RINGKASAN

Stevia merupakan tanaman yang dapat dijadikan sumber bahan pemanis alami non-kalori yang aman dikonsumsi oleh penyandang diabetes dan obesitas. Upaya memperluas lahan budidaya stevia untuk meningkatkan produksi dapat dilakukan dengan memanfaatkan lahan marginal berupa tanah Ultisol. Namun, budidaya pada tanah Ultisol memiliki kendala yaitu rendahnya kadar fosfat tersedia akibat fiksasi Al dan Fe. Salah satu cara yang dapat digunakan untuk peningkatan ketersediaan fosfat dalam tanah Ultisol yaitu dengan pemberian bakteri pelarut fosfat. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian bakteri pelarut fosfat dan mengetahui jenis isolat yang memberikan pengaruh terbaik terhadap pertumbuhan dan hasil tanaman stevia yang ditanam di tanah Ultisol.

Penelitian dilaksanakan di Laboratorium Agronomi dan Hortikultura serta Kebun Percobaan Fakultas Pertanian, Universitas Jenderal Soedirman pada bulan Januari 2024 hingga April 2024. Rancangan percobaan yang digunakan dalam penelitian ini adalah Rancangan Acak Kelompok (RAK) non faktorial yang terdiri dari 8 perlakuan dan 4 ulangan. Perlakuan yang dicoba terdiri P0 (kontrol), P1 (isolat S3), P2 (isolat N15), P3 (isolat N19), P4 (konsorsium isolat S3 dan N15), P5 (konsorsium isolat S3 dan N19), P6 (konsorsium isolat N15 dan N19), dan P7 (konsorsium isolat S3, N15, dan N19). Variabel yang diamati yaitu tinggi tanaman, jumlah daun, luas daun, kehijauan daun, panjang akar terpanjang, volume akar, bobot akar segar, bobot akar kering, bobot tanaman segar, bobot tanaman kering, bobot daun segar, bobot daun kering, kadar kemanisan, dan indeks panen. Data hasil pengamatan dianalisis dengan analisis sidik ragam (ANOVA) pada taraf 5%. Apabila signifikan, dilakukan UJGD pada taraf 5 %.

Hasil penelitian menunjukkan bahwa perlakuan pemberian bakteri pelarut fosfat berpengaruh terhadap komponen pertumbuhan dan hasil tanaman yang diamati, kecuali kehijauan daun dan kadar kemanisan. Perlakuan P7 (konsorsium isolat S3, N15, dan N19) memberikan hasil terbaik dengan meningkatkan pertumbuhan dan hasil tanaman stevia yaitu tinggi tanaman, jumlah daun, luas daun, bobot tanaman segar, bobot tanaman kering, bobot daun segar, dan bobot daun kering. Pada variabel volume akar, bobot akar segar, bobot akar kering perlakuan P7 juga memberikan pengaruh terbaik tetapi tidak berbeda dengan perlakuan P4 (konsorsium S3 dan N15).

SUMMARY

Stevia is a plant used as a source of natural, non-calorie sweeteners that are safe for consumption by people with diabetes and obesity. Efforts to expand stevia cultivation land to increase production can be done by utilizing marginal land in the form of Ultisol soil. However, cultivation on Ultisol soil has problems, namely low levels of available phosphate due to Al and Fe fixation. One method that can be used to increase the availability of phosphate in Ultisol soil is by providing phosphate solubilizing bacteria. This research aims to determine the effect of administering phosphate solubilizing bacteria and to determine the type of isolate that has the best influence on the growth and yield of stevia plants grown in Ultisol soil.

The research was carried out at the Agronomy and Horticulture Laboratory and Experimental Garden, Faculty of Agriculture, Jenderal Soedirman University from January 2024 to April 2024. The experimental design used in this research was a non-factorial Randomized Group Design (RBD) consisting of 8 treatments and 4 replications. The treatments tried consisted of P0 (control), P1 (isolate S3), P2 (isolate N15), P3 (isolate N19), P4 (consortium of isolates S3 and N15), P5 (consortium of isolates S3 and N19), P6 (consortium of isolates N15 and N19), and P7 (consortium of isolates S3, N15, and N19). The variables observed were plant height, number of leaves, leaf area, leaf greenness, longest root length, root volume, fresh root weight, dry root weight, fresh plant weight, dry plant weight, fresh leaf weight, dry leaf weight, sweetness content, and harvest index. Observation data were analyzed using analysis of variance (ANOVA) with a level of 5%. If it is significant, a further test is carried out with DMRT test at the 5% level.

The results of the research showed that treatment with phosphate solubilizing bacteria had a significant effect on plant growth and yield components, namely plant height, number of leaves, leaf area, root volume, fresh root weight, dry root weight, fresh plant weight, dry plant weight, fresh leaf weight, dry leaf weight, and harvest index. Treatment P7 (consortium of isolates S3, N15, and N19) gave the best results by increasing the growth and yield of stevia plants, namely plant height, number of leaves, leaf area, fresh plant weight, dry plant weight, fresh leaf weight, and dry leaf weight. On the variables of root volume, fresh root weight, dry root weight, the P7 treatment also had the best effect but was not significantly different from the P4 treatment (consortium S3 and N15).