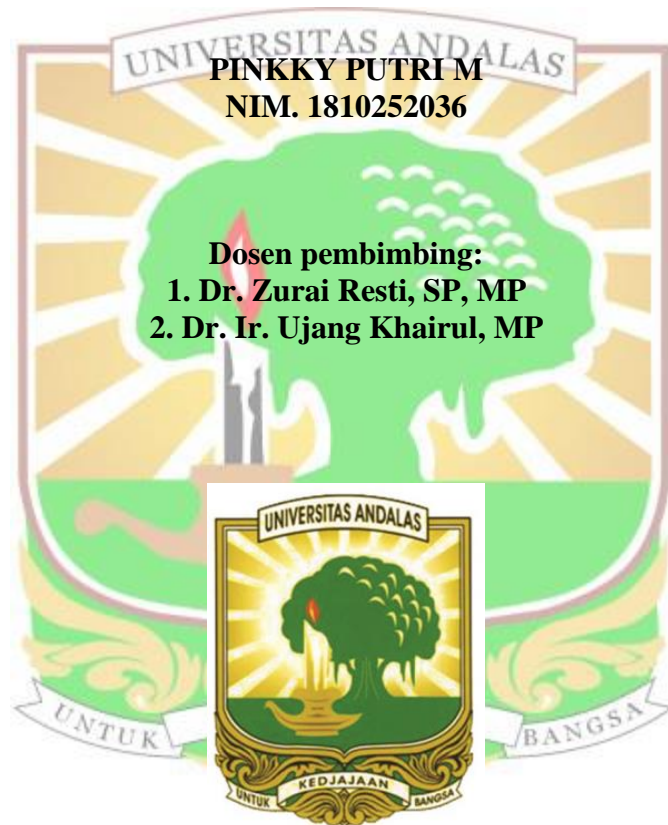


**UJI ANTAGONIS BAKTERI ENDOFIT *Bacillus* spp. TERHADAP
PERKEMBANGAN JAMUR *Phytophthora palmivora* (Bultl)
DAN GEJALA BUSUK BUAH KAKAO**

SKRIPSI

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UJI ANTAGONIS BAKTERI ENDOFIT *Bacillus* spp. TERHADAP PERKEMBANGAN JAMUR *Phytophthora palmivora* (Bultl) DAN GEJALA BUSUK BUAH KAKAO

ABSTRAK

Phytophthora palmivora merupakan salah satu jamur patogenik pada kakao yang menyerang semua fase perkembangan buah. Penyakit busuk buah *P. palmivora* sulit dikendalikan, salah satu upaya dalam pengendalian penyakit ini adalah dengan pengendalian hayati menggunakan bakteri *Bacillus*. Tujuan penelitian ini untuk mendapatkan bakteri endofit dari genus *Bacillus* spp. terbaik dalam menekan pertumbuhan jamur *P. palmivora* dan menekan perkembangan gejala busuk buah pada kakao. Penelitian ini dilaksanakan di Laboratorium Mikrobiologi dan Laboratorium Fitopatologi pada bulan September sampai November 2022. Penelitian ini menggunakan metode eksperimen terdiri atas 2 tahap. Tahap 1 Uji antagonis *Bacillus* spp. terhadap pertumbuhan *P. palmivora* secara *invitro* menggunakan Rancangan Acak Lengkap (RAL) terdiri dari 7 perlakuan yaitu *Bacillus cereus* Se07, *Bacillus cereus* P14, *Bacillus* sp. SJI, *Bacillus* sp. HI, dan *Bacillus subtilis*, kontrol dan penggunaan fungisida, dan 3 ulangan. Variabel yang diamati adalah daya hambat sel, kemampuan metabolit sekunder, berat segar, dan berat kering jamur. Tahap 2 kemampuan *Bacillus* spp menghambat perkembangan gejala busuk buah kakao secara *invivo*, menggunakan Rancangan Acak Lengkap (RAL) yang terdiri dari 7 perlakuan yaitu *Bacillus cereus* Se07, *Bacillus cereus* P14, *Bacillus* sp. SJI, *Bacillus* sp. HI, dan *Bacillus subtilis*, kontrol dan penggunaan fungisida, 3 ulangan dan 2 unit satuan percobaan. Variabel yang diamati adalah masa inkubasi, kejadian penyakit, persentase penghambatan gejala. Berdasarkan hasil penelitian yang telah dilakukan, perlakuan dengan menggunakan *Bacillus* sp.HI, *Bacillus* sp.SJI, dan *Bacillus subtilis* merupakan kemampuan yang terbaik dalam menekan pertumbuhan jamur *P. palmivora* dan menekan perkembangan gejala busuk buah kakao.

Kata kunci: Antagonis ,*Bacillus*, *Phytophthora palmivora*

ANTAGONISTIC TEST OF ENDOPHYTIC BACTERIA *Bacillus* spp. AGAINST THE DEVELOPMENT OF THE FUNGUS *Phytophthora palmivora* (Burt) AND SYMPTOMS OF COCOA POD ROT

ABSTRACT

Phytophthora palmivora is a pathogenic fungus in cocoa that attacks all phases of fruit development. *P. palmivora* fruit rot disease is difficult to control, one of the efforts in controlling this disease is by biological control using *Bacillus* bacteria. The purpose of this study was to obtain the best endophytic bacteria from the genus *Bacillus* spp. in suppressing the growth of *P. palmivora* fungus and suppressing the development of fruit rot symptoms on cocoa. This research was conducted at the Microbiology Laboratory and Phytopathology Laboratory from September to November 2022. This research used an experimental method consisting of 2 stages. Stage 1 Antagonistic test of *Bacillus* spp. against *P. palmivora* growth invitro using a completely randomized design (CRD) consisting of 7 treatments namely *Bacillus cereus* Se07, *Bacillus cereus* P14, *Bacillus* sp. SJI, *Bacillus* sp. HI, and *Bacillus subtilis*, control and fungicide use, and 3 replicates. The variables observed were cell inhibition, secondary metabolite ability, fresh weight, and dry weight of the fungus. Stage 2, the ability of *Bacillus* spp to inhibit the development of cocoa fruit rot symptoms invivo, using a completely randomized design (CRD) consisting of 7 treatments namely *Bacillus cereus* Se07, *Bacillus cereus* P14, *Bacillus* sp. SJI, *Bacillus* sp. HI, and *Bacillus subtilis*, control and fungicide use, 3 replicates and 2 units of experimental units. Variables observed were incubation period, disease incidence, disease incidence, and disease incidence. Based on the results of the research that has been done, treatment using *Bacillus* sp.HI, *Bacillus* sp.SJI, and *Bacillus substilis* is the best ability to suppress the growth of *P. palmivora* fungus and suppress the development of cocoa fruit rot symptoms.

Keywords: Antagonist, *Bacillus*, *Phytophthora palmivora*