

DAFTAR PUSTAKA

- Affleck, R.R., & R.G. Ryan. (1969). Pitch control in a kraft pulp mill. *Pulp and Paper Magazine of Canada*, 70(12), T563–T567.
- Aminah, Tomayahu, N., & Abidin, Z. (2017). Penetapan kadar flavonoid total ekstrak etanol kulit buah alpukat (*Persea americana* Mill.) dengan metode spektrofotometri UV-VIS. *Jurnal Fitofarmaka Indonesia*, 4(2), 226–230.
- Amin, Y., Syafii, W., Wistara, N. J., & Prasetya, B. (2014). Peningkatan rendemen gula pereduksi dari kayu jabon dengan perlakuan air kapur (Ca(OH)_2). *Ilmu Teknologi Kayu Tropis*, 12(2), 196–206.
- Amirta, R., Mukhdlor, A., Mujiasih, D., Septia, E., Supriadi, & Susanto, D. (2016). Suitability and availability analysis of tropical forest wood species for ethanol production: a case study in East Kalimantan. *Biodiversitas*, 17(2), 544–552.
- Andrade, M.C.N., Minihoni, M.T.A., Sansigolo, C.A., & Zied, D.C