

## Daftar Pustaka

- Adebawo F. 2019. Variation of physical and mechanical properties of *Boscia angustifolia* (A. Rich.) wood along radial and axial stem portion. *Pro Ligno* **15**(1): 34-42.
- Ali AC, Chirkova J, Terziev N, Elowson T. 2010. Physical properties of two tropical wood species from mozambique. *Wood Material Science and Engineering* **5**(3): 151–161.
- Assad AAV, Ballarin AW, Freitas MLM, Longui EL. 2020. Effect of provenances on wood properties of *Balfourodendron riedelianum*. *Madera y Bosques* **26**(1).
- Ayanleye S dan Avramidis S. 2021. Predictive capacity of some wood properties by near-infrared spectroscopy. *International Wood Products Journal* **12**(2): 83-94.
- Basri E. 2000. Penetapan bagan pengeringan tiga jenis kayu dalam dapur pengering konvensional (klin drying). Badan Penelitian dan Pengembangan Kehutanan dan Perkebunan, Bogor.
- Basri E dan Wahyudi I. 2012. Sifat dasar kayu jati plus Perhutani dari berbagai umur dan kaitannya dengan sifat dan kualitas pengeringan. *Jurnal Penelitian Hasil Hutan* **31**: 93-102.
- British Standard 373 - Methods of testing small clear specimens of timber. British Standard House, London.
- Brown HP, Panshin AJ, Forsaith CC. 1952. Textbook of wood technology: the physical, mechanical, and chemical properties of the commercial woods of the united states (Vol. 2). McGraw-Hill, USA.
- Brunner M, Eugster R, Trenka E, Bergamin-Strotz L. 1996. FT-NIR spectroscopy and wood identification. *Holzforschung* **50**(1996): 130-134.
- Carrillo A, Garza M, Nañez MDJ, Garza F, Foroughbakhch R, Sandoval S. 2011. Physical and mechanical wood properties of 14 timber species from Northeast Mexico. *Annals of Forest Science* **68**(4): 675-679.
- Chin WW. 1998. The partial least squares approach to structural equation modeling. *Modern Methods for Business Research* **295**(2): 295-336.
- Costa EVS, Rocha MFV, Hein PRG, Amaral EA, Santos LMD, Brandão LEVDS, Trugilho PF. 2018. Influence of spectral acquisition technique and wood anisotropy on the statistics of predictive near infrared-based models for wood density. *Journal of Near Infrared Spectroscopy* **26**(2): 106-116.
- Desch HE dan Dinwoodie JM. 1981. Timber: its structure, properties and utilisation 6th ed. Forest Grove, Oregon.

- Djarwanto, Damayanti R, Balfas J, Basri E, Jasni, Sulastiningsih IM, Andianto, Martono D, Pari G, Sopandi A, Mardiansyah, Krisdianto. 2017. Pengelompokan jenis kayu perdagangan Indonesia. Forda Press, Bogor.
- Erskine PD, Lamb D, Bristow M. 2005. reforestation in the tropics and subtropics of Australia using rainforest tree species. RIRDC Publication No 05/087. Rural Industries Research and Development Corporation, Canberra.
- Evans JW, Senft JF, Green DW. 2000. Juvenile wood effect in red alder: analysis of physical and mechanical data to delineate juvenile and mature wood zones. *Solid Wood Products* **50**: 75-87.
- Forlius VA, Diba F, Sisillia L. 2017. Dampak pengasapan kayu terhadap sifat fisik kayu akasia (*Acacia mangium* Willd) dan kayu laban (*Vitex pubescens* Vahl). *Jurnal Hutan Lestari* **5**(2).
- Gerard J, Guibal D, Paradis S, Cerre JC. 2017. Tropical timber atlas: technological characteristics and uses. Editions Quae, Paris.
- Hapid A. 2019. Variasi radial sifat mekanika kayu malapoga (*Toona ciliata* M. Roem) yang berasal Sulawesi Tengah. *Jurnal Warta Rimba* **7**(2): 73-80.
- Hardiyanto EB. 2008. Seed collection and handling: pangkal buaya (*Zanthoxylum rhetsa* (Roxb.) DC.). Direktorat Umum Rehabilitasi Lahan dan Kehutanan Sosial, Jakarta.
- Hartley TG. 1970. A revision of the Malaysian species of *Zanthoxylum* (Rutaceae). *Journal Arnold Arboretum* **51**: 423–426.
- Haygreen JG, dan Bowyer JL. 1982. Forest products and wood science: an introduction. The Iowa State University Press, USA.
- Hein PRG, Lima JT, Chaix G. 2009. Robustness of models based on near infrared spectra to predict the basic density in *Eucalyptus urophylla* wood. *Journal of Near Infrared Spectroscopy* **17**: 141–150.
- Hidayati F, Fajrin IT, Ridho MR, Nugroho WD, Marsoem SN, Na'iem M. 2016. Sifat fisika dan mekanika kayu jati unggul "Mega" dan kayu jati konvensional yang ditanam di hutan pendidikan, Wanagama, Gunungkidul, Yogyakarta. *Jurnal Ilmu Kehutanan* **10**(2): 98-107.
- Hunggurami E, Utomo S, Messakh BY. 2016. Identifikasi kuat acuan terhadap jenis kayu yang diperdagangkan di Kota Kupang berdasarkan SNI 7973: 2013. *Jurnal Teknik Sipil* **5**(2): 175-184.
- India Biodiversity. 2022. *Zanthoxylum rhetsa* (Roxb.) DC. India Biodiversity Portal. Dipetik 24 Mei 2022 dari <https://indiabiodiversity.org/species/show/20189#population-biology>
- ITTO (International Tropical Timber Organization). 2022. lesser used species: kayu lemah (*Zanthoxylum rhetsa*). Dipetik 25 Mei 2002 dari <http://www.tropicaltimber.info/specie/kayu-lemah-zanthoxylum-rhetsa/?print=true>

