

**POTENSI KONSORSIUM BAKTERI ENDOFIT DALAM
MENGHAMBAT PERTUMBUHAN *Helminthosporium
oryzae* Breda de Haan PENYEBAB PENYAKIT
BERCAK COKELAT PADA TANAMAN PADI**

SKRIPSI



Oleh

**AFIFA FAUZIA
NIM. 1910252020**

**FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG**

2024

**POTENSI KONSORSIUM BAKTERI ENDOFIT DALAM
MENGHAMBAT PERTUMBUHAN *Helminthosporium
oryzae* Breda de Haan PENYEBAB PENYAKIT
BERCAK COKELAT PADA TANAMAN PADI**

ABSTRAK

Helminthosporium oryzae merupakan salah satu patogen penting pada tanaman padi yang menyebabkan kerusakan dan kehilangan hasil hingga 45%. Pemanfaatan konsorsium bakteri endofit sebagai agens hayati adalah salah satu pengendalian yang ramah lingkungan. Penelitian bertujuan untuk mendapatkan konsorsium bakteri endofit yang efektif dalam menekan pertumbuhan *H. oryzae* secara *in vitro*. Penelitian menggunakan Rancangan Acak Lengkap (RAL) terdiri dari 7 perlakuan dalam 3 ulangan. Perlakuan terdiri dari A (kontrol), perlakuan B (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3), perlakuan C (*Bacillus* sp. HI; *Serratia marcescens* JB1E3), perlakuan D (*Bacillus* sp. HI; *Bacillus* sp. SJI; *Serratia marcescens* JB1E3), perlakuan E (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3; *Serratia marcescens* JB1E2), perlakuan F (*Bacillus* sp. HI; *Bacillus* sp. SJI), dan perlakuan G (*Bacillus* sp. SJI; *Serratia marcescens* ULG1E4). Uji kemampuan konsorsium bakteri endofit dalam menekan pertumbuhan *H. oryzae* diuji dengan metode *dual culture* dan peracunan media. Parameter pengamatan meliputi daya hambat konsorsium bakteri endofit, daya hambat metabolit konsorsium bakteri endofit, berat segar dan berat kering jamur. Perlakuan G (*Bacillus* sp. SJI; *Serratia marcescens* ULG1E4), B (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3), dan E (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3; *Serratia marcescens* JB1E2), efektif dalam menekan pertumbuhan *H. oryzae* dengan daya hambat suspensi bakteri 61,28%, 62,93%, 63,55%, dan daya hambat metabolit sekunder 96,93%, 94,21%, 97,60%.

Kata kunci : Daya hambat, kompetisi, antibiosis, *dual culture*, metabolit sekunder

POTENTIAL OF ENDOPHYTIC BACTERIAL CONSORTIA TO INHIBIT THE GROWTH OF *Helminthosporium oryzae* Breda de Haan CAUSED BROWN SPOT DISEASE IN RICE

ABSTRACT

Helminthosporium oryzae is a pathogen that cause rice damage and losses up to 45%. Consortium of endophytic bacteria as biological agent is one of alternative and eco-friendly way to suppress the development of plant pathogenic fungi. Research aimed to obtain endophytic bacteria consortium that can inhibit the growth of *H. oryzae*. This research used a Completely Randomized Design (CRD) for studying the ability of endophytic bacteria consortium using six endophytic bacteria consortia and control with three replications. Treatments consisted of A (control), treatment B (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3), treatment C (*Bacillus* sp. HI; *Serratia marcescens* JB1E3), treatment D (*Bacillus* sp. HI; *Bacillus* sp. SJI; *Serratia marcescens* JB1E3), treatment E (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3; *Serratia marcescens* JB1E2), treatment F (*Bacillus* sp. HI; *Bacillus* sp. SJI), and treatment G (*Bacillus* sp. SJI; *Serratia marcescens* ULG1E4). The ability of endophytic bacteria consortia in suppress the growth of *H. oryzae* tested using dual culture and poisoning culture method. The parameter observed were inhibiton power of endophytic bacteria consortia, inhibiton power of secondary metabolites of endophytic bacteria consortia, fresh weigth and dry weight of fungi. The results showed that treatment G (*Bacillus* sp. SJI; *Serratia marcescens* ULG1E4), B (*S. marcescens* ULG1E4; *Serratia marcescens* JB1E3), and E (*Serratia marcescens* ULG1E4; *Serratia marcescens* JB1E3; *Serratia marcescens* JB1E2), had a high ability to suppress the growth of *H. oryzae* with suspension inhibition 61,28%, 62,93%, 63,55%, and secondary metabolites inhibiton 96,93%, 94,21%, 97,60%.

Keywords : Inhibiton, antibiotic, competition, dual culture, secondary metabolite