

## **PENGARUH SUHU PERLAKUAN PANAS TERHADAP SIFAT KAYU MAHONI DAN KAYU SENGON DARI HUTAN RAKYAT**

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### **INTISARI**

Hutan rakyat umumnya menghasilkan kayu dengan kualitas dan keawetan yang rendah. Oleh karena itu upaya modifikasi perlu dilakukan untuk meningkatkan kualitas kayu yang berasal dari hutan rakyat tersebut, salah satunya adalah dengan perlakuan panas. Perlakuan panas pada kayu digunakan antara lain untuk meningkatkan keawetan, menurunkan higrokopisitas, memperbaiki stabilitas dimensi kayu, dan menyeragamkan warna kayu. Tujuan penelitian ini adalah mengetahui pengaruh perlakuan panas terhadap sifat fisika, sifat mekanika dan sifat perekatan kayu mahoni dan kayu sengon.

Contoh uji perlakuan dibuat dari kayu yang berasal dari industri penggergajian kayu rakyat yaitu kayu mahoni dan sengon. Penelitian ini menggunakan perlakuan panas dengan metode oven pada suhu 90°C, 120°C dan 150°C selama 1 jam waktu efektif. Sifat-sifat yang diuji antara lain adalah sifat fisika, mekanika dan perekatan kayu yang meliputi : kadar air, berat jenis, perubahan dimensi, perubahan warna, wetabilitas, modulus patah, modulus elastisitas, keteguhan rekat geser, dan persen kerusakan kayu.

Hasil penelitian menunjukkan bahwa suhu perlakuan hanya memberikan pengaruh yang sangat nyata terhadap kadar air kedua jenis kayu yang diteliti. Faktor suhu perlakuan berpengaruh nyata terhadap penyusutan tangensial mahoni, pengembangan tangensial mahoni dan sengon, pengembangan radial mahoni, dan modulus patah mahoni. Nilai rata-rata sifat kayu terbaik dari kayu mahoni menghasilkan nilai kadar air sebesar 8,3%, berat jenis sebesar 0,52, wetabilitas kayu 700 mm, modulus patah 928 kg/cm<sup>2</sup>, modulus elastisitas 60.502 kg/cm<sup>2</sup>, keteguhan rekat 93,8 kg/cm<sup>2</sup>, dan persen kerusakan kayu 91,15%. Nilai rata-rata sifat kayu terbaik dari kayu sengon menghasilkan nilai kadar air sebesar 8,9%, berat jenis sebesar 0,32, wetabilitas kayu 1029 mm, modulus patah 723 kg/cm<sup>2</sup>, modulus elastisitas 65.848 kg/cm<sup>2</sup>, keteguhan rekat 31,2 kg/cm<sup>2</sup>, dan persen kerusakan kayu 84,26%.

**Kata Kunci** : Hutan rakyat, suhu perlakuan panas, sifat perekatan, kayu mahoni, kayu sengon

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## INFLUENCE OF HEATING TEMPERATURE ON THE PROPERTIES OF MAHONI AND SENGON WOOD OF COMMUNITY FOREST

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### ABSTRACT

Community forest commonly produces low quality and durability wood. Therefore, the effort to improve the quality of the wood need to be attempted which as the example is heat treatment. Heat treatment of wood is primarily used to increase the durability, reduce the hygroscopicity, improve the dimensional stability, and enhance the colour homogeneity of wood. The objective of this research is to determine the influence of heat treatment on physical, mechanical, and adhesion properties of mahoni and sengon wood.

Samples were made from mahoni dan sengon wood from sawmill industry which woods are supplied from community forest. This research used heat treatment performed into oven at temperature 90°C, 120°C and 150°C for one hour effective time. The examined properties were physical, mechanical, and adhesion properties such as moisture content, specific gravity, dimensional stability (shrinkage and swelling), wettability, color properties, modulus of rupture, modulus of elasticity, bonding strength, and wood failure.

The results showed that heating temperature affected very significant only on the moisture content of both of the woods tested. The heating temperature was significantly affected on tangential shrinkage of mahoni wood, tangential swelling of mahoni and sengon wood, and modulus of rupture of mahoni wood. Best average value of mahoni wood properties obtained moisture content 8.3%, specific gravity 0.52, wettability 700 mm, modulus of rupture 928 kg/cm<sup>2</sup>, modulus of elasticity 60,502 kg/cm<sup>2</sup>, bonding strength 93.8 kg/cm<sup>2</sup>, and wood failure 91.15%. Best average value of sengon wood properties obtained moisture content 8.9%, specific gravity 0.32, wettability 1030 mm, modulus of rupture 728 kg/cm<sup>2</sup>, modulus of elasticity 65,848 kg/cm<sup>2</sup>, bonding strength 31.2 kg/cm<sup>2</sup>, and wood failure 84.26%.

**Keywords :** Community forest, heating temperature, adhesion properties, mahoni wood, sengon wood.

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