

**Sifat Fisika dan Mekanika Kayu Jabon Merah**  
**(*Neolamarckia macrophylla*) Dari Klaster Diameter dan Blok**  
**Tanam Berbeda Pada Kebun Benih Pacitan**

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**INTISARI**

Program pemuliaan kayu jabon merah (*Neolamarckia macrophylla* (Roxb.) Bosser) sudah dijalankan oleh Badan Riset dan Inovasi Negara (BRIN) dalam bentuk kebun benih di Pacitan, Jawa Timur. Namun, informasi mengenai sifat fisika dan mekanika kayu jabon merah tersebut masih terbatas terutama pada pengaruh klaster diameter dan blok tanam. Oleh sebab itu, penelitian ini dilakukan untuk mengisi kesenjangan informasi tersebut dan untuk penentuan pohon indukan generasi berikutnya.

Pengujian sampel uji untuk sifat fisika dan mekanika mengacu pada *British Standard* nomor 373 tahun 1957. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) yang terdiri dari dua faktor, klaster diameter (klaster atas dan bawah) dan blok tanam (blok 1, blok 2, dan blok 4). Dilanjutkan dengan analisis *Two-way ANOVA* menggunakan program SPSS.

Hasil penelitian menunjukkan bahwa kayu jabon merah di KBSUK F-1 memiliki nilai rerata kadar air basah dan kering udara sebesar 83,84% dan 15,34%. Berat jenis basah, kering udara, dan kering tanur masing-masing 0,299; 0,316; dan 0,342. Penyusutan arah longitudinal, tangensial, dan radial kondisi basah ke kering udara masing-masing 0,36%, 1,47; dan 0,58% serta penyusutan dari kondisi basah ke kering tanur masing-masing 0,648%; 4,652%; dan 2,19%. Rasio T/R kondisi basah ke kering udara dan kering tanur sebesar 3,622 dan 1,523. Keteguhan lengkung statis pada batas proporsi, *modulus of elasticity* (MoE), dan *modulus of rupture* (MoR) masing-masing 191,36 kg/cm<sup>2</sup>, 54.88 kg/cm<sup>2</sup>, dan 457,06 kg/cm<sup>2</sup>. Keteguhan tekan sejajar dan tegak lurus serat sebesar 263,37 kg/cm<sup>2</sup> dan 69,20 kg/cm<sup>2</sup>. Selanjutnya, perbedaan klaster diameter memberikan pengaruh nyata terhadap penyusutan dimensi. Perbedaan blok tanam memberikan pengaruh nyata terhadap kadar air kering udara dan berat jenis segar. Interaksi antar faktor tidak memberikan pengaruh nyata terhadap sifat fisika dan mekanika. Hasil penelitian ini dapat memberikan gambaran kualitas kayu dari benih unggul jabon merah yang akan diproduksi dari KBSUK F-1 di Pacitan.

Kata kunci: *Neolamarckia macrophylla* (Roxb.) Bosser, sifat fisika dan mekanika, klaster diameter, blok tanam, kebun benih semai

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**Physical and Mechanical Properties of Red Jabon  
(*Neolamarckia macrophylla*) from Different Diameter  
Clusters and Planting Block in Pacitan Seed Orchard**

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**ABSTRACT**

The red jabon (*Neolamarckia macrophylla* (Roxb.) Bosser) tree improvement program has been initiated by National Research and Innovation Agency (BRIN) through the establishment of seed orchard in Pacitan, East Java. However, comprehensive data on the physical and mechanical properties of red jabon wood remain scarce, particularly concerning the effects of diameter classes and planting blocks. Accordingly, this study was undertaken to address these knowledge gaps and to support the selection of parent trees for the next generation of breeding.

Test samples for physical and mechanical properties followed *British Standard* No. 373 of 1957. Employed a Completely Randomized Design consisting of two factors, diameter clusters (upper and lower) and planting blocks (block 1, block 2, and block 4). Further analyze using *Two-way ANOVA* with SPSS software.

Results showed that red jabon wood from KBSUK F-1 had an average green moisture content of 83.84% and air-dry moisture content of 15.34%. The green, air-dry, and oven-dry specific gravities were 0.299, 0.316, and 0.342, respectively. Shrinkage from green to air-dry in longitudinal, tangential, and radial directions was 0.356%, 1.465%, and 0.58%, respectively, while from green to oven-dry it was 0.648%, 4.652%, and 2.19%, respectively. T/R ratio for green to air-dry and oven-dry conditions was 3.622 and 1.523. Static bending strength at proportional limit, modulus of elasticity (MoE), and modulus of rupture (MoR) were 191.36 kg/cm<sup>2</sup>, 54,88 kg/cm<sup>2</sup>, and 457.06 kg/cm<sup>2</sup>, respectively. Compressive strength parallel and perpendicular to grain was 263.37 kg/cm<sup>2</sup> and 69.20 kg/cm<sup>2</sup>. Differences in diameter cluster had a significant effect on dimensional changes. Differences in planting block significantly affected air-dry moisture content and green specific gravity. The interaction between the two had no significant effect on the physical and mechanical properties. The results of this study can provide an overview of the wood quality from superior red jabon seeds that will be produced from KBSUK F-1 in Pacitan.

**Keywords:** *Neolamarckia macrophylla* (Roxb.) Bosser, physical and mechanical properties, diameter cluster, planting block, seed orchard

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