

**UJI ANTAGONIS BAKTERI ENDOFIT TERHADAP
CENDAWAN PATOGEN *Rhizoctonia solani* Kühn PENYEBAB
PENYAKIT HAWAR PELEPAH PADA TANAMAN PADI**



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Abstrak

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Rhizoctonia solani Kühn merupakan patogen penting pada tanaman padi yang menyebabkan penyakit hawar pelepah padi. Salah satu cara pengendaliannya penyakit ini adalah penggunaan bakteri endofit sebagai agen pengendali hayati. Penelitian ini bertujuan untuk mendapatkan bakteri endofit yang mampu menghambat pertumbuhan cendawan patogen *R. solani* secara *in vitro*. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) yang terdiri dari 9 perlakuan dan 4 ulangan. Perlakuan terdiri dari *Bacillus sp.* galur H1, *Bacillus sp.* galur SJ1, *Bacillus cereus* galur P.4, *Bacillus cereus* galur Se07, *Bacillus subtilis*, *Serratia marcescens* galur JB1E3, *Serratia marcescens* galur ULG1E4, fungisida berbahan aktif ketokonazol 2% dan kontrol (tanpa diberi perlakuan). Pengujian menggunakan metode biakan ganda dan menggunakan metabolit sekunder bakteri endofit dengan parameter pengamatan zona bening bakteri, persentase daya hambat sel bakteri endofit, efektivitas metabolit sekunder berat segar cendawan *R. solani*, dan berat kering cendawan *R. solani*. Semua bakteri endofit yang diuji mampu menekan pertumbuhan *R. solani* dengan persentase daya hambat antara 54,55-63,64% dan efektivitas senyawa metabolit antara 30,99-90,49%, bakteri endofit yang berpotensi dalam menghambat pertumbuhan cendawan patogen *R. solani* dimiliki oleh *Serratia marcescens* ULG1E4, *Serratia marcescens* JB1E3 dan *Bacillus cereus* Se07 dengan persentase daya hambat 63,64%, 60,00%, 60,00% dan efektivitas senyawa metabolit sekunder bakteri endofit 88,70%, 90,62%, 61,71%.

Kata kunci: Bakteri endofit, biakan ganda, metabolit sekunder, *Rhizoctonia solani*

UNTUK

BANGSA

ENDOPHY BACTERIAL ANTAGONISTS TEST AGAINST THE FUNGAL PATHOGEN *Rhizoctonia solani* Kuhn CAUSES OF SHEATH BLIGHT DISEASE IN RICE

Abstract

Rhizoctonia solani Kuhn is an important pathogen in rice plants that causes rice sheath blight. One way to control it is the use of endophytic bacteria as biological control agents. This study aims to obtain endophytic bacteria capable of inhibiting the growth of the fungal pathogen *R. solani* *in vitro*. This study used a completely randomized design (CRD) consisting of 9 treatments and 4 replications. The treatments consisted of *Bacillus* sp. strain H1, *Bacillus* sp. strain S11, *Bacillus cereus* strain P14, *Bacillus cereus* strain Se07, *Bacillus subtilis*, *Serratia marcescens* strain JB1E3, *Serratia marcescens* strain ULG1E4, fungicide with active ingredient ketoconazole 2% and control (without treatment). The test used multiple culture methods and used secondary metabolites of endophytic bacteria with the parameters of observing the bacterial clear zone, the percentage of inhibition of endophytic bacterial cells, the effectiveness of secondary metabolites, fresh weight of the *R. solani* fungus, and dry weight of the *R. solani* fungus. All endophytic bacteria tested were able to suppress the growth of *R. solani* with the percentage of inhibitory power between 54.55-63.64% and the effectiveness of metabolites between 30.99-90.49%, endophytic bacteria which have the potential to inhibit the growth of the pathogenic *R. solani* fungus, possessed by *Serratia marcescens* ULG1E4, *Serratia marcescens* JB1E3 and *Bacillus cereus* Se07 with inhibition percentages of 63.64%, 60.00%, 60.00% and the effectiveness of secondary metabolites of endophytic bacteria 88.70%, 90.62%, 61.71%..

Keywords: dual culture, endophytic bacteria, *Rhizoctonia solani*, secondary metabolites