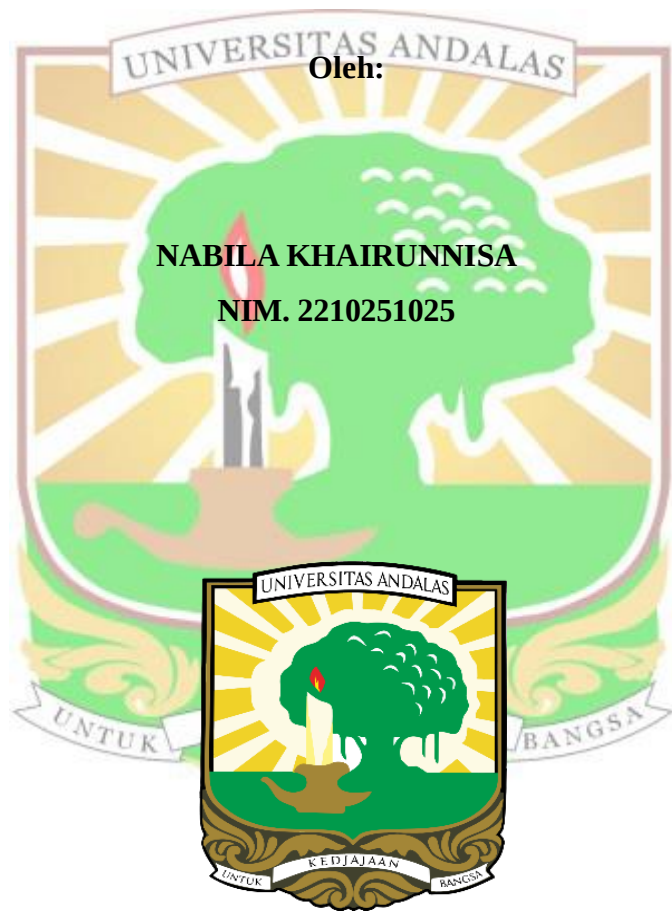


**POTENSI ISOLAT KHAMIR EPIFIT *INDIGENOUS* UNTUK
MENEKAN PERTUMBUHAN *Colletotrichum musae*
PENYEBAB PENYAKIT ANTRAKNOSA PADA BUAH
PISANG (*Musa paradisiaca* L.) PASCA PANEN
SECARA *IN VITRO***

