RINGKASAN

Berkembangnya pertanian organik didorong oleh gerakan masyarakat seiring dengan meningkatnya kesadaran akan kesehatan yang menjadi sebuah trend, yaitu gerakan untuk hidup sehat. Pemanfaatan rizobakteria yang berperan sebagai *Plant Growth Promoting Rhizobacteria* (PGPR) menjadi cara untuk meningkatkan produktivitas tanaman. PGPR merupakan bakteri yang hidup didaerah rhizosfer yang dapat meningkatkan pertumbuhan dan hasil tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian berbagai jenis PGPR terhadap pertumbuhan dan hasil tanaman selada serta mendapatkan isolat PGPR paling efektif pertumbuhan dan hasil tanaman selada.

Penelitian dilaksanakan di *screen house* di Desa Windujaya Kecamatan Kedungbanteng, Kabupaten Banyumas, Jawa Tengah dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian Universitas Jenderal Soedirman mulai bulan Februari sampai April 2019. Rancangan perlakuan yang digunakan adalah Rancangan Acak Kelompok Lengkap (RAKL) dengan 10 perlakuan dan diulang tiga kali. Perlakuan yang dicoba yaitu kontrol tanpa inokulasi isolat PGPR (P0), isolat J04 (P1), isolat P02 (P2), isolat P07 (P3), isolat P10 (P4), isolat R01 (P5), isolat R08 (P6), isolat R11 (P7), isolat R12 (P8), isolat U03 (P9). Variabel yang diamati meliputi panjang akar total, jumlah daun, kehijauan daun, luas daun, lebar bukaan stomata, kerapatan stomata, tinggi tanaman, bobot segar tajuk, bobot kering tajuk, dan biomassa kering. Data yang diperoleh dianalisis dengan ANOVA; F apabila berbeda nyata dilanjutkan dengan uji *Duncan Multiple Range Test* (DMRT) dan tingkat kesalahan 5%.

Hasil penelitian menunjukkan bahwa aplikasi isolat PGPR J04 menghasilkan tinggi tanaman selada pada umur 14 hst sebesar 10,50 cm, isolat PGPR P07 menghasilkan kehijauan daun pada umur 35 hst sebesar 19,33 SPAD unit dan panjang akar total pada umur 35 hst sebesar 36,92 cm. Aplikasi isolat PGPR belum menunjukkan perbedaan hasil tanaman selada antar isolat PGPR.

SUMMARY

The development of organic agriculture is driven by community movements along with the increasing awareness of health which is becoming a trend, a movement to live healthy. The use of rhizobacteria that acts as Plant Growth Promoting Rhizobacteria (PGPR) is a way to increase crop productivity. PGPR is a bacteria that lives in the rhizosphere area which can increase plant growth and yield. This research aims to determine the effect of giving various types of PGPR to the growth and yield of lettuce plants and to obtain the most effective PGPR isolates that have the best effect on the growth and yield of lettuce plants.

The research was conducted at a screen house in Windujaya Village, Kedungbanteng District, Banyumas Regency, Central Java and the Laboratory of Agronomy and Horticulture, Faculty of Agriculture, Jenderal Soedirman University from February to April 2019. The treatment design used was a Complete Randomized Block Design with 10 treatments and was repeated three times. The treatments tested were control without inoculation of PGPR (P0) isolate, J04 (P1) isolate, P02 isolate (P2), P07 isolate (P3), P10 isolate (P4), R01 isolate (P5), isolate R08 (P6), isolate R11 (P7), isolate R12 (P8), isolate U03 (P9). The observed variables included total root length, number of leaves, leaf greenness, leaf area, stomata porous width, stomata density, plant height, canopy fresh weight, canopy dry weight, and dry biomass. The data obtained were analyzed with ANOVA; F if significantly different is followed by Duncan Multiple Range Test (DMRT) and an error rate of 5%.

The results showed that the application of PGPR J04 isolate produced lettuce height at the age of 14 days after planting reached 10.50 cm, PGPR P07 isolate produced leaf greenness at 35 days after planting reached 19.33 SPAD units and the total root length at 35 days after planting reached 36.92 cm. The application of the PGPR isolate did not shown the effect on crop yield.