

## RINGKASAN

Tanaman selada (*Lactuca sativa* L.) merupakan salah satu jenis tanaman sayuran yang populer di Indonesia. Permintaan selada di Indonesia mengalami peningkatan sebesar 5 % dari tahun 2015 hingga 2018, seiring dengan kesadaran masyarakat akan pentingnya mengonsumsi sayuran. Salah satu upaya memenuhi kebutuhan permintaan selada adalah dengan budidaya secara hidroponik, dan pemberian bakteri penghasil IAA. Hormon IAA yang dihasilkan oleh bakteri dapat meningkatkan efisiensi penyerapan nutrisi oleh tanaman sehingga dapat mempercepat pertumbuhan atau memperbesar ukuran tanaman, dengan harapan dapat mengurangi ketergantungan pada nutrisi AB Mix dan mengurangi biaya produksi.

Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) dengan dua faktor perlakuan. Faktor pertama adalah konsentrasi AB Mix yang terdiri dari tiga taraf yaitu pengurangan dosis 0%, 25%, dan 50%. Faktor kedua adalah jenis isolat bakteri penghasil IAA yaitu perlakuan tanpa isolat bakteri, isolat S3, N15, dan N19. Penelitian ini terdiri dari 12 kombinasi perlakuan dengan 3 kali ulangan menghasilkan 36 unit satuan percobaan. Variabel yang diamati yaitu tinggi tanaman, jumlah daun, luas daun, warna (kehijauan) daun, volume akar, panjang akar, bobot tanaman segar, bobot tanaman kering, bobot tajuk segar, bobot tajuk kering, bobot akar segar, bobot akar kering, kerapatan stomata, lebar bukaan stomata, dan kandungan klorofil. Data hasil pengamatan dianalisis menggunakan uji ANOVA dengan tingkat kesalahan 5%. Apabila signifikan, dilakukan uji lanjut DMRT (*Duncan Multiple Range Test*) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan bahwa perlakuan pengurangan dosis AB Mix berpengaruh nyata terhadap pertumbuhan dan hasil tanaman selada. Perlakuan tanpa pengurangan dosis AB Mix (0%) memberikan hasil terbaik pada variabel tinggi tanaman 21 HST, jumlah daun 35 HST, warna daun, volume akar, bobot akar segar, bobot tajuk kering, bobot tanaman kering, dan kandungan klorofil. Pemberian bakteri penghasil IAA berpengaruh nyata terhadap pertumbuhan dan hasil tanaman selada. Bakteri penghasil IAA isolat S3 memberikan hasil terbaik pada variabel tinggi tanaman, jumlah daun, luas daun, volume akar, panjang akar, bobot akar segar, bobot akar kering, bobot tajuk segar, bobot tajuk kering, bobot tanaman segar, dan bobot tanaman kering. Terdapat interaksi antara pengurangan dosis AB Mix dan pemberian bakteri penghasil IAA terhadap pertumbuhan dan hasil tanaman selada. Interaksi terbaik didapati pada perlakuan P0K1 (pengurangan 0% dan isolat S3) dan P1K1 (pengurangan 25% dan isolat S3). Pengurangan dosis AB Mix 0% dan isolat S3 memiliki hasil tertinggi, dan perlakuan pengurangan dosis AB Mix 25% dan bakteri penghasil IAA isolat S3 dapat menjadi alternatif perlakuan terbaik.

## SUMMARY

*Lettuce (Lactuca sativa L.) is one of the vegetable crops favored by the community in Indonesia. The demand for lettuce in Indonesia has increased by 5% from 2015 to 2018, in line with the public awareness of the importance of consuming vegetables. One effort to meet the demand for lettuce is through hydroponic cultivation and the application of IAA-producing bacteria. IAA hormone produced by bacteria can enhance nutrient absorption efficiency in plants, thereby accelerating growth or enlarging plant size, with the hope of reducing dependence on AB Mix nutrients and reducing production costs.*

*This research used a Randomized Complete Block Design (RCBD) with two treatment factors. The first factor is the concentration of AB Mix consisting of three levels: 0%, 25%, and 50% dosage reduction. The second factor is the type of IAA-producing bacterial isolate, namely treatment without bacterial isolates, isolates S3, N15, and N19. The study consisted of 12 treatment combinations with 3 replications, resulting in 36 experimental units. The observed variables included plant height, number of leaves, leaf area, leaf color (greenness), root volume, root length, fresh plant weight, dry plant weight, fresh shoot weight, dry shoot weight, fresh root weight, dry root weight, stomatal density, stomatal aperture width, and chlorophyll content. Observation data were analyzed using ANOVA with a 5% error level. If significant, a further DMRT (Duncan Multiple Range Test) was conducted at a 5% error level.*

*The research results indicate that the reduction of AB Mix dosage significantly affects the growth and yield of lettuce plants. The treatment without reducing the AB Mix dosage (0%) yielded the best results in terms of plant height at 21 DAP, leaf count at 35 DAP, leaf color, root volume, fresh root weight, dry shoot weight, dry plant weight, and chlorophyll content. The application of IAA-producing bacteria significantly influenced the growth and yield of lettuce plants. The IAA-producing bacteria, isolate S3, showed the best results in variables such as plant height, leaf count, leaf area, root volume, root length, fresh root weight, dry root weight, fresh shoot weight, dry shoot weight, fresh plant weight, and dry plant weight. There is an interaction between the reduction of AB Mix dosage and the application of IAA-producing bacteria on the growth and yield of lettuce plants. The best interaction is observed in treatments P0K1 (0% reduction and isolate S3) and P1K1 (25% reduction and isolate S3). 0% reduction in AB Mix dosage combined with isolate S3 shows the highest results, and the treatment with a 25% reduction in AB Mix dosage along with IAA-producing bacteria isolate S3 could be considered an alternative and effective treatment.*