

RINGKASAN

Selada (*Lactuca sativa* L.) merupakan jenis sayuran yang banyak diminati masyarakat dalam makanan. Selada berpotensi tinggi dalam dunia agribisnis karena selain mudah dibudidayakan, selada juga bernilai jual tinggi. Namun, selada mengalami penurunan produksi sebanyak 9,69% dari tahun 2022 yaitu 7.606.082 kuintal dan tahun 2023 yaitu 6.868.757 kuintal. Budidaya secara hidroponik dan pemberian bakteri yang dapat membantu tanaman menghasilkan hormon IAA merupakan salah satu usaha untuk meningkatkan produksi selada kembali. Sistem hidroponik *wick* dapat menjadi alternatif karena membutuhkan biaya yang terjangkau serta pemberian bakteri penghasil IAA yang dapat membantu tanaman meningkatkan pertumbuhan dan perkembangan tanaman, sehingga diharapkan mampu meningkatkan produksi tanaman sekaligus menekan biaya produksi. Penelitian ini bertujuan untuk menguji efektivitas konsorsium bakteri penghasil IAA terhadap pertumbuhan dan hasil tanaman selada pada sistem hidroponik *Wick*.

Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) non faktorial yang terdiri atas 8 perlakuan, yakni tanpa pemberian IAA, 3 perlakuan aplikasi bakteri S3, N15, dan N19 secara tunggal; 3 perlakuan konsorsium 2 bakteri penghasil IAA, dan 1 perlakuan konsorsium 3 bakteri penghasil IAA. Setiap perlakuan diulang sebanyak 4 kali, sehingga diperoleh 32 unit percobaan. Aplikasi dilakukan sore hari dengan interval setiap 7 hari sekali. Variabel yang diamati, yaitu tinggi tanaman, jumlah daun, luas daun, kehijauan daun, kandungan klorofil, panjang akar, volume akar, bobot tanaman segar, bobot bobot tajuk segar, bobot akar segar, tanaman kering, bobot tajuk kering, bobot akar kering, kerapatan stomata, dan lebar bukaan stomata. Data hasil pengamatan dianalisis menggunakan uji ANOVA dengan tingkat kesalahan 5%. Apabila berpengaruh nyata, dilakukan uji lanjut *Duncan Multiple Range Test* (DMRT) pada taraf kesalahan 5%.

Hasil penelitian menunjukkan adanya pengaruh nyata dari aplikasi bakteri penghasil IAA secara konsorsium S3+N15 terhadap tinggi tanaman (14,19%); secara konsorsium S3+N15+N19 terhadap panjang akar total (17,30%) kandungan klorofil (29,35%) bobot akar segar (46,55%), bobot tajuk segar (187,25%), bobot tanaman segar (180,74%), bobot tajuk kering (32,03%), dan bobot tanaman kering (30%) tanaman selada pada sistem hidroponik *Wick*.

SUMMARY

Lettuce (Lactuca sativa L.) is a type of vegetable that is widely favored by people in food. Lettuce has high potential in agribusiness because, besides being easy to cultivate, it also has a high selling value. However, lettuce experienced a production decline of 9.69% from 2022, which was 7.606.082 quintals, to 2023, which was 6.868.757 quintals. Hydroponic cultivation and the application of bacteria that can help plants produce IAA hormone are among the efforts to increase lettuce production again. The wick hydroponic system can be an alternative because it requires affordable costs, and the application of IAA-producing bacteria can help plants increase growth and development, thus expected to boost plant production while reducing production costs. This study aims to test the effectiveness of a consortium of IAA-producing bacteria on the growth and yield of lettuce plants in the Wick hydroponic system.

This study uses Randomized Block Design (RBD) consisting of 8 treatments: no IAA application; 3 treatments with single bacteria applications S3, N15, and N19; 3 treatments with a consortium of 2 IAA-producing bacteria; and 1 treatment with a consortium of 3 IAA-producing bacteria. Each treatment was replicated 4 times, resulting in 32 experimental units. Applications were carried out in the afternoon at 7-day intervals. Observed variables included plant height, number of leaves, leaf area, leaf greenness, chlorophyll content, root length, root volume, fresh plant weight, fresh shoot weight, fresh root weight, dry plant weight, dry shoot weight, dry root weight, stomatal density, and stomatal aperture width. Data were analyzed using ANOVA with a 5% error level. If a significant effect was found, further analysis was conducted using Duncan Multiple Range Test (DMRT) at 5% error level.

The results showed a significant effect from the application of the IAA-producing bacterial consortium S3+N15 on plant height (14.19%); and the consortium S3+N15+N19 on total root length (17.30%), chlorophyll content (29.35%), fresh root weight (46.55%), fresh shoot weight (187.25%), fresh plant weight (180.74%), dry shoot weight (32.03%), and dry plant weight (30%) of lettuce plants in the Wick hydroponic system.