ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh pemanfaatan Pupuk Organik Cair (POC) *Bacillus nigr* terhadap pertumbuhan dan hasil tanaman selada (*Lactuca sativa*) yang dibudidayakan di rumah kasa, serta menentukan dosis yang paling efektif dalam meningkatkan produktivitas tanaman. Manfaat penelitian ini adalah untuk memberikan solusi alternatif pemupukan ramah lingkungan yang dapat meningkatkan kesuburan tanah, mengurangi ketergantungan pada pupuk kimia, serta meningkatkan daya tahan tanaman terhadap cekaman lingkungan. Penelitian dilaksanakan di UPTD Benih Induk Hortikultura Gedung Johor, Medan, dari bulan September hingga Desember 2025. Metode yang digunakan adalah Rancangan Acak Lengkap (RAL) non-faktorial dengan 5 perlakuan dosis POC *Bacillus nigr*, yaitu: P0 (kontrol/0 mL/L), P1 (125 mL/L), P2 (150 mL/L), P3 (175 mL/L), dan P4 (200 mL/L). Masing-masing perlakuan diulang sebanyak 5 kali sehingga terdapat 25 unit percobaan. Parameter yang diamati meliputi tinggi tanaman, jumlah daun, luas daun, dan berat segar tanaman. Hasil penelitian menunjukkan bahwa pemberian POC *Bacillus nigr* berpengaruh sangat nyata terhadap tinggi tanaman, luas daun, dan berat segar tanaman selada, namun tidak berpengaruh nyata terhadap jumlah daun. Perlakuan P2 (150 mL/L) memberikan hasil terbaik untuk parameter tinggi tanaman dengan rata-rata tertinggi pada 42 HST sebesar 21,3 cm. Perlakuan P4 (200 mL/L) menghasilkan luas daun terbesar (148,9 cm^2) dan berat segar tertinggi (32,6 g) pada 42 HST. Berdasarkan analisis statistik menggunakan ANOVA dan uji lanjut Tukey pada taraf 5%, perlakuan P2 dan P4 menunjukkan hasil yang berbeda nyata dibandingkan kontrol (P0).

Kata kunci: *Bacillus nigr*, dosis pupuk, pupuk organik cair, rumah kasa, selada (*Lactuca sativa*)

ABSTRACT

utilization of *bacillus nigr* liquid organic fertilizer in increasing lettuce *(lactuca sativa)* in screen house. This study aims to analyze the effect of utilizing *Bacillus nigr* Liquid Organic Fertilizer (LOF) on the growth and yield of lettuce (Lactuca sativa) cultivated in a screen house, and to determine the most effective dosage in increasing plant productivity. The benefit of this research is to provide an environmentally friendly alternative fertilization solution that can improve soil fertility, reduce dependence on chemical fertilizers, and increase plant resistance to environmental stress. The research was conducted at the UPTD Benih Induk Hortikultura Gedung Johor, Medan, from September to December 2025. The method used was a non-factorial Completely Randomized Design (CRD) with 5 treatments of *Bacillus nigr* LOF dosages: P0 (control/0 mL/L), P1 (125 mL/L), P2 (150 mL/L), P3 (175 mL/L), and P4 (200 mL/L). Each treatment was repeated 5 times resulting in 25 experimental units. Parameters observed included plant height, number of leaves, leaf area, and fresh weight. The results showed that the application of *Bacillus nigr* LOF had a very significant effect on plant height, leaf area, and fresh weight of lettuce, but had no significant effect on the number of leaves. The P2 treatment (150 mL/L) gave the best results for plant height parameter with the highest average at 42 DAP of 21.3 cm. The P4 treatment (200 mL/L) produced the largest leaf area (148.9 cm^2) and the highest fresh weight (32.6 g) at 42 DAP. Based on statistical analysis using ANOVA and Tukey's further test at 5% level, P2 and P4 treatments showed significantly different results compared to the control (P0).

Keywords: *Bacillus nigr*, fertilizer dosage, liquid organic fertilizer, lettuce (Lactuca sativa), screen house