ABSTRAK

EFEKTIVITAS PEMBERIAN *ECO-ENZYME* DAN PUPUK ORGANIK CAIR BERBASIS TEKNOLOGI *NANOBUBBLE* BERBAHAN LIMBAH UDANG DAN ECENG GONDOK TERHADAP PERTUMBUHAN, PRODUKSI, DAN KUALITAS JAGUNG MANIS (*Zea mays saccharata* Sturt.)

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Jagung manis (*Zea mays saccharata* Sturt.) merupakan komoditas hortikultura bernilai ekonomi tinggi yang produktivitas dan kualitasnya masih perlu ditingkatkan melalui pemupukan yang efisien dan ramah lingkungan. Penelitian ini bertujuan untuk mengetahui pengaruh *eco-enzyme*, pupuk organik cair (POC) berbasis teknologi *nanobubble*, serta interaksi keduanya terhadap pertumbuhan, produksi, dan kualitas jagung manis. Penelitian dilaksanakan pada November 2025 hingga Januari 2026 di Kelurahan Kota Sepang Jaya, Kecamatan Labuhan Ratu, Bandar Lampung menggunakan Rancangan Acak Kelompok (RAK) faktorial 3 × 3 dengan tiga ulangan. Faktor pertama yaitu konsentrasi *eco-enzyme* (0, 1, dan 2 mL/L), sedangkan faktor kedua yaitu konsentrasi POC berbasis teknologi *nanobubble* (0, 5, dan 10 mL/L). Variabel yang diamati meliputi tinggi tanaman, tingkat kehijauan daun, *tasseling* 50%, *silking* 50%, panjang tongkol, bobot segar 200 biji, kadar sukrosa (Brix), susut bobot tongkol tanpa kelobot, dan produksi per petak. Data dianalisis menggunakan analisis ragam dan uji Beda Nyata Jujur (BNJ) taraf 5%. Hasil penelitian menunjukkan bahwa pemberian *eco-enzyme* dan POC berbasis teknologi *nanobubble* berpengaruh terhadap beberapa variabel pertumbuhan, produksi, dan kualitas jagung manis. Perlakuan *eco-enzyme* 2 mL/L dan POC 10 mL/L memberikan hasil terbaik pada sebagian besar variabel pengamatan. Interaksi *eco-enzyme* 1 mL/L dan POC *nanobubble* 5 mL/L memberikan pengaruh terbaik terhadap bobot segar 200 biji serta menekan susut bobot tongkol tanpa kelobot hingga H+1 panen. Dengan demikian, penggunaan *eco-enzyme* dan POC berbasis teknologi *nanobubble* berpotensi menjadi alternatif pemupukan organik berkelanjutan pada budidaya jagung manis.

Kata Kunci: *Eco-enzyme*, jagung manis, kualitas, pertumbuhan, POC *nanobubble*, produksi.

ABSTRACT

EFFECTIVENESS OF ECO-ENZYME AND NANOBUBBLE TECHNOLOGY-BASED LIQUID ORGANIC FERTILIZER DERIVED FROM SHRIMP WASTE AND WATER HYACINTH ON THE GROWTH, YIELD, AND QUALITY OF SWEET CORN (Zea mays saccharata Sturt.)

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Sweet corn (Zea mays saccharata Sturt.) is a horticultural commodity with high economic value whose productivity and quality still need to be improved through efficient and environmentally friendly fertilization. This study aimed to determine the effects of eco-enzyme, nanobubble-based liquid organic fertilizer (LOF), and their interaction on the growth, yield, and quality of sweet corn. The research was conducted from November 2025 to January 2026 in Kota Sepang Jaya Village, Labuhan Ratu District, Bandar Lampung, using a 3 × 3 factorial Randomized Complete Block Design (RCBD) with three replications. The first factor was Eco-enzyme concentration (0, 1, and 2 mL/L), while the second factor was nanobubble-based LOF concentration (0, 5, and 10 mL/L). The observed variables included plant height, leaf greenness level, 50% tasseling , 50% silking, ear length, fresh weight of 200 kernels, sucrose content (Brix), weight loss of husked ears, and yield per plot. Data were analyzed using analysis of variance followed by the Honestly Significant Difference (HSD) test at the 5% significance level. The results showed that the application of eco-enzyme and nanobubble-based LOF affected several growth, yield, and quality variables of sweet corn. The application of Eco-enzyme at 2 mL/L and LOF at 10 mL/L produced the best results for most observed variables. The interaction between eco-enzyme at 1 mL/L and nanobubble LOF at 5 mL/L showed the best effect on increasing the fresh weight of 200 kernels and reducing the weight loss of husked ears until one day after harvest. Therefore, the use of eco-enzyme and nanobubble-based LOF has the potential to become a sustainable organic fertilization alternative for sweet corn cultivation.

Keywords: *Eco-enzyme, growth, nanobubble-based liquid organic fertilizer, quality, sweet corn, yield.*