

IDENTIFIKASI DAN POTENSI FUNGI ENDOFIT TANAMAN SAGA  
(*Abrus precatorius* L.) DALAM PENGENDALIAN ANTRAKNOSA  
PADA CABAI (*Capsicum annuum* L.)

Emilda Oktaviani  
16/401946/PBI/01395

INTISARI

Cabai (*Capsicum annuum* L.) adalah salah satu komoditas utama pertanian di Indonesia. Produktivitas cabai belum optimal karena serangan penyakit khususnya antraknosa oleh *Colletotrichum* spp. Fungi endofit dari tanaman obat dipandang sebagai agen biokontrol yang potensial. Tujuan dari penelitian ini adalah untuk mengidentifikasi patogen antraknosa dan fungi endofit yang diisolasi dari akar, batang, dan daun tanaman saga menggunakan karakter morfologi dan analisis sekuen ITS rDNA, menyeleksi fungi endofit non patogenik, mengukur persentase penghambatan menggunakan metode *dual culture*, serta mengevaluasi mekanisme penghambatannya. Patogen antraknosa yang diisolasi dari buah cabai teridentifikasi sebagai *Colletotrichum acutatum*. Terdapat 33 fungi endofit yang diisolasi dari tanaman saga, enam diantaranya tidak patogenik. Fungi endofit non patogenik menghambat pertumbuhan *C.acutatum* pada *dual culture*, yaitu isolat E3R (72,79%), E5S (65,44%), E7S (63,97%), E9S (59,56%), E2S (59,56%), dan E4S (59,56%). Tiga fungi endofit dengan persentase penghambatan tertinggi dan perbedaan mekanisme penghambatan diseleksi dan teridentifikasi sebagai *Fusarium solani*, *Diaporthe* sp, dan *Colletotrichum* sp. berdasarkan karakter morfologi dan analisis sekuen ITS rDNA. *Colletotrichum* sp. menunjukkan daya hambat tertinggi terhadap *C. acutatum* melalui mekanisme antibiosis senyawa volatil (38.54%), mikoparasitisme, dan ketahanan terinduksi dengan meningkatkan aktivitas peroksidase pada tanaman cabai. *Fusarium solani* menunjukkan aktivitas penghambatan berupa kompetisi dan antibiosis senyawa volatil (30.90%), sementara *Diaporthe* sp. menunjukkan mekanisme antibiosis senyawa volatil (22.26%) dan non volatil (*moderate level*).

Kata kunci: Fungi endofit, antraknosa, aktivitas antagonistik, ITS rDNA,  
*Abrus precatorius* L.

IDENTIFICATION AND POTENTION OF  
FUNGAL ENDOPHYTE FROM SAGA PLANT (*Abrus precatorius* L.)  
IN CONTROLING ANTHRACNOSE ON CHILI PEPPER  
(*Capsicum annuum* L.)

Emilda Oktaviani  
16/401946/PBI/01395

ABSTRACT

Chili pepper (*Capsicum annuum* L.) is one of the main agricultural commodities in Indonesia. However, its productivity is not optimal because of disease attacks, especially anthracnose by *Colletotrichum* spp. Endophytic fungi from medical plant have been considered as potential biocontrol agents. The purpose of this research was to identify the anthracnose pathogen and fungal endophyte isolated from roots, stems, dan leaves of saga plant using morphological characters and ITS rDNA sequence analysis, select non pathogenic fungal endophyte, measure inhibition percentage using dual culture method, and evaluate the inhibitory mechanism. The anthracnose pathogen isolated from chili pepper was identified as *Colletotrichum acutatum*. There were 33 endophytic fungi isolated from saga plant, six of them were confirmed as non pathogenic endophyte. The non pathogenic fungi inhibited the growth of *C. acutatum* in dual culture were isolate E3R (72,79%) , E5S (65,44%), E7S (63,97%), E9S (59,56%), E2S (59,56%), and E4S (59,56%). Three selected fungi with the highest inhibition percentage and difference inhibition mechanism were identified as *Fusarium solani*, *Diaporthe* sp, and *Colletotrichum* sp., based on morphological characteristics and rDNA ITS sequence analysis. *Colletotrichum* sp. showed the strongest inhibition against *C. acutatum* by volatile compound antibiosis (38.54%), mycoparasitic mechanism and induced resistance mechanism by enhancing the activity of peroxidase of chili pepper plant (*Capsicum annuum* L.). *Fusarium solani* showed inhibitory mechanism by competition and volatile compound antibiosis (30.90%), while *Diaporthe* sp. showed volatile (22.26%) and non volatile compound antibiosis mechanism (moderate level).

Keywords: Endophytic fungi, anthracnose, antagonistic activity, ITS rDNA, *Abrus precatorius* L.