

PENGENDALIAN ANTRAKNOSA PADA CABAI MERAH
(*Capsicum annuum* L.) OLEH FUNGI ENDOFIT
DAUN MAJAPAHIT (*Crescentia cujete* L.)

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ABSTRAK

Antraknosa merupakan penyakit utama yang sering menyerang pertanian *C.annuum* (*Capsicum annuum* L.). Penyakit ini disebabkan oleh jamur patogen *Colletotrichum* spp. Perlindungan tanaman dari serangan fungi patogen menggunakan fungi endofit telah banyak diteliti dan banyak memberikan keuntungan dalam respon ketahanan tanaman. Penelitian ini dilakukan untuk mengetahui daya antagonisme fungi endofit asal daun tanaman Majapahit (*Crescentia cujete* L.) terhadap fungi patogen penyebab antraknosa secara *in vitro* maupun *in vivo*. Secara *in vitro* dilakukan dengan pengukuran persen daya hambat oleh fungi endofit terhadap pertumbuhan fungi patogen sedangkan secara *in vivo* dengan melakukan uji ketahanan terinduksi pada tanaman *C.annuum* terhadap penyakit antraknosa dengan inokulasi fungi endofit. Fungi penyebab antraknosa pada tanaman *C.annuum* (*Capsicum annuum* L.) kultivar PM 999 koleksi dari ladang pertanian Kricaan, Mesir, Magelang, Jawa Tengah yang berhasil diidentifikasi dan dikonfirmasi patogenesisnya adalah *C. acutatum*. Hasil isolasi fungi endofit dari daun Majapahit Koleksi dari Kampus ITS, Surabaya yaitu 9 isolat dari *Colletotrichum* spp.; 5 isolat dari *Rhizoctonia* spp.; 1 isolat *Sporidesmium* sp.; 1 isolat *Neonectria* sp. dan 7 isolat yang tidak teridentifikasi (*Mycelia sterilia*). Persen daya hambat fungi endofit asal daun Majapahit terhadap *C. acutatum* yaitu *Neonectria* sp. 71,43%, *Sporidesmium* sp. 68,67% dan Binukleat *Rhizoctonia* sp. 71,43%. Fungi endofit asal daun Majapahit mampu menginfeksi perakaran *C.annuum* dengan nilai persen infeksi *Neonectria* sp. 42,49% tidak berbeda signifikan dengan kehadiran infeksi *C. acutatum* 43,33%. Persen infeksi *Sporidesmium* sp. mengalami kenaikan infeksi (34,08 ke 45%) dengan kehadiran *C. acutatum* walaupun tidak signifikan. Binukleat *Rhizoctonia* sp. mengalami penurunan infeksi (32,43% ke 28,33%) dengan adanya kehadiran *C. acutatum*. Patogen *C. acutatum* mengalami penurunan infeksi (29,83%) walaupun tidak begitu signifikan dengan adanya kolonisasi endofit (18,33-10%).

Kata kunci: *endofit*, *Colletotrichum* spp., *antraknosa*, *C.annuum*, *Majapahit*

PREVENTION OF ANTHRACNOSE ON RED CHILI
(*Capsicum annuum* L.) BY ENDOPHYTIC FUNGI
CALABASH TREE LEAF (*Crescentia cujete* L.)

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ABSTRACT

Anthrachnose is a quite serious and wide spread disease againts Red Chili (*Capsicum annuum* L.) cultivation. This disease is predominantly caused by fungi *Colletotrichum* spp. Plant protection against pathogenic fungi using endophytic fungi have been studied recently and provides promising result in plant resistance responses. The purpose of this research was to observe resisting capacity by endophytic fungi concerning to *Colletotrichum* sp., causing anthracnose, both *in vitro* and *in vivo*. The cause of anthracnose fungi on Red Chili (*Capsicum annuum* L.) cultivars PM 999 was collected from Kricaan of farm fields, Mesir, Magelang, Central Java, its successfully identified and confirmed its patogenicity was *C. acutatum*. Endophytic fungi were isolated from Calabash Tree leaves collected from Sepuluh Nopember Institut of Technology campus, Surabaya, they were 9 isolates of *Colletotrichum* spp.; 5 isolates of *Rhizoctonia* spp. ; 1 isolates *Sporidesmium* sp. ; 1 isolates *Neonectria* sp. and 7 isolates were not identified (*Mycelia sterilia*). Percent inhibition of endophytic fungi against *C. acutatum* were *Neonectria* sp. 71.43%, *Sporidesmium* sp. 68.67% and Binucleate *Rhizoctonia* sp. 71.43%. Endophytic fungi isolated from Calabash Tree leaves were capable of infecting the roots of Red Chilli with percent infection of *Neonectria* sp. (42.49% to 43.33%) did not significantly different with the presence of *C. acutatum* infection. Percent infection *Sporidesmium* sp. increased (34.08% to 45%) but not significantly different by the presence of *C. acutatum* infection. Percent infection Binucleate *Rhizoctonia* sp. decreased (32.43% to 28.33%) but not significantly by the presence of *C. acutatum* infection. *C. acutatum* infection was decreased (29,83%) not significantly with the presence of endophytic colonization (18,33-10%).

Keywords: *endophytic, Colletotrichum* spp., *anthracnose, red chili, calabash tree*