

RINGKASAN

Penyakit Hawar Daun Bakteri (HDB) merupakan salah satu penyakit penting yang dapat menurunkan produksi tanaman padi. Penyebab penyakit HDB adalah bakteri *Xanthomonas oryzae* pv. *oryzae* (Xoo). Salah satu cara pengendalian yang dapat dilakukan yaitu dengan pemanfaatan agens hayati. Penggunaan bakteri endofit sebagai agens hayati dapat digunakan dalam menekan penyakit HDB. Bakteri endofit merupakan jenis bakteri yang dapat hidup dan berasosiasi dengan jaringan tanaman tanpa menimbulkan suatu gejala penyakit pada tanaman tersebut. Keberadaannya dalam jaringan tanaman membuat bakteri endofit mempunyai kemampuan bertahan terhadap tekanan biotik dan abiotik. Penelitian ini bertujuan untuk: 1) Menguji bakteri endofit secara tunggal maupun konsorsium untuk mengendalikan penyakit HDB 2) Menilai efektivitas pengendalian penyakit HDB dan 3) Mengetahui pengaruh aplikasi bakteri endofit terhadap pertumbuhan tanaman padi baik secara tunggal maupun konsorsium.

Penelitian ini dilaksanakan di Laboratorium Perlindungan Tanaman Fakultas Pertanian Universitas Jenderal Soedirman dan di rumah kaca di Desa Tambaksari Kidul, Kecamatan Kembaran, Kabupaten Banyumas, Jawa Tengah. Penelitian berlangsung dari Desember 2022 hingga bulan April 2023. Rancangan percobaan yang digunakan dalam penelitian ini adalah Rancangan Acak Lengkap (RAL) dengan tujuh perlakuan (P0-P6) dan diulang empat kali. Perlakuan terdiri atas kontrol dan enam bakteri endofit. Variabel yang diamati meliputi masa inkubasi, intensitas penyakit, laju infeksi, AUDPC, tinggi tanaman, jumlah daun, jumlah anakan, bobot tanaman segar dan bobot tanaman kering.

Hasil penelitian menunjukkan bahwa semua isolat bakteri endofit tunggal (A5, A6, KR4, KR7 dan SB3) serta konsorsium bakteri efektif dalam mengendalikan penyakit hawar pelepah padi. Isolat KR7 memiliki efektivitas paling tinggi yaitu 31,95%. Kemampuan bakteri endofit juga memberikan respon positif terhadap pertumbuhan tanaman padi. Pertumbuhan tinggi tanaman terbaik terdapat pada perlakuan isolat KR7 dengan tinggi 96,73 cm.

Kata-kata kunci : Bakteri endofit, hawar daun, padi, *Xanthomonas oryzae* pv. *oryzae*

SUMMARY

*Bacterial Leaf Blight (BLB) is an important disease that can reduce the production as well as quality of rice plants. This disease is caused by *Xanthomonas oryzae* pv. *oryzae* (Xoo). One of the methods that can be used is to use biological agents. The use of endophytic bacteria as biological agents can be used to suppress BLB. Endophytic bacteria is a bacterial type in which they live and associate with the plant tissue and show asymptomatic issues. The reason behind this is their presence in plant tissues helping them to survive from biotic and abiotic pressure. This study aims to: 1) Test endophytic bacteria singly or in a consortium to control BLB; 2) Assess the effectiveness of controlling BLB; and 3) Determine the effect of endophytic bacterial application on rice plant growth, either singly or in a consortium.*

This research was conducted at the Plant Protection Laboratory Faculty of Agriculture Jenderal Soedirman University and at the kasa house in Tambaksari Kidul Village, Kembaran District, Banyumas Regency, Central Java. The research took place from December 2022 to April 2023. The experimental design used in this research was a Completely Randomized Design with seven treatments (P0-P6) and was repeated four times. The treatments consist of control and six endophytic bacteria. In this research, there are several variables observed included incubation period, disease intensity, infection rate, AUDPC (Area Under the Disease Progress Curve), plant height, number of leaves, number of rice tillers, fresh weight of the plant and dry weight of the plant.

The results showed that all isolates of endophytic bacteria, both single (A5, A6, KR4, KR7, and SB3) and a consortium of bacteria were effective in controlling bacterial leaf blight. KR7 isolate had the highest effectiveness which is 31,95%. The ability of endophytic bacteria also gives a positive response to the growth of rice plants. The best plant height growth was found in the treatment of KR7 isolates with a plant height reaching 96,73 cm

Keywords : *Endophytic bacteria, bacterial leaf blight, rice, *Xanthomonas oryzae* pv. *oryzae**