

## PENGARUH KERAPATAN DAN KEDALAMAN *INCISING* TERHADAP SIFAT PENGERINGAN SUHU RENDAH KAYU GAMAL (*Gliricidia sepium* Jacq.)

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### INTISARI

Pengeringan merupakan proses penting untuk meningkatkan kualitas dan ketahanan kayu terhadap cacat dan kerusakan. Kayu gamal (*Gliricidia sepium* Jacq.) merupakan salah satu jenis kayu yang memiliki potensi besar sebagai bahan baku alternatif, namun masih jarang dimanfaatkan secara optimal dalam industri pengolahan kayu. Penelitian ini bertujuan untuk mengetahui pengaruh kerapatan dan kedalaman *incising* terhadap sifat pengeringan kayu gamal pada suhu rendah (60°C), terhadap laju pengeringan, cacat pengeringan, dan sifat mekanik kayu.

Penelitian menggunakan 2 pohon gamal yang dipotong menjadi balok kayu berukuran 50x8x4 cm untuk proses pengeringan dan 2x2x2 cm untuk kadar air. Rancangan yang digunakan pada penelitian ini adalah rancangan acak lengkap dengan dua faktor yaitu kedalaman dan kerapatan *incising* dengan variasi kerapatan *incising* (500, 1000, dan 1500 lubang/m<sup>2</sup>) dan kedalaman *incising* (setengah tebal dan tembus tebal), serta satu kontrol tanpa perlakuan *incising*. Sampel kemudian akan dikeringkan dalam oven dengan suhu 60°C hingga kadar air 12% kemudian dilakukan pengujian kadar air, pengamatan jenis cacat pengeringan, dan pengujian sifat mekanika berupa modulus elastisitas (MOE) dan modulus patah (MOR). Data dianalisis menggunakan ANOVA dua arah dengan taraf uji 5% dan uji lanjut *Honestly Significant Difference Tukey*.

Hasil penelitian menunjukkan bahwa kedalaman *incising* berpengaruh nyata terhadap laju pengeringan kayu, di mana kedalaman *incising* tembus tebal dengan kerapatan 1500 lubang/m<sup>2</sup> mampu meningkatkan laju pengeringan hingga 42,71% dibandingkan dengan kontrol. Namun, variasi kerapatan dan kedalaman *incising* tidak memberikan pengaruh signifikan terhadap cacat pengeringan maupun sifat mekanika kayu.

Kata Kunci: Gamal, pengeringan suhu rendah, *incising*, cacat kayu, mekanika kayu.

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## THE EFFECT OF *INCISING* DEPTH AND DENSITY ON LOW-TEMPERATURE DRYING CHARACTERISTICS OF GAMAL WOOD

(*Gliricidia sepium* Jacq.)

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### ABSTRACT

*Drying is an essential process to improve wood quality and durability against defects and damage. Gliricidia sepium (Gamal wood) is a type of wood with high potential as an alternative raw material, yet it remains underutilized in the wood processing industry. This study aims to examine the effect of incising density and depth on the drying characteristics of Gamal wood under low-temperature conditions (60°C), on drying rate, drying defects, and mechanical properties.*

*The study used two Gamal trees, which were cut into wood blocks measuring 50×8×4 cm for drying and 2×2×2 cm for moisture content testing. The experimental design was a completely randomized design (CRD) with two factors: incising depth (half-thickness and full-thickness) and incising density (500, 1000, and 1500 holes/m<sup>2</sup>), along with a control group without incising. Samples were oven-dried at 60°C until reaching 12% moisture content. Measurements included moisture content, observation of drying defects, and mechanical properties testing for modulus of elasticity (MOE) and modulus of rupture (MOR). Data were analyzed using two-way ANOVA at a 5% significance level, followed by Tukey's Honestly Significant Difference (HSD) test.*

*The results showed that incising depth had a significant effect on the drying rate, where full-thickness incising with a density of 1500 holes/m<sup>2</sup> increased the drying rate by up to 42,71% compared to the control. However, variations in incising density and depth did not significantly affect drying defects or mechanical properties of the wood.*

*Keywords: Gliricidia sepium, low temperature drying, incising, drying defects, mechanical properties*

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