

POTENSI KONSORSIUM *PLANT GROWTH PROMOTING BACTERIA* UNTUK PENGENDALIAN NEMATODA *Meloidogyne* spp. DAN PENGARUHNYA TERHADAP PRODUKSI TANAMAN TOMAT (*Lycopersicum esculentum* Mill.)



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ABSTRAK

Plant Growth Promoting Bacteria merupakan bakteri yang menguntungkan dan dapat berperan sebagai agens biokontrol serta dapat meningkatkan pertumbuhan tanaman. Aplikasi *Plant Growth Promoting Bacteria* (PGPB) dengan konsorsium lebih efektif dalam mengendalikan penyakit dan meningkatkan pertumbuhan dibandingkan aplikasi secara tunggal. Tujuan penelitian untuk mendapatkan konsorsium PGPB untuk mengendalikan nematoda *Meloidogyne* spp. dan meningkatkan produksi tanaman tomat. Penelitian secara eksperimental dengan Rancangan Acak Lengkap (RAL) terdiri dari 7 kombinasi perlakuan strain PGPB dan dua kontrol. Setiap perlakuan terdiri 8 ulangan. Strain PGPB yang digunakan adalah *B. thuringiensis* strain MRSNRZ.3.1, *B. subtilis* strain MRTDUMBE.3.2.1, *B. mycoides* strain MRSNUMBE.2.2, *B. waihenstephanensis* strain RBTLL.3.2, *B. cereus* strain MRPLUMBE.1.3, *Bacillus* sp. strain MRSPRZ.1.1, *Pseudomonas hibiscicola* strain MRTLDRZ.2.2, *Achromobacter insolitus* strain MRBPUMBE.1.3. Parameter yang diamati adalah perkembangan penyakit, pertumbuhan dan hasil tanaman tomat. Konsorsium PGPB terbaik dalam menekan perkembangan nematoda *Meloidogyne* spp dan meningkatkan produksi tanaman tomat adalah perlakuan konsorsium G (*B. thuringiensis* strain MRSNRZ.3.1 + *B. subtilis* strain MRTDUMBE.3.2.1 + *B. mycoides* strain MRSNUMBE.2.2 + *B. waihenstephanensis* strain RBTLL.3.2 + *B. cereus* strain MRPLUMBE.1.3 + *Bacillus* sp strain MRSPRZ.1.1 + *Pseudomonas hibiscicola* strain MRTLDRZ.2.2 + *Achromobakter insolitus* strain MRBPUMBE.1.3) dengan jumlah bengkak akar sebanyak 4,00, kelompok telur sebanyak 3,25, telur sebanyak 335,75, serta nematoda dalam sampel tanah sebanyak 6,25 dan jumlah buah yang dihasilkan mencapai 8,25 buah dengan bobot total 453,52 g.

Kata kunci : Konsorsium, *Meloidogyne* spp, PGPB, Tomat

POTENTIAL CONSORTIUM OF *PLANT GROWTH PROMOTING BACTERIA* TO CONTROL NEMATODE *Meloidogyne* spp. AND ITS EFFECT ON THE PRODUCTION OF TOMATO (*Lycopersicon esculentum* Mill.)

ABSTRACT

Plant Growth Promoting Bacteria are beneficial bacteria that can act as biocontrol agents and can increase plant growth. The application of *Plant Growth Promoting Bacteria* (PGPB) with a consortium is more effective in controlling disease and increasing growth than a single application. The aim of the study was to obtain a consortium of PGPB to control *Meloidogyne* spp. nematodes and increase tomato plant production. The research was experimental with a completely randomized design (CRD) consisting of 7 treatment combinations of PGPB strains and two controls. Each treatment consisted of 8 replicates. The PGPB strains used were *B. thuringiensis* strain MRSNRZ.3.1, *B. subtilis* strain MRTDUMBE.3.2.1, *B. mycoides* strain MRSNUMBE.2.2, *B. waihenstephanensis* strain RBTLL.3. .2, *B. cereus* strain MRPLUMBE.1.3, *Bacillus* sp. strain MRSPRZ.1.1, *Pseudomonas hibiscicola* strain MRTLDRZ.2.2, *Achromobacter insolitus* strain MRBPUMBE.1.3. The parameters observed were disease development, growth and yield of tomato plants. The best PGPB consortium in suppressing the development of *Meloidogyne* spp. nematodes and increasing tomato plant production is the consortium treatment G (*B. thuringiensis* strain MRSNRZ.3.1 + *B. subtilis* strain MRTDUMBE.3.2.1 + *B. mycoides* strain MRSNUMBE.2.2 + *B. waihenstephanensis* strain RBTLL.3.2 + *B. cereus* strain MRPLUMBE.1. .3 + *Bacillus* sp strain MRSPRZ.1.1 + *Pseudomonas hibiscicola* strain MRTLDRZ.2.2 + *Achromobakter insolitus* strain MRBPUMBE.1.3) with the number of swollen roots as much as 4.00, egg clusters as much as 3.25, eggs as much as 335.75, as well as nematodes in soil samples as much as 6.25 and the number of fruits produced reached 8.25 fruits with a total weight of 453.52 g.

Keywords : Consortium, *Meloidogyne* spp., PGPB, Tomato