

**POTENSI EKOENZIM DARI CAMPURAN KULIT BUAH DAN
SERAI (*Cymbopogon citratus*) TERHADAP PERTUMBUHAN
JAMUR *Colletotrichum capsici* DAN PENINGKATAN
PERTUMBUHAN BIBIT CABAI**

SKRIPSI



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POTENSI EKOENZIM DARI CAMPURAN KULIT BUAH DAN SERAI (*Cymbopogon citratus*) TERHADAP PERTUMBUHAN JAMUR *Colletotrichum capsici* DAN PENINGKATAN PERTUMBUHAN BIBIT CABAI

Abstrak

Colletotrichum capsici merupakan salah satu patogen utama tanaman cabai yang dapat menimbulkan kehilangan hasil mencapai 65%. Ekoenzim yang dihasilkan dari proses fermentasi bahan organik mempunyai senyawa anti mikroba dan penginduksi pertumbuhan tanaman. Tujuan penelitian adalah mendapatkan ekoenzim terbaik dari campuran kulit buah dan serai dalam menekan pertumbuhan jamur *C. capsici* penyebab antraknosa dan meningkatkan pertumbuhan bibit cabai. Penelitian terdiri dari 2 tahap pengujian. 1) Uji kemampuan daya hambat terhadap pertumbuhan *C. capsici* (secara *in vitro*) dan 2) peningkatan pertumbuhan bibit cabai. Penelitian menggunakan Rancangan Acak Lengkap dengan 6 perlakuan 5 ulangan untuk uji daya hambat dan 5 perlakuan 5 ulangan untuk uji peningkatan pertumbuhan bibit. Perlakuan terdiri dari kontrol, ekoenzim serai, serai+jeruk, serai+jeruk+nanas, serai+nanas dan fungisida propineb 70%, pengujian peningkatan pertumbuhan tanpa perlakuan fungisida. Parameter yang diamati adalah perubahan karakter morfologi jamur *C. capsici* dan daya hambat jamur (luas koloni, jumlah konidia, daya kecambah konidia, berat basah dan berat kering jamur). Untuk pertumbuhan bibit cabai, parameter yang diamati adalah daya munculan, tinggi bibit, jumlah daun bibit, berat basah dan berat kering bibit. Hasil penelitian menunjukkan semua perlakuan ekoenzim yang diuji mempunyai kemampuan dalam menekan pertumbuhan jamur *C. capsici* dan meningkatkan pertumbuhan bibit cabai dengan rata-rata efektivitas daya hambat 49,72-100% dan rata-rata efektivitas peningkatan pertumbuhan bibit 34,18-49,56%. Ekoenzim serai+nanas memiliki efektivitas daya hambat tertinggi yaitu 100%. Ekoenzim serai+jeruk+nanas memiliki efektivitas peningkatan pertumbuhan bibit tertinggi yaitu 49,56%.

Kata kunci: daya hambat, induksi pertumbuhan, metabolit sekunder, senyawa antimikroba

**ECOENZYME POTENTIAL FROM A MIXTURE OF FRUIT SKIN AND
LEMONGRASS (*Cymbopogon citratus*) ON THE GROWTH
OF *Colletotrichum capsici* FUNGUS AND INCREASING
THE GROWTH OF CHILI SEEDLINGS**

Abstrack

Colletotrichum capsici is one of the main pathogens of chili plants which can cause yield losses of up to 65%. Ecoenzymes produced from the fermentation process of organic materials have antimicrobial compounds and induce plant growth. The aim of the research is to obtain the best ecoenzyme from a mixture of fruit peel and lemongrass to suppress the growth of the fungus *C. capsici* which causes anthracnose and increase the growth of chili seedlings. The research consisted of 2 testing stages. 1) Test the ability to inhibit the growth of *C. capsici* (in vitro) and 2) increase the growth of chili seedlings. The research used a completely randomized design with 6 treatments with 5 replications for the inhibition test and 5 treatments with 5 replications for the seedling growth enhancement test. Treatments consisted of control, lemongrass ecoenzyme, lemongrass + orange, lemongrass + orange + pineapple, lemongrass + pineapple and 70% propinep fungicide, testing for increased growth without fungicide treatment. The parameters observed were changes in the morphological characteristics of the *C. capsici* fungus and the fungal inhibitory capacity (colony area, number of conidia, conidia germination capacity, wet weight and dry weight of the fungus). For the growth of chili seedlings, the parameters observed were field emergence capacity, seedling height, number of seedling leaves, wet weight and dry weight of the seedlings. The results showed that all ecoenzyme treatments tested had the ability to suppress the growth of *C. capsici* fungus and increase the growth of chili seedlings with an average inhibitory effectiveness of 49.72-100% and an average effectiveness of increasing seedling growth of 34.18-49.56%. Lemongrass + pineapple ecoenzyme had the highest inhibitory effectiveness of 100%. Lemongrass + orange + pineapple ecoenzyme had the highest effectiveness of increasing seedling growth of 49.56%.

Keywords: inhibitory power, growth induction, secondary metabolites, antimicrobial compounds