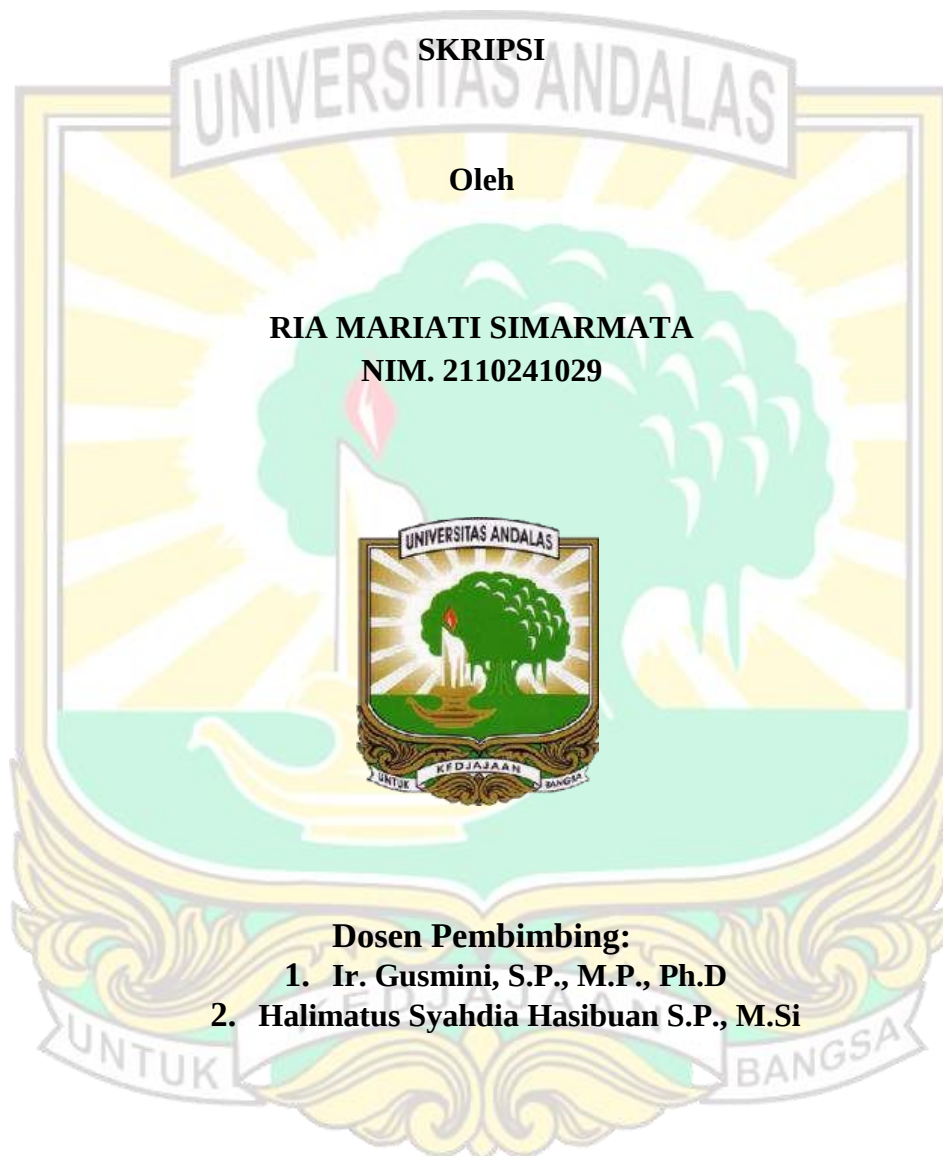


**APLIKASI *ECO-ENZYME* UNTUK MENINGKATKAN
PERTUMBUHAN BIBIT KELAPA SAWIT (*Elaeis
guineensis* Jacq.) DI MAIN NURSERY**



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APLIKASI ECO-ENZYME UNTUK MENINGKATKAN PERTUMBUHAN BIBIT KELAPA SAWIT (*Elaeis guineensis* Jacq.) DI MAIN NURSERY

