spp. menunjukkan adanya variasi. Berdasarkan tanaman inang, isolat dari ekaliptus menunjukkan ukuran morfologi yang lebih bervariasi, serta memiliki visual warna koloni yang lebih terang (*greyish olive*) dibandingkan dengan isolat dari mangium dan duku (*deep greyish olive*). Sementara, berdasarkan asal lokasi geografisnya isolat dari Pulau Jawa menunjukkan bentuk morfologi yang berbeda dengan isolat dari pulau lain. Tingkat patogenesitas sepuluh isolat jamur *Ceratocystis* spp. yang diindikasikan berdasarkan persentase kematian menunjukkan bahwa isolat dari tanaman inang mangium dan ekaliptus (Pulau Kalimantan dan Pulau Sumatra) bersifat patogenik hingga sangat patogenik, sementara isolat dari tanaman inang duku dan mangium (Pulau Sumatra dan Pulau Jawa) bersifat tidak patogenik hingga kurang patogenik.

Kata kunci: *Ceratocystis* spp., *A. mangium*, penyakit, karakterisasi, patogenesitas

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Characterization and Pathogenicity Test of *Ceratocystis* spp. on *Acacia mangium*

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Abstract

Ceratocystis is a genera of fungi that causes wilt disease which has a wide host distribution of forestry, agricultural and plantation types including the horticultural group. *Ceratocystis* has become an important pathogen in plantation forests, especially mangium in Indonesia, resulting in decreased crop productivity and major financial losses. Given that *Ceratocystis* which attacks various types of hosts from different origin locations has varying levels of pathogenicity and is capable of attacking and killing other plant species, research on characterization and pathogenicity tests of various *Ceratocystis* fungal isolates is necessary. The aims of this study were (1) to characterize the morphology of ten isolates of *Ceratocystis* spp. from various woody plants in Indonesia, and (2) to evaluate the pathogenicity level of ten *Ceratocystis* spp. on *A. mangium* seedling.

The research was conducted at the Forest Protection and Health Laboratory, Faculty of Forestry, Gadjah Mada University, Yogyakarta. The four-month-old mangium seedlings from the plus tree candidate seed stands, Wanagama Educational Forest, Gunung Kidul, were inoculated with ten *Ceratocystis* spp. which comes from the host plant species mangium, eucalyptus and duku from several locations in Indonesia. The research design used a completely randomized design (CRD) with a factor of 10 isolates with four replications so there were 40 sample units.

The results showed that the characters of ten *Ceratocystis* spp. indicates variation. Based on the host plant, eucalyptus isolates showed a more varied morphological size, and had brighter visual colony colors (*grayish olive*) compared to isolates from mangium and duku (*deep greyish olive*). Meanwhile, based on the geographical location, isolates from Java Island showed different morphological forms from isolates from other islands. Pathogenicity level of ten *Ceratocystis* spp. indicated based on the percentage of mortality indicated that isolates from host plants of mangium and eucalyptus (Kalimantan and Sumatra Islands) were pathogenic to highly pathogenic, while isolates from host plants of duku and mangium (Sumatra and Java Islands) were non-pathogenic to less pathogenic.

Keywords: *Ceratocystis* spp., *A. mangium*, disease, characterization, pathogenicity

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