- Johansson M dan Kliger R. 2002. Variability in strength and stiffness of structural norway spruce timber – influence of raw material parameters. Proceedings of the World Conference on Timber Engineering, Barrett.
- Karlinasari L, Sabed M, Wistara INJ, Purwanto YA, Wijayanto H. 2012. Karakteristik spektra absorbansi NIR (*Near Infrared*) spektroskopi kayu *Acacia mangium* willd pada 3 umur berbeda. Jurnal Ilmu Kehutanan **6**(1): 45-52.
- Karlinasari L, Sabed M, Wistara INJ, Wijayanto H, Purwanto YA. 2013. Near infrared (NIR) spectroscopy to predict physical properties of *Acacia mangium* at three different age classes. Wood Research Journal **4**(1): 7-12
- Kord B, Kialashaki A, Kord B. 2010. The within-tree variation in wood density and shrinkage, and their relationship in *Populus euramericana*. Turkish Journal of Agriculture and Forestry **34**(2): 121-126.
- Krisdianto dan Dewi LM. 2012. Jenis kayu untuk mebel. Pusat Penelitian dan Pengembangan Keteknikan Kehutanan dan Pengolahan Hasil Hutan. Bogor.
- Kusumandari A, Purwanto R, Widayanti WT. 2021. Soil properties under four different land uses in relation to soil erosion and conservation in Wanagama. IOP Conference Series: Earth and Environmental Science **683**(1).
- Kvalheim OM, Arneberg R, Grung B, Rajalahti T. 2018. Determination of optimum number of components in partial least squares regression from distributions of the root-mean-squared error obtained by Monte Carlo resampling. Journal of Chemometrics **32**(4).
- Leblon B, Adedipe O, Hans G, Haddadi A, Tsuchikawa S, Burger J, LaRocque A. 2013. A review of near-infrared spectroscopy for monitoring moisture content and density of solid wood. The Forestry Chronicle **89**(5): 595-606.
- Lempang M dan Asdar M. 2006. Struktur anatomi, sifat fisik dan mekanik kayu palado (*Aglaia sp.*). Jurnal Penelitian Hasil Hutan **24**(2): 171-181.
- Liu Y, Yang Z, Lv B. 2012. Effect of surface roughness on near infrared models for wood density analysis. Proceedings of 2012 International Conference on Biobase Material Science and Engineering (BMSE 2012).
- Luhan G, Joni H, Johansyah, Yanciluk, Mujaffar, A. 2019. Kelas kuat kayu tumih (*Combretocarpus rotundatus* (Miq.) Danser) berdasarkan bagian batang. Jurnal Hutan Tropika **14**(2): 80-88.
- Machado JS, dan Cruz HP. 2005. Within stem variation of maritime pine timber mechanical properties. Holz als Roh-und Werkstoff **63**(2): 154-159.
- Machado JS, Louzada JL, Santos AJA, Nunes L, Anjos O, Rodrigues J, Simoes RMS, Pereira H. 2014. Variation of wood density and mechanical properties of blackwood (*Acacia melanoxylon* R. Br.). Materials and Design **56**: 975-980.

