

**VARIASI AKSIAL DAN RADIAL  
SIFAT FISIKA DAN MEKANIKA KAYU JATI (*Tectona grandis* Linn.f)  
TEBANGAN TEBANG LANJUTAN  
KPH TELAWA**

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**INTISARI**

Tanaman jati bertumbuh kurang (Tjbc) merupakan tanaman jati dalam anak petak yang dianggap gagal dan harus segera ditebang. Kayu Tjbc umumnya memiliki diameter yang lebih kecil dan dianggap kualitas rendah sehingga harganya lebih rendah. Kayu tebangan B dipandang berkulitas rendah hanya berdasarkan dari diameter, namun kondisi saat ini pertimbangan diameter tidak cukup sehingga perlu ditinjau berdasarkan sifat fisika dan mekanika kayu.

Bahan penelitian berasal dari kayu jati Tjbc dari KPH Telawa. Penelitian ini menggunakan rancangan acak lengkap dengan 3 ulangan dan 2 faktor yaitu kedudukan aksial (pangkal, tengah dan ujung) dan radial (dekat hati, tengah dan dekat kulit). Hasil analisis keragamannya jika berbeda nyata kemudian diuji lanjut dengan uji HSD (*Honestly Significant Difference*). Pembuatan contoh uji dan pengujian mengikuti *British Standard* nomor 373 tahun 1957.

Hasil penelitian ini menunjukkan bahwa nilai rerata kadar air segar dan kadar air kering udara kayu jati seluruhnya sebesar 87,26 % dan 13,45 %. Berat jenis segar, kering udara dan kering tanur sebesar 0,57; 0,59; 0,61. Penyusutan longitudinal, tangensial dan radial dari kondisi segar ke kering udara berturut-turut sebesar 0,11%; 1,44 % dan 0,85 % serta kondisi segar ke kering tanur berturut-turut sebesar 0,56 %; 4,51 % dan 3,38 %. Pengembangan longitudinal tangensial dan radial dari kondisi basah ke kering tanur berturut-turut sebesar 0,36 %; 3,55 % dan 2,73 %. Keteguhan lengkung statik sampai batas proporsi , MoE dan MoR berturut-turut sebesar 714,37 kg/cm<sup>2</sup>; 100,2x10<sup>3</sup> kg/cm<sup>2</sup>; dan 987,37 kg/cm<sup>2</sup>. Keteguhan geser sejajar serat 127,19 kg/cm<sup>2</sup>; keteguhan belah 17,77 kg/cm<sup>2</sup> serta kekerasan kayu radial dan tangensial sebesar 434,74 kg/cm<sup>2</sup> dan 449,93 kg/cm<sup>2</sup>. Faktor kedudukan aksial berpengaruh sangat nyata terhadap kadar air segar dan berpengaruh nyata terhadap keteguhan lengkung statik sampai batas proporsi dan MoE. Sedangkan kedudukan radial berpengaruh nyata terhadap . Penyusutan radial dari kondisi segar ke kering tanur.

**Kata Kunci :** Tanaman jati bertumbuh kurang (Tjbc), sifat fisika kayu, sifat mekanika kayu, letak aksial, letak radial, longitudinal, tangensial, radial

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**AXIAL AND RADIAL VARIATION OF THE PHYSICAL AND  
MECHANICAL PROPERTIES OF JATI (*Tectona grandis* Linn.f)  
TANAMAN JATI BERTUMBUH KURANG (Tjbk) FROM KPH TELAWA**

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**ABSTRACT**

Tanaman jati bertumbuh kurang (Tjbk) is a teak plant in a block which is failed assumed and it must be cut down. Generally Tjbk has narrower diameter and still be assumed as a low quality wood so its price is low. But this point needs to be considered according to the wood properties that is wood physical and mechanical properties

Material of this research is derived from Tanaman jati bertumbuh kurang (Tjbk) from KPH Telawa. This research was using completely randomized design with three repetitions and two factors that is axial position (bottom, middle and top of the tree) and radial position (near by pith, middle, and near by bark). If the variance analysis result was different, then tested with (Honestly Significant Difference). All the wood samples used for the measurement were prepared according to British Standard procedures number of 373 year 1957.

Result of this research shows that average green and dry MC of 87,26 % and 13,45 % respectively. Specific gravity (SG) in green wood, air dry and oven dry are 0,57; 0,59; 0,61. The average longitudinal, tangential, and radial shrinkage of the wood from green to air dry condition are 0,11%; 1,44 % and 0,85 % and also from green to oven dry condition successively are 0,56 %; 4,51 % and 3,38 %. The average longitudinal, tangential, and radial swells of wood from oven dry to wet condition successively equal to 0,36 %; 3,55 % and 2,73 %. The static bending strength in proportion point, MoE and MoR successively equal to 714,37 kg/cm<sup>2</sup>; 100,2x10<sup>3</sup> kg/cm<sup>2</sup>; and 987,37 kg/cm<sup>2</sup>. The shearing strength value is 127,19 kg/cm<sup>2</sup>; the resistance to cleavage value is 17,77 kg/cm<sup>2</sup> and also wood hardness in the radial and tangential side are 434,74 kg/cm<sup>2</sup> and 449,93 kg/cm<sup>2</sup>. The axial position has an effect significantly to green moisture content and also has an effect to static bending strength in proportion point and MoE. While radial position has a significant effect on radial shrinkage from green to oven dry.

**Key words :** Tanaman jati bertumbuh kurang (Tjbk), wood physical properties, wood mechanical properties, axial position, radial position, longitudinal, tangential, radial

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