SKRIPSI

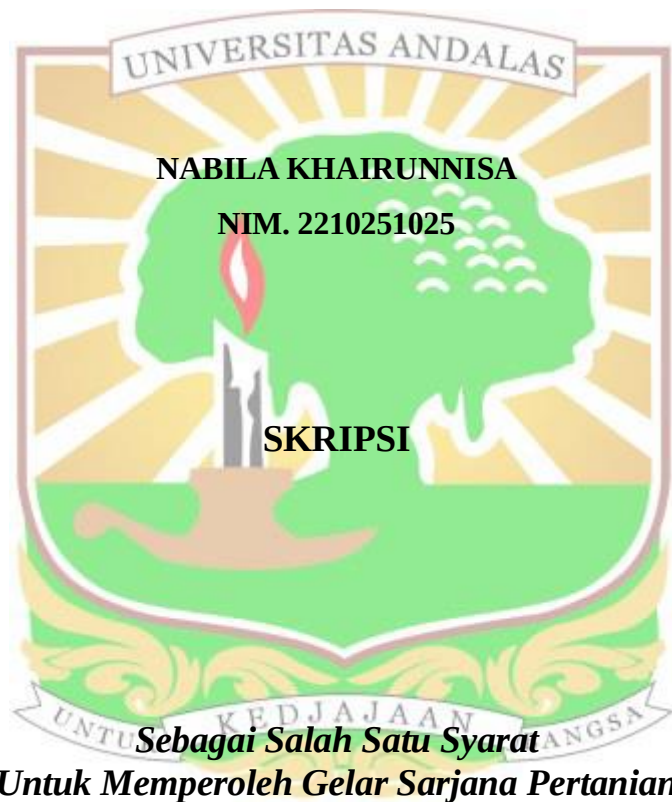


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Abstrak

Colletotrichum musae merupakan jamur patogen utama penyakit antraknosa. Salah satu mikroba yang dapat berperan sebagai agen biokontrol adalah khamir epifit. Penelitian ini bertujuan untuk mengevaluasi isolat khamir epifit *Indigenous* yang efektif dalam menekan pertumbuhan *C. musae* penyebab penyakit antraknosa pada buah pisang. Penelitian ini dilaksanakan dalam 2 tahapan. 1). Isolasi Khamir Epifit *Indigenous* dan Patogen *C. musae* dan, 2). Uji Antagonis Khamir Epifit *Indigenous* terhadap *C. musae* secara *in vitro* dengan metode biakan ganda (*dual culture*) dan uap biakan. Pengujian dilakukan menggunakan Rancangan Acak Lengkap dengan 7 perlakuan dan 4 ulangan. Perlakuan terdiri dari 3 isolat khamir epifit yang diisolasi dari buah pisang (KBP1, KBP2, KBP3), 3 isolat khamir yang diisolasi dari daun pisang (KDP1, KDP2, KDP3) dan 1 kontrol tanpa perlakuan. Parameter yang diamati yaitu karakterisasi makroskopis dan mikroskopis *C. musae*, Uji patogenesis *C. musae*, karakterisasi makroskopis dan mikroskopis isolat khamir epifit *indigenous*, Uji patogenesis khamir epifit *indigenous*, luas koloni metode *dual culture* dan uap biakan, dan kerapatan konidia. Berdasarkan hasil penelitian, diperoleh enam isolat khamir epifit yang terdiri atas tiga isolat yang berasal dari buah pisang dan tiga isolat yang berasal dari daun pisang. Hasil uji antagonis khamir epifit terhadap *Colletotrichum musae* dengan metode biakan ganda (*dual culture*) dan uap biakan menunjukkan bahwa seluruh isolat khamir epifit mampu menghambat pertumbuhan *Colletotrichum musae*. Isolat yang memiliki kemampuan penghambatan tinggi adalah isolat KBP1, KBP3, KDP3, dan KBP2. Pada metode biakan ganda, luas koloni yang dihasilkan berkisar antara 18,221–23,766 cm² dengan nilai THR sebesar 55,86–66,16%. Sementara itu, pada metode uap biakan, luas koloni berkisar antara 9,3383–16,000 cm² dengan nilai THR sebesar 71,56–83,40% serta kerapatan konidia berkisar antara 0,712–0,837 × 10⁸/ml dengan persentase penekanan sebesar 69,56–74,10%.

Kata kunci: Antraknosa, *C. musae*, khamir epifit, uji antagonis

POTENTIAL OF INDIGENOUS EPIPHYTE YEAST ISOLATES TO SUPPRESS THE GROWTH OF *Colletotrichum musae*, THE CAUSE OF ANTHRACNOSE DISEASE IN POST-HARVEST BANANA FRUIT (*Musa Paradisiaca* L.) IN VITRO

Abstract

Colletotrichum musae is the main pathogenic fungus of anthracnose disease. One of the microbes that can act as a biocontrol agent is epiphytic yeast. This study aims to determine the isolates of indigenous epiphytic yeast that are effective in suppressing the growth of *C. musae*, the cause of anthracnose disease in bananas. This study was carried out in 2 stages. 1). Isolation of *Indigenous* Epiphytic Yeast and Pathogenic *C. musae* and, 2). Testing of *Indigenous* Epiphytic Yeast Antagonists against *C. musae* *in vitro* using dual culture and steam culture methods. The test was carried out using a Completely Randomized Design with 7 treatments and 4 replications. The treatments consisted of 3 isolates of epiphytic yeast isolated from bananas (KBP1, KBP2, KBP3), 3 isolates of yeast isolated from banana leaves (KDP1, KDP2, KDP3) and 1 control without treatment. The parameters observed were macroscopic and microscopic characterization of *C. musae*, pathogenicity test of *C. musae*, macroscopic and microscopic characterization of indigenous epiphytic yeast isolates, pathogenicity test of *indigenous* epiphytic yeast, colony area using dual culture and steam culture methods, and conidial density. Based on the results of the study, six epiphytic yeast isolates were obtained consisting of three isolates originating from banana fruit and three isolates originating from banana leaves. The results of the epiphytic yeast antagonist test against *Colletotrichum musae* using dual culture and steam culture methods showed that all epiphytic yeast isolates were able to inhibit the growth of *Colletotrichum musae*. Isolates that had high inhibitory ability were isolates KBP1, KBP3, KDP3, and KBP2. In the dual culture method, the resulting colony area ranged from 18,221–23,766 cm² with a THR value of 55.86–66.16%. Meanwhile, in the steam culture method, the colony area ranged from 9.3383–16,000 cm² with a THR value of 71.56–83.40% and a conidial density ranging from 0.712–0.837 × 10⁸/ml with a suppression percentage of 69.56–74.10%.

Keywords: Anthracnose, *C. musae*, epiphytic yeast, antagonist tes