- Maduka TO dan Ikpa CB. 2021. *Zanthoxylum rhetsa* (Roxb.) DC.: A systemic review of its ethnomedicinal properties, phytochemistry and pharmacology. *World News of Natural Sciences* **37**: 41-57.
- Mardikanto T, Karlinasari L, Bahtiar ET. 2018. Sifat mekanis kayu. IPB Press. Bogor.
- Marsoem S N, Prasetyo VE, Sulistyo J, Sudaryono S, Lukmandaru, G. 2014. Studi mutu kayu jati di hutan rakyat Gunungkidul III: sifat fisika kayu. *Jurnal Ilmu Kehutanan* **8**(2): 75-88.
- Marsoem SN, Prasetyo VE, Sulistyo J, Sudaryono, Lukmandaru G. 2015. Studi mutu kayu jati di hutan rakyat Gunungkidul IV: sifat mekanika kayu. *Jurnal Ilmu Kehutanan* **9**: 117-127.
- Moya RR, Muñoz FA. 2008. Wet pockets in kiln-dried *Gmelina arborea* lumber. *Journal of Tropical Forest Science* **54**: 318-322.
- Muñoz GR, Encinas JI, de Paula JE. (2019). Wood density of 59 tree species in the order Sapindales from natural forests in Brazil. *Madera y Bosques* **25**(2).
- Negara LA. 2010. Variasi aksial dan radial sifat fisika dan mekanika kayu jati plus Perhutani (*Tectona grandis* Linn. f.) umur 10 tahun. Skripsi (Tidak Dipublikasikan). Fakultas Kehutanan, Universitas Gadjah Mada, Yogyakarta.
- Nugroho AF. 2012. Variasi radial sifat fisika dan mekanika pada berbagai umur kayu jati (*Tectona grandis* Linn. f.) hasil penjarangan di KPH Randublatung. Skripsi (Tidak Dipublikasikan). Fakultas Kehutanan, Universitas Gadjah Mada, Yogyakarta.
- Panshin AJ dan de Zeeuw C. 1980. Textbook of wood technology. McGraw-Hill, New York.
- Prawirohatmodjo S. 2001. Sifat-sifat mekanika kayu. Fakultas Kehutanan Universitas Gadjah Mada, Yogyakarta.
- Prawirohatmodjo S. 2012. Sifat-sifat fisika kayu. Cakrawala Media, Yogyakarta
- Prayitno, TA. Pertumbuhan pohon dan kualitas kayu. Program pasca sarjana, Fakultas Kehutanan, Universitas Gadjah Mada, Yogyakarta.
- Purwaning D. 2009. Struktur benih dan dormansi pada benih pangkal buaya (*Zanthoxylum rhetsa* (Roxb.) DC. *Jurnal Manajemen Hutan Tropika* **15**(2): 66-74.
- Quarles SL dan Valachovic Y. 2012. Using wood quality measures to evaluate second-growth redwood. General Technical Report PSW-GTR-238: 553-559.
- Ribeiro PG. 2009. Use of non-destructive techniques for characterization of *Pinus caribaea* var. *hondurensis* and *Eucalyptus grandis*. Disertasi. Magister Teknik Kehutanan, Universitas Brazil.

