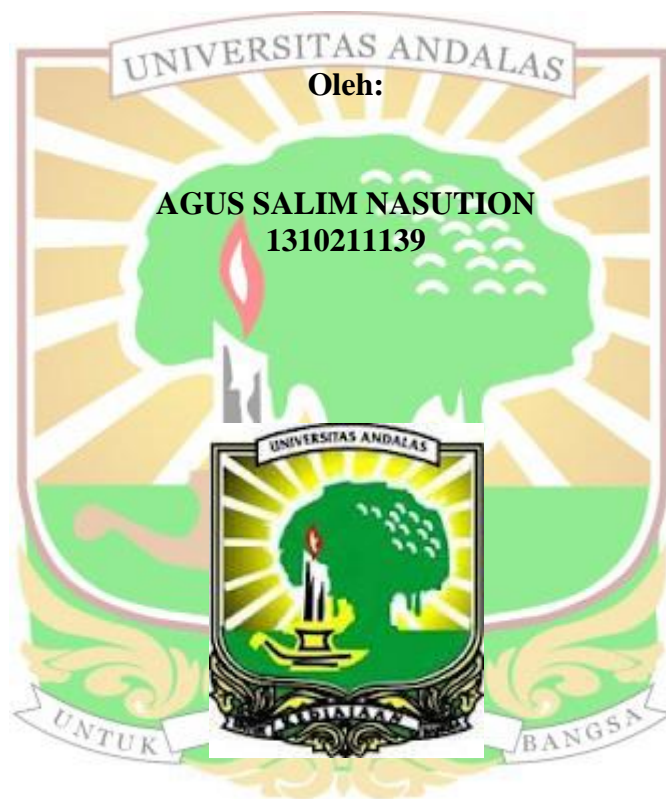


**KEMAMPUAN ISOLAT RIZOBAKTERI INDIGENOS UNTUK  
PENGENDALIAN PENYAKIT LAYU BAKTERI (*Ralstonia  
solanacearum* E.F. Smith) DAN PENINGKATAN  
PERTUMBUHAN SERTA HASIL TOMAT**

**SKRIPSI**



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# Kemampuan Isolat Rizobakteri Indigenos Untuk Pengendalian Penyakit Layu Bakteri (*Ralstonia Solanacearum* E.F. Smith) Dan Peningkatan Pertumbuhan Serta Hasil Tomat

## ABSTRAK

Bakteri yang aktif mengkolonisasi perakaran tanaman adalah kelompok Rizobakteri yang telah banyak dilaporkan mampu mengendalikan patogen dan meningkatkan pertumbuhan tanaman. Tujuan penelitian untuk memperoleh isolat Rizobakteri indigenos terbaik dalam mengendalikan penyakit layu bakteri dan meningkatkan pertumbuhan tanaman tomat secara *in planta* serta karakterisasi kemampuan fisiologisnya secara *in vitro*. Penelitian terdiri dari 2 tahap dengan menggunakan Rancangan Acak Lengkap (RAL). (1) Pengujian isolat Rizobakteri indigenos (RBI) sebagai PGPR pada persemaian tomat terdiri dari 19 perlakuan (18 isolat RBI dan 1 kontrol) dengan masing-masing 10 ulangan. (2) Pengujian isolat RBI untuk pengendalian *Ralstonia solanacearum* pada tanaman tomat yang terdiri 21 perlakuan (18 isolat RBI, streptomisin sulfat, tanpa inokulasi *Ralstonia solanacearum* sebagai kontrol + dan inokulasi *Ralstonia solanacearum* sebagai kontrol -) dengan masing-masing 5 ulangan, serta pengujian karakter fisiologis RBI dalam memacu pertumbuhan tanaman tomat. Data dianalisis dengan sidik ragam dan apabila berbeda nyata dilanjutkan dengan uji *Least Significance Different* (LSD) pada taraf 5%. Hasil penelitian menunjukkan Isolat RZ2AB2.1 dan RZ1BPL2.3 merupakan isolat yang memiliki kemampuan paling baik dalam mengendalikan *R. solanacearum*, meningkatkan pertumbuhan tanaman serta hasil tomat dengan efektivitas 63,71% dan 60,92%. Hasil pengujian karakter fisiologis RBI sebagai PGPR menunjukkan Semua isolat mampu memproduksi hormon tumbuh IAA. Dua isolat (RZ1BPL2.3 dan RZ1AB2.3) mampu melarutkan fosfat.

Kata kunci: *in planta*, *Ralstonia solanacearum*, Rizobakteri indigenos, tomat

# The Ability Of Indigenos Rizobacterial Isolates For Bacterial Wilt Diseases Control (*Ralstonia Solanacearum* E.F. Smith) And Increase Of Growth And Tomato Yield

## ABSTRACT

Bacteria that actively colonize plant roots are a group of *Rizobacteri* that have been reported able to control many pathogens and increase plant growth. The objective of this research was to obtain the best *Indigenous Rhizobacterial* isolates in controlling of bacterial wilt disease and to increase the growth of tomato plant *in planta* and characterization of physiological ability *in vitro*. This research consisted of 2 stages: by using Completely Randomized Design (CRD or RAL *in bahasa*): (1) *Indigenous Rizobacterial* isolates testing (RBI) as PGPR in tomato seedbad process that consist of 19 treatments (18 RBI Isolates and control) with 10 replication, (2) RBI isolates testing for controlling *Ralstoniasolanacearum* on tomato plants that consist of 21 treatments (18 RBI isolates, *Streptomycin Sulphate*: without *Ralstoniasolanacearum* inoculation as positive control, and with *Ralstonia solanacearum* inoculation as negative control) with 5 replication; and then RBI physiological character testing in spurring the growth of tomato plants. Data were analyzed by using analysis of variance; if the result significantly different, it was continued by using Least Significance Different (LSD) test at 5% significant level. The results of research showed that RZ2AB2.1 isolates and RZ1BPL2.3 isolates were the best isolates that had the ability to control *R. solanacearum*, increased the plants growth and tomato yield with the effectiveness of 63.71% and 60.92%. RBI physiological character testing as PGPR showed all of the isolates were able to produce IAA growing hormone. Both of the isolates (RZ1BPL2.3 and RZ1AB2.3) were able to dissolve phosphate.

Keywords: Indigenous Rizobacterial, *in planta*, *Ralstonia solanacearum*, tomato