SIFAT FISIKA DAN MEKANIKA KAYU MANGLID *(Manglietia glauca* Bl*.)* PADA KEDUDUKAN AKSIAL DAN RADIAL UMUR 7 TAHUN DI KBS TEMANGGUNG

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INTISARI

Informasi mengenai sifat fisika dan mekanika kayu Manglid (*Manglietia glauca* Bl.) masih terbatas sehingga penggunaan kayunya belum banyak diketahui. Karakteristik penggunaan kayu dapat dianalisa berdasarkan kedudukan aksial dan radial. Penelitian ini bertujuan untuk mengetahui sifat fisika dan mekanika *Manglietia glauca* Bl. umur 7 tahun di Kebun Benih Semai (KBS) Temanggung pada kedudukan aksial dan radial.

Sampel penelitian diperoleh dari 3 pohon manglid umur 7 tahun yang ditanam di Kebun Benih Semai (KBS) Temanggung. Rancangan penelitian berupa acak lengkap secara faktorial menggunakan dua faktor yaitu kedudukan aksial (pangkal, tengah, ujung) dan kedudukan radial (dekat hati, tengah, dekat kulit). Pengujian dilakukan pada parameter kadar air, berat jenis, penyusutan, rasio T/R, lengkung statis, tekan sejajar serat, dan keteguhan belah yang mengacu pada British Standard 373:1957.

Hasil penelitian menunjukkan rerata kadar air basah dan kering udara sebesar 92,15% dan 12,42%; sementara untuk berat jenis basah, kering udara, dan kering tanur berurutan sebesar 0,42; 0,44; dan 0,46. Penyusutan radial, tangensial, dan longitudinal dari basah ke kering udara berurutan sebesar 2,29%; 3,76%; dan 0,41%; sedangkan dari basah ke kering tanur sebesar 3,90%; 6,47%; dan 0,71%. Rasio T/R hasil penyusutan dari basah ke kering udara dan ke kering tanur adalah 2,02% dan 1,80%. Keteguhan lengkung statis pada batas proporsi, MoE, dan MoR berurutan 280,27 kg/cm^2; 57,22 x10^3 kg/cm^2; dan 561,50 kg/cm^2. Keteguhan tekan sejajar serat dan keteguhan belah secara berurutan 276,92 kg/cm^2 dan 6,64 kg/cm^2. Hasil analisis menunjukkan bahwa interaksi kedudukan aksial dan kedudukan radial berpengaruh nyata terhadap sifat fisika yaitu kadar air basah, penyusutan arah tangensial pada kondisi basah-kering udara dan basah-kering tanur. Interaksi kedudukan aksial dan kedudukan radial tidak berpengaruh nyata terhadap sifat mekanika. Sifat mekanika berbeda nyata pada kedudukan aksial di parameter MoE, serta berbeda nyata pada kedudukan radial di parameter keteguhan lengkung statis pada batas proporsi, MoE, dan keteguhan tekan sejajar serat. Berdasarkan hasil penelitian ini, kayu manglid termasuk ke dalam kelas kuat III-IV.

Kata kunci: *Manglietia glauca* Bl., sifat fisika, sifat mekanika, kedudukan aksial, kedudukan radial.

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PHYSICAL AND MECHANICAL PROPERTIES OF MANGLID (*Manglietia glauca* Bl.) AT AXIAL AND RADIAL POSITIONS 7-YEAR-OLD IN SSO TEMANGGUNG

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ABSTRACT

Information about the physical and mechanical properties of Manglid (*Manglietia glauca* Bl.) wood is still limited, for the use of wood is not widely known. The characteristics of using wood can be analyzed based on axial and radial positions. This research aims to determine the physical and mechanical properties of *Manglietia glauca* Bl. 7-year-old in Seedling Seed Orchard (SSO) at axial and radial positions.

The research sample was obtained from 3 trees of 7-year-old *Manglietia glauca* Bl. planted in Seedling Seed Orchard (SSO) Temanggung. The research design was completely randomized in a factorial manner using two factors, namely axial position (bottom, middle, top) and radial position (near pith, middle, near bark). Testing is carried out on parameters moisture content, specific gravity, shrinkage, ratio T/R, static bending stregth, compression parallel to grain, and resistance to cleavage referred to British Standard 373:1957.

The results showed the average moisture content of wet and air-dry moisture content is 92.15% and 12.42%; while wet, air-dry, amd kiln-dry specific gravity consecutively are 0.42; 0.44; dan 0.46. Radial, tangential, and longitudinal shrinkage from wet to air-dry respectively is 2.29%, 3.76%, and 0.41%, while from wet to kiln-dry are 3.90%, 6.47%, and 0.71%. The T/R ratio of shrinkage results from wet to air-dry and wet to kiln-dry is 2.02% and 1.80%. Static bending stregth at the proportion of limit, MoE, and MoR respectively 280.27 kg/cm^2; 57.22 x10^3 kg/cm^2; and 561,50 kg/cm^2. Compression parallel to grain and resistance to cleavage respectively 276.92 kg/cm^2 and 6.64 kg/cm^2. The analysis showed that interaction axial and radial positions significantly affected on physical properties on moisture content of wet, tangential shrinkage from wet to air-dry and wet to kiln dry. Interaction axial and radial positions has no effect on mechanical properties. Mechanical properties significantly affected on axial position at MoE, and significantly affected on radial position at static bending stregth at the proportion of limit, MoE, and compression parallel to grain. Based on this research, manglid wood belongs to the strong class III-IV.

Keywords: *Manglietia glauca* Bl., physical properties, mechanical properties, axial position, radial position.

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