ABSTRAK

SELEKSI EMPAT SPESIES FUNGI MIKORIZA ARBUSKULAR PADA TANAMAN KELAPA SAWIT (*Elaeis guineensis* Jacq.) VARIETAS DxP SRIWIJAYA 3 DI PEMBIBITAN

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Kelapa sawit (*Elaeis guineensis* Jacq.) merupakan komoditas perkebunan strategis yang membutuhkan bibit unggul untuk mendukung produktivitas tanaman. Fungi Mikoriza Arbuskular (FMA) berpotensi meningkatkan pertumbuhan bibit melalui peningkatan penyerapan air dan unsur hara, terutama fosfor. Penelitian ini bertujuan menentukan spesies FMA yang terbaik dalam meningkatkan pertumbuhan bibit kelapa sawit varietas DxP Sriwijaya 3 di pembibitan. Penelitian dilaksanakan di Laboratorium Produksi Tanaman Perkebunan dan rumah kaca Fakultas Pertanian Universitas Lampung pada September 2025–Maret 2026. Penelitian menggunakan Rancangan Acak Kelompok (RAK) dengan satu faktor berupa spesies FMA, yaitu tanpa mikoriza (M0), *Glomus clarum* (M1), *Glomus intraradices* (M2), *Acaulospora longula* (M3), dan *Acaulospora spinosa* (M4), masing-masing diulang empat kali. Data dianalisis menggunakan analisis ragam dan dilanjutkan dengan uji BNJ 5%. Hasil penelitian menunjukkan bahwa pemberian FMA berpengaruh nyata terhadap tingkat kehijauan daun, lingkar bonggol, luas daun, bobot segar tajuk, bobot kering tajuk, dan persentase kolonisasi akar, namun tidak berpengaruh nyata terhadap tinggi tanaman, jumlah daun, serta variabel perakaran. Spesies *Acaulospora longula* memberikan hasil terbaik pada luas daun (2210.25 cm^2), bobot segar tajuk (122.99 g), bobot kering tajuk (32.82 g), dan persentase kolonisasi akar tertinggi sebesar 26.28%. Sementara itu, *Glomus clarum* menghasilkan tingkat kehijauan daun tertinggi. Secara keseluruhan, *Acaulospora longula* merupakan spesies FMA yang paling efektif dalam meningkatkan pertumbuhan bibit kelapa sawit varietas DxP Sriwijaya 3 dan berpotensi dikembangkan sebagai pupuk hayati untuk menghasilkan bibit yang lebih unggul dan berkualitas.

Kata Kunci: *Acaulospora longula*, fungi mikoriza arbuskular, kelapa sawit, kolonisasi akar, pembibitan.

ABSTRACT

SELECTION OF FOUR ARBUSCULAR MYCORRHIZAL FUNGI SPECIES ON OIL PALM (*Elaeis guineensis* Jacq.) DxP SRIWIJAYA 3 VARIETY IN THE NURSERY

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Oil palm (*Elaeis guineensis* Jacq.) is a strategic plantation commodity that requires high-quality seedlings to support optimal crop productivity. Arbuscular Mycorrhizal Fungi (AMF) have the potential to enhance seedling growth by improving water and nutrient uptake, particularly phosphorus. This study aimed to determine the best AMF species for promoting the growth of DxP Sriwijaya 3 oil palm seedlings in the nursery stage. The experiment was conducted at the Plantation Crop Production Laboratory and greenhouse of the Faculty of Agriculture, University of Lampung, from September 2025 to March 2026. A Randomized Complete Block Design (RCBD) with a single factor consisting of AMF species was employed, namely: no mycorrhiza (M0), *Glomus clarum* (M1), *Glomus intraradices* (M2), *Acaulospora longula* (M3), and *Acaulospora spinosa* (M4), with four replications. Data were analyzed using analysis of variance (ANOVA), followed by the Honestly Significant Difference (HSD) test at the 5% significance level. The results showed that AMF inoculation significantly affected leaf greenness, stem girth, leaf area, shoot fresh weight, shoot dry weight, and root colonization percentage, but had no significant effect on plant height, leaf number, or root growth parameters. *Acaulospora longula* produced the best performance in leaf area (2210.25 cm^2), shoot fresh weight (122.99 g), shoot dry weight (32.82 g), and the highest root colonization percentage (26.28%). Meanwhile, *Glomus clarum* resulted in the highest leaf greenness index. Overall, *Acaulospora longula* was the most effective AMF species in enhancing the growth of DxP Sriwijaya 3 oil palm seedlings and shows considerable potential as a biofertilizer for producing superior and high-quality planting materials.

Keywords: *Acaulospora longula*, Arbuscular Mycorrhizal Fungi, nursery, Oil Palm, root colonization.