

ABSTRAK

PENGARUH PEMBERIAN PUPUK ECO ENZYME, POC TEKNOLOGI NANO, DAN AB-MIX TERHADAP PERTUMBUHAN DAN HASIL PANEN TANAMAN SELADA (*Lactuca sativa* L.) PADA SISTEM HIDROPONIK NFT

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Selada (*Lactuca sativa* L.) merupakan komoditas hortikultura yang banyak dibudidayakan secara hidroponik karena memiliki nilai ekonomi tinggi dan permintaan pasar yang terus meningkat. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian eco enzyme, pupuk organik cair (POC) teknologi nano, dan AB-Mix terhadap pertumbuhan serta hasil panen tanaman selada pada sistem hidroponik Nutrient Film Technique (NFT), serta mengevaluasi kemampuan kombinasi perlakuan tersebut dalam menggantikan sebagian penggunaan AB-Mix. Penelitian dilaksanakan pada November hingga Desember 2025 di Bandar Lampung menggunakan Rancangan Acak Lengkap (RAL) dengan empat perlakuan dan enam ulangan. Perlakuan yang diuji terdiri atas P1 = 100% AB-Mix, P2 = 75% AB-Mix + eco enzyme, P3 = 75% AB-Mix + 25% POC teknologi nano, dan P4 = 75% AB-Mix + 25% POC teknologi nano + eco enzyme. Eco enzyme diaplikasikan melalui penyemprotan daun dengan konsentrasi 2 mL L⁻¹ air. Data dianalisis menggunakan analisis ragam dan dilanjutkan dengan uji Beda Nyata Terkecil (BNT) pada taraf 5%. Hasil penelitian menunjukkan bahwa perlakuan berpengaruh nyata terhadap jumlah daun, panjang daun, lebar daun, tingkat kehijauan daun, bobot basah tajuk, dan bobot kering tajuk, tetapi tidak berpengaruh nyata terhadap tinggi tanaman, bobot basah akar, volume akar, dan panjang akar. Perlakuan P1 (100% AB-Mix) menghasilkan panjang dan lebar daun tertinggi, perlakuan P4 (75% AB-Mix + 25% POC teknologi nano + eco enzyme) menghasilkan nilai tertinggi pada jumlah daun, tingkat kehijauan daun, bobot basah tajuk dan bobot kering tajuk. Hasil penelitian menunjukkan bahwa penggunaan POC teknologi nano dan eco enzyme berpotensi menggantikan sebagian penggunaan AB-Mix tanpa menurunkan pertumbuhan dan hasil tanaman selada pada sistem hidroponik NFT.

Kata kunci: AB-Mix, eco enzyme, hidroponik NFT, POC teknologi nano, selada.

ABSTRACT

THE EFFECT OF ECO ENZYME, NANO-TECHNOLOGY LIQUID ORGANIC FERTILIZER, AND AB-MIX ON THE GROWTH AND YIELD OF LETTUCE (*Lactuca sativa* L.) IN AN NFT HYDROPONIC SYSTEM

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Lettuce (*Lactuca sativa* L.) is a horticultural crop widely cultivated in hydroponic systems due to its high economic value and increasing market demand. This study aimed to determine the effects of eco enzyme, nano-technology liquid organic fertilizer (LOF), and AB-Mix on the growth and yield of lettuce grown in a Nutrient Film Technique (NFT) hydroponic system, as well as to evaluate the potential of these treatments to partially replace AB-Mix fertilizer. The study was conducted from November to December 2025 in Bandar Lampung using a Completely Randomized Design (CRD) consisting of four treatments and six replications. The treatments were P1 = 100% AB-Mix, P2 = 75% AB-Mix + eco enzyme, P3 = 75% AB-Mix + 25% nano-technology LOF, and P4 = 75% AB-Mix + 25% nano-technology LOF + eco enzyme. Eco enzyme was applied through foliar spraying at a concentration of 2 mL L⁻¹ of water. The data were analyzed using analysis of variance (ANOVA), followed by the Least Significant Difference (LSD) test at the 5% significance level. The results showed that the treatments significantly affected the number of leaves, leaf length, leaf width, leaf greenness, shoot fresh weight, and shoot dry weight, but had no significant effect on plant height, root fresh weight, root volume, and root length. Treatment P1 (100% AB-Mix) produced the highest leaf length and leaf width, while treatment P4 (75% AB-Mix + 25% nano-technology LOF + eco enzyme) resulted in the highest number of leaves, leaf greenness, shoot fresh weight, and shoot dry weight. The findings indicate that nano-technology liquid organic fertilizer and eco enzyme have the potential to partially replace AB-Mix without reducing the growth and yield of lettuce cultivated in an NFT hydroponic system.

Keywords: AB-Mix, eco enzyme, lettuce, nano-technology liquid organic fertilizer, NFT hydroponic system.