- Ridho MR dan Marsoem SN. 2015. Variasi aksial dan radial sifat fisika dan mekanika kayu jabon (*Anthocephalus cadamba* Miq.) yang tumbuh di Kabupaten Sleman. Prosiding Seminar Nasional XVIII MAPEKI **4**(5).
- Rinnan Å, Van Den Berg F, Engelsens SB. 2009. review of the most common pre-processing techniques for near-infrared spectra. TrAC Trends in Analytical Chemistry **28**(10): 1201-1222.
- Ross RJ. 2010. Wood Handbook: Wood as an engineering material. USDA Forest Service, Forest Products Laboratory, USA
- Sadono R, Murdawa B, Soeprijadi D, Nawari. 2011. Biometrika hutan. Interlude, Yogyakarta.
- Sasmuko SA. 2010. Karakteristik kayu lokal untuk rumah wolohan di Provinsi Sulawesi Utara. Jurnal Penelitian Hasil Hutan **28**(3), 278-290.
- Schimleck LR, Jones PD, Clark A, Daniels RF, Peter GF. 2005. Near infrared spectroscopy for the nondestructive estimation of clear wood properties of *Pinus taeda* L. from the Southern United States. Forest Products Journal **55**(12): 21-28.
- Schimleck LR, Matos JLM, Trianoski R, Prata JG. 2018. comparison of methods for estimating mechanical properties of wood by NIR Spectroscopy. Journal of Spectroscopy **2018**.
- Schwanninger M, Rodrigues JC, Fackler K. 2011. A review of band assignments in near infrared spectra of wood and wood components. Journal of Near Infrared Spectroscopy **19**(5): 287-308.
- Seftianingsih DK. 2018. Pengenalan berbagai jenis kayu solid dan konstruksinya untuk furniture kayu. Jurnal Kemadha **7**(1).
- Segla KN, Rabiou H, Adjonou K, Guibal D, Bationo AB, Mahamane A, CHaix G. 2017. Useful near infrared spectroscopy model calibrations on solid wood samples of *Pterocarpus erinaceus* (Poir.) for physical, mechanical and colour properties. Journal of Near Infrared Spectroscopy **25**(4): 256-266.
- Seng OD. 1990. Berat jenis dari jenis-jenis kayu indonesia dan pengertian beratnya kayu untuk keperluan praktek. Penerjemah: Suwarsono PH. Pusat Penelitian dan Pengembangan Hasil Hutan. Departemen Kehutanan Indonesia, Bogor.
- Shmulsky R dan Jones PD. 2011. Forest products and wood science: an introduction, Sixth Edition. John Wiley & Sons Inc., USA.
- Siarudin M dan Widiyanto A. 2012. Sifat fisik kayu manglid (*Manglieta glauca* Bl.) pada arah aksial dan radial. Jurnal Penelitian Hasil Hutan **30**(2): 135-143.
- Simangunsong AS, Hapid A, Muthmainnah M. 2016. Variasi sifat fisika kayu kemiri (*Aleurites moluccana*) berdasarkan arah aksial. Jurnal Warta Rimba **4**(1).

- Sinambela SD, Ariswoyo S, Sitepu HR. 2014. Menentukan koefisien determinasi antara estimasi M dengan type welsch dengan least trimmed square dalam data yang mempunyai pencilan. *Saintia Matematika* **2**(3): 225-235.
- Standar Nasional Indonesia. SNI 01-0608-1989. Syarat fisik dan mekanik kayu untuk mebel. Dewan Standardisasi Nasional, Jakarta.
- Standar Nasional Indonesia. SNI 01-7210-2006. Jenis kayu untuk bangunan perkapalan. Dewan Standardisasi Nasional, Jakarta.
- Standar Nasional Indonesia. SNI 03-3527-1994. Mutu dan ukuran kayu bangunan. Dewan Standardisasi Nasional, Jakarta.
- Subramanian A dan Rodriguez-Saona LE. 2009. Fourier transform infrared (FTIR) spectroscopy. Elsevier, Netherlands.
- Theeramunkong S dan Utsintong M. 2018. Comparison between volatile oil from fresh and dried fruits of *Zanthoxylum rhetsa* (Roxb.) DC. and cytotoxicity activity evaluation. *Pharmacognosy Journal* **10**(5).
- Tsuchikawa S dan Kobori H. 2015. A Review of recent application of near infrared spectroscopy to wood science and technology. *Journal of Wood Science* **61**(3): 213-220.
- Wahyudi I dan Arifien AF. 2005. Perbandingan struktur anatomis, sifat fisis, dan sifat mekanis kayu jati unggul dan kayu jati konvensional. *Jurnal Ilmu & Teknologi Kayu Tropis* **3**: 9-15.
- Wanagama. 2020. Mengenal Kawasan Hutan Dengan Tujuan Khusus (KHDTK) Wanagama. Dipetik 25 Mei 2022 dari <https://wanagama.fkt.ugm.ac.id/wanagama-2/>
- Wangaard FF. 1950. The mechanical properties of wood. John Wiley & Sons Inc, USA.
- Whitmore TC. 1972. Tree Flora of Malaya: A manual for foresters (Vol. I) Forest Departement, Ministry of Agriculture and Lands, Malaysia.
- Yamashita K, Hirakawa Y, Nakatani H, Ikeda M. 2009. Tangential and radial shrinkage variation within trees in sugi (*Cryptomeria japonica*) Cultivars. *Journal of Wood Science* **55**(3): 161-168.
- Yuan Q, Liu Z, Zheng K, Ma C. 2021. Civil engineering materials: from theory to practice. Elsevier, Netherlands.
- Yuniarti N. 2016. Teknologi perbenihan 10 jenis tanaman hutan andalan. IPB Press, Bogor.
- Zobel BJ dan van Buijtenen JP. 1989. Variation within and among trees. Springer Series in Wood Science: 72–131.