

ABSTRAK

EKSPLORASI BAKTERI ENDOFIT BERSIFAT ANTAGONIS TERHADAP *Ralstonia* sp PENYEBAB LAYU BAKTERI TANAMAN KENTANG

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Penelitian ini bertujuan untuk mengeksplorasi potensi bakteri endofit yang berasosiasi dengan tanaman kentang sebagai agen biokontrol alami terhadap *Ralstonia* sp. Penelitian dilaksanakan di Laboratorium Bioteknologi Pertanian Fakultas Pertanian Universitas Lampung dari Februari sampai Mei 2025. Kegiatan penelitian meliputi isolasi bakteri *Ralstonia* sp. dari umbi kentang bergejala menggunakan media *Tetrazolium Chloride* (TZC) dan bakteri endofit dari umbi kentang sehat varietas Granola. Kemudian, dilakukan uji patogenesitas *Ralstonia* sp. pada umbi kentang sehat. Uji karakteristik yang dilakukan meliputi uji Gram, uji Oksidatif/Fermentatif, uji *lecithinase*, dan uji *arginine dihydrolase*. Hasil isolasi diperoleh 14 isolat endofit non-patogen yang telah dikarakterisasi. Hasil uji antagonisme menunjukkan bahwa lima isolat bakteri endofit terpilih (EK4.2, EK5.2, EK12.5, EK15.6, dan EK30.9) memiliki kemampuan menghambat pertumbuhan *Ralstonia* sp. secara *in vitro*, ditandai dengan terbentuknya zona hambat. Meskipun terjadi penurunan luas zona hambat seiring waktu yang mengindikasikan kemungkinan ketidakstabilan metabolit antagonis atau adaptasi patogen, temuan ini mengkonfirmasi potensi isolat-isolat endofit tersebut sebagai kandidat agen biokontrol hayati yang dapat dikembangkan untuk pengelolaan penyakit layu bakteri pada kentang.

Kata kunci: antagonisme, bakteri endofit, biokontrol, kentang, *Ralstonia* sp.

ABSTRACT

EXPLORATION OF ANTAGONISTIC ENDOPHYTIC BACTERIA AGAINST *Ralstonia* sp. THE CAUSE OF BACTERIAL WILT IN POTATO PLANTS

By

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This study aims to explore the potential of endophytic bacteria associated with potato plants as natural biocontrol agents against *Ralstonia* sp. The research was conducted at the Agricultural Biotechnology Laboratory, Faculty of Agriculture, University of Lampung, from February to May 2025. Research activities included the isolation of *Ralstonia* sp. bacteria from symptomatic potato tubers using *Tetrazolium Chloride* (TZC) medium and endophytic bacteria from healthy potato tubers of the Granola variety. Subsequently, pathogenicity tests were conducted on *Ralstonia* sp. using healthy potato tubers. The characterization tests conducted included Gram staining, oxidative/fermentative tests, lecithinase tests, and arginine dihydrolase tests. The isolation yielded 14 non-pathogenic endophytic isolates that were characterized. Antagonism tests showed that five selected endophytic bacterial isolates (EK4.2, EK5.2, EK12.5, EK15.6, and EK30.9) had the ability to inhibit the growth of *Ralstonia* sp. in vitro, indicated by the formation of inhibition zones. Although there was a decrease in the size of the inhibition zone over time, indicating possible instability of the antagonistic metabolites or pathogen adaptation, these findings confirm the potential of these endophytic isolates as candidates for biological control agents that can be developed for the management of bacterial wilt disease in potatoes.

Keyword: antagonism, endophytic bacteria, biocontrol, potato, *Ralstonia* sp.