

Pengaruh Perbedaan Provenan dan Kedudukan Radial terhadap Sifat Fisika dan Mekanika Kayu Manglid (*Manglietia glauca* Bl.)

Oleh:

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Intisari

Balai Besar Bioteknologi dan Pemuliaan Tanaman Hutan, BPDAS SOP, dan Perum Perhutani telah melakukan pemuliaan pohon manglid (*Manglietia glauca* Bl.) di luar daerah asalnya. Manglid diupayakan sebagai alternatif bahan baku kayu solid. Penelitian ini menganalisis sifat fisika dan mekanika kayu manglid dari tiga provenan dan kedudukan radial yang berbeda serta mengetahui provenan mana yang baik untuk digunakan. Sampel berasal dari 9 pohon manglid umur 7 tahun dari Kebun Benih Semai di Temanggung. Penelitian menggunakan desain acak lengkap faktorial dengan faktor provenan (Tasikmalaya, Sukabumi, dan Sumedang) dan kedudukan radial (dekat hati, tengah, dan dekat kulit). Pengujian mengacu pada British Standard 373:1957. Hasil penelitian menunjukkan nilai rerata kadar air basah dan kering udara sebesar 110,86% dan 12,42%. Berat jenis basah, kering udara, dan kering tanur sebesar 0,382; 0,405; dan 0,428. Penyusutan radial, tangensial, dan longitudinal dari kondisi basah ke kering udara sebesar 1,81%, 13,41%, 0,331% serta kondisi basah ke kering tanur sebesar 3,66%, 6,69%, 0,72%. Rasio T/R kondisi basah ke kering udara dan kering tanur sebesar 2,42 dan 1,88. Keteguhan lengkung statik pada batas proporsi, MoE, dan MoR adalah 268,64 kg/cm², 56,11 × 10³ kg/cm², dan 507,50 kg/cm². Nilai rerata keteguhan tekan sejajar serat dan tegak lurus serat secara berurutan sebesar, 268,17 kg/cm² dan 137,43 kg/cm². Hasil statistik menunjukkan perbedaan provenan berpengaruh pada beberapa sifat, begitu pula dengan kedudukan radial. Dari 3 provenan yang diuji, provenan yang memiliki sifat fisika dan mekanika terbaik adalah provenan Sukabumi dan pada kedudukan radial kayu terbaik terdapat di bagian kulit

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

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Effect of Different Provenances and Radial Position on the Physical and Mechanical Properties of Manglid Wood (*Manglietia glauca* Bl.)

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Abstract

The Center for Forest Plant Biotechnology and Breeding, BPDAS SOP, and Perum Perhutani have been breeding manglid trees (*Manglietia glauca* Bl.) outside their native range. Manglid is pursued as an alternative raw material for solid wood. This study analyzed the physical and mechanical properties of manglid wood from three different provenances and radial positions and clarify which provenance is good for use. Total of 9 trees of 7-year-old *Manglietia glauca* Bl trees from the Seedling Garden in Temanggung were used. The study used a factorial completely randomized design with the factors provenance (Tasikmalaya, Sukabumi, and Sumedang) and radial position (near the heart, middle, and near the bark). The test refers to British Standard 373:1957. The results showed that the average values of green and air-dried moisture content were 110.86% and 12.42%. The green, air-dried, and oven dry specific gravity were 0.382; 0.405; and 0.428. Radial, tangential, and longitudinal shrinkage from green to air-dried conditions were 1.81%, 13.41%, 0.331% and green to oven dry conditions were 3.66%, 6.69%, 0.72%. The T/R ratios of wet to air-dry and kiln-dry conditions were 2.42 and 1.88, respectively. The static bending strength of stress at proportion limit, MoE, and MoR were 268.64 kg/cm², 56.11 × 10³ kg/cm², 507.50 kg/cm². The compressive strength parallel to the grain and perpendicular to the grain were 268.17 kg/cm² and 137.43 kg/cm², respectively. Statistical results showed that provenance differences affected several properties, as well as radial position. Of the 3 provenances tested, the provenance that has the best physical and mechanical properties is the Sukabumi provenance and in the best radial position of the wood in the bark.

Keyword: *Manglietia glauca* Bl, physical properties, mechanical properties, provenance, radial positions

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