ABSTRAK

Pembibitan kelapa sawit di *main nursery* merupakan tahap penting untuk menghasilkan bibit berkualitas sebelum ditanam di lapangan. Namun, rendahnya ketersediaan hara pada media tanam sering menjadi kendala dalam pertumbuhan bibit. Salah satu upaya untuk memperbaiki kualitas media tanam adalah dengan pemanfaatan *eco-enzyme*, yaitu hasil fermentasi limbah sayur dan buah yang mengandung unsur hara makro, mikro, serta senyawa bioaktif yang berpotensi meningkatkan kesuburan tanah dan pertumbuhan tanaman. Penelitian ini bertujuan untuk mengkaji pengaruh konsentrasi POC *eco-enzyme* dan ampas *eco-enzyme* dari limbah sayur dan buah terhadap pertumbuhan bibit kelapa sawit. Penelitian dilaksanakan di Nagari Sikabau, Kecamatan Pulau Punjung, Kabupaten Dharmasraya, Sumatera Barat pada Oktober 2024 sampai April 2025 dengan menggunakan Rancangan Acak Lengkap (RAL) yang terdiri atas 8 perlakuan dan 3 ulangan, yaitu tanpa pupuk, pupuk anorganik 100% rekomendasi, 1 ml *eco-enzyme* buah/1000 ml air/hari, 1 ml *eco-enzyme* sayur/1000 ml air/hari, 2 ml *eco-enzyme* buah/1000 ml air/hari, 2 ml *eco-enzyme* sayur/1000 ml air/hari, 500 g ampas *eco-enzyme* buah, dan 500 g ampas *eco-enzyme* sayur. Hasil penelitian menunjukkan bahwa perlakuan terbaik ditunjukkan oleh ampas *eco-enzyme* sayur 500 g yang berpengaruh nyata terhadap tinggi bibit, volume akar, dan rasio tajuk-akar bibit kelapa sawit. Ampas *eco-enzyme* sayur memiliki kandungan hara C-organik 44,45%, N 2,99%, P 0,70%, dan K 0,96% yang telah memenuhi standar pupuk organik padat, sehingga berpotensi menjadi alternatif pupuk organik ramah lingkungan untuk pembibitan kelapa sawit.

Kata kunci: POC *Eco-enzyme*, Ampas *Eco-enzyme*, Limbah Buah, Limbah Sayur

APPLICATION OF *ECO-ENZYME* TO ENHANCE THE GROWTH OF OIL PALM (*Elaeis guineensis* Jacq.) SEEDLINGS IN THE MAIN NURSERY

ABSTRACT

Oil palm seedling cultivation in the main nursery is an important stage to produce high-quality seedlings before field planting. However, the low availability of nutrients in the growing medium often becomes a constraint in seedling growth. One of the efforts to improve the quality of the growing medium is the utilization of *eco-enzyme*, a fermentation product of fruit and vegetable waste containing macro- and micronutrients as well as bioactive compounds that have the potential to enhance soil fertility and plant growth. This study aimed to examine the effect of liquid *eco-enzyme* concentrations and *eco-enzyme* residues derived from fruit and vegetable wastes on the growth of oil palm seedlings. The research was conducted in Nagari Sikabau, Pulau Punjung Sub-district, Dharmasraya Regency, West Sumatra, from October 2024 to April 2025 using a Completely Randomized Design (RAL) consisting of 8 treatments and 3 replications: no fertilizer, 100% recommended inorganic fertilizer, 1 ml fruit *eco-enzyme*/1000 ml water/day, 1 ml vegetable *eco-enzyme*/1000 ml water/day, 2 ml fruit *eco-enzyme*/1000 ml water/day, 2 ml vegetable *eco-enzyme*/1000 ml water/day, 500 g fruit *eco-enzyme* residue, and 500 g vegetable *eco-enzyme* residue. The results showed that the best treatment was obtained from 500 g of vegetable *eco-enzyme* residue, which significantly affected seedling height, root volume, and shoot-root ratio of oil palm seedlings. The vegetable *eco-enzyme* residue contained C-organic 44,45%, N 2,99%, P 0,70%, and K 0,96%, which met the standard for solid organic fertilizers, indicating its potential as an environmentally friendly organic fertilizer alternative for oil palm seedling production.

Keywords: Liquid *Eco-enzyme* Fertilizer, *Eco-enzyme* Residue, Fruit Waste, Vegetable Waste