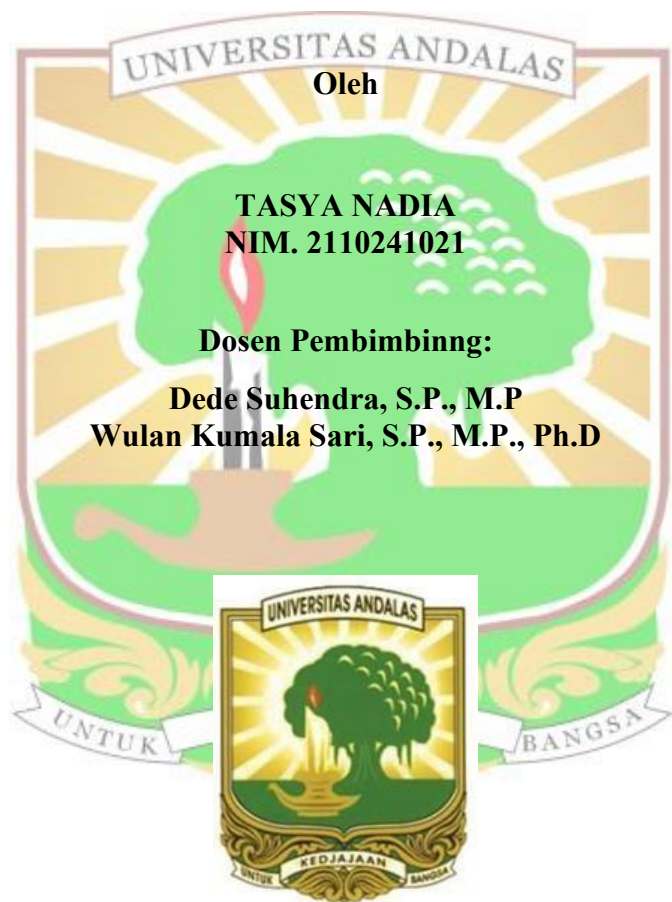


**RESPONS PERTUMBUHAN TANAMAN AREN (*Arenga pinnata* Merr.)
TERHADAP PEMBERIAN LIMBAH CAIR PABRIK KELAPA SAWIT
(LCPKS) DAN *SOLID DECANTER***

SKRIPSI



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ABSTRAK

Penurunan kesuburan tanah pada lahan marginal seperti Ultisol menjadi kendala utama dalam budidaya tanaman aren (*Arenga pinnata* Merr.). Salah satu alternatif untuk meningkatkan kesuburan tanah adalah pemanfaatan limbah cair pabrik kelapa sawit (LCPKS) yang kaya unsur hara makro serta *solid decanter* sebagai sumber bahan organik. Penelitian ini bertujuan untuk mengetahui pengaruh interaksi dan dosis terbaik LCPKS dan *solid decanter* terhadap pertumbuhan vegetatif tanaman aren. Penelitian dilaksanakan di Nagari Sungai Dareh, Kecamatan Pulau Punjung, Kabupaten Dharmasraya, dan Laboratorium Universitas Andalas Kampus III pada Mei–Oktober 2025. Rancangan yang digunakan adalah Rancangan Acak Lengkap (RAL) faktorial dengan dua faktor, yaitu dosis LCPKS (0, 500, 1000, dan 1500 ml/aplikasi/tanaman) dan dosis *solid decanter* (0, 300, dan 500 g/tanaman) dengan tiga ulangan. Hasil penelitian menunjukkan adanya interaksi antara LCPKS dan *solid decanter* terhadap pertambahan tinggi tanaman serta kadar klorofil a dan b. Secara tunggal, LCPKS berpengaruh nyata terhadap diameter bonggol, jumlah daun, panjang, dan lebar daun dengan dosis terbaik 1000 ml/aplikasi/tanaman, sedangkan *solid decanter* berpengaruh nyata terhadap diameter bonggol, panjang, dan lebar daun dengan dosis terbaik 300 g/tanaman. Kombinasi keduanya mampu memperbaiki sifat fisik dan kimia tanah sehingga meningkatkan pertumbuhan vegetatif tanaman aren. Dengan demikian aplikasi 1000 ml LCPKS dan 300 g *solid decanter* per tanaman merupakan dosis paling efisien dalam meningkatkan pertumbuhan bibit aren pada tanah Ultisol.

Kata kunci: *Arenga pinnata*, LCPKS, Pertumbuhan vegetatif, *Solid decanter*, tanah Ultisol

Growth Response of Sugar Palm (*Arenga pinnata* Merr.) to the Application of Palm Oil Mill Effluent (POME) and *Solid decanter*

ABSTRACT

The decline in soil fertility in marginal lands such as Ultisol has become a major constraint in the cultivation of sugar palm (*Arenga pinnata* Merr.). One alternative to improve soil fertility is the utilization of palm oil mill effluent (POME), which is rich in macronutrients, along with *solid decanter* as a source of organic matter. This study aimed to determine the interaction effect and the optimal dosage of POME and *solid decanter* on the vegetative growth of sugar palm. The research was conducted in Nagari Sungai Dareh, Pulau Punjung District, Dharmasraya Regency, and at the Laboratory of Andalas University Campus III from May to October 2025. The experiment used a factorial Completely Randomized Design (CRD) with two factors: POME dosage (0, 500, 1000, and 1500 ml/application/plant) and *solid decanter* dosage (0, 300, and 500 g/plant), each replicated three times. The results showed a significant interaction between POME and *solid decanter* on plant height increment as well as chlorophyll a and b content. Individually, POME significantly affected corm diameter, number of leaves, leaf length, and leaf width, with the best response observed at 1000 ml/application/plant. *Solid decanter* significantly influenced corm diameter, leaf length, and leaf width, with the optimal dosage of 300 g/plant. The combination of both treatments improved the physical and chemical properties of Ultisol, thus enhancing the vegetative growth of sugar palm seedlings. Therefore, the application of 1000 ml POME and 300 g *solid decanter* per plant is the most efficient dosage for improving sugar palm seedling growth in Ultisol soil.

Keywords: *Arenga pinnata*, POME, vegetative growth, *solid decanter*, Ultisol soil