



UNIVERSITAS
GADJAH MADA

**SIFAT-SIFAT FISIKA DAN MEKANIKA KAYU KERUING ANDERI (*Dipterocarpus caudiferus* Merr)
MENURUT**

UKURAN DIAMETER POHON DAN LETAK POTONGAN KAYU PADA BATANG

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Atas dasar sifat-sifat fisika dan mekanika yang diteliti, maka kayu keruing anderi tersebut sangat cocok sebagai kayu bangunan, terutama pada ukuran kelas diameter 40-50 cm yang terletak di bagian $\frac{1}{3}$ dan $\frac{2}{3}$ jari-jari dari hati pohon.

Kata Kunci: *Dipterocarpus caudiferus* Merr, kadar air, berat jenis, penyusutan, keteguhan belah, keteguhan geser sejajar serat, keteguhan tekan sejajar serat, keteguhan tarik tegak lurus serat, keteguhan tekan tegak lurus serat, kekerasan kayu, modulus patah, keteguhan lengkung pada batas proporsi dan modulus elastisitas

The study of the physical and mechanical properties of keruing anderi wood (*Dipterocarpus caudiferus* Merr) was intended:

1. to know the variation of physical and mechanical properties of the wood in diameter class difference including: moisture content, specific gravity, shrinkage, shear parallel to grain, cleavability, tension perpendicular to grain, compression parallel to grain, compression perpendicular to grain, hardness and static bending strength of wood.
2. to know the variation of physical and mechanical properties of the wood from pith to bark and from base to top of the tree.

Materials for this study were taken from nine trees, three from diameter class of 40-50 cm, three from 60-70 cm and another three from 80-90 cm, that grew in Meratus slope, P.T. Sumpol Timber area, South Kalimantan.

Measurement and testing of the physical and mechanical properties of the wood was carried out using LPHH and ASTM Standards.

Results of the study showed that a highly significant differences were found in specific gravity based on oven-dry volume and wet volume, radial and tangential shrinkage from wet to oven-dry condition, tangential shrinkage from wet to air dry condition, static bending, compression perpendicular to grain and tension perpendicular to grain between diameter class 40-50 cm, and diameter class 60-70 cm and diameter class 80-90 cm.

Physical and mechanical properties of the wood from base to top in diameter class 40-50 cm showed highly significant differences in specific gravity based on wet volume and compression parallel to grain. On the other hand, all physical and mechanical properties of the wood from base to top in diameter class 80-90 cm and 60-70 cm showed a non-significant difference. Physical and mechanical properties of the wood from pith to bark in diameter class 40-50 cm showed highly significant differences in radial and tangential shrinkage from wet to air dry condition and from wet to oven-dry condition, moisture content, shear parallel to grain, cleavability, tension perpendicular to grain, hardness, fibre stress at proportional limit and modulus of elasticity. Physical and mechanical properties of the wood from pith to bark in diameter class 60-70 cm showed highly significant differences in radial and tangential shrinkage from wet to oven-dry condition and from wet to air dry condition, specific gravity based on wet volume, oven-dry volume and air dry volume, cleavability and compression parallel to grain. On the other hand, the physical and mechanical properties of the wood from pith to bark in diameter class 80-90 cm showed highly significant differences in moisture content, radial shrinkage from wet to oven-dry



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condition, cleavability, modulus of rupture and fibre stress at proportional limit.

Based on the physical and mechanical properties measured, keruing anderi wood appeared to be suitable for building materials, especially from diameter class 40-50 at position one third and two third of the radius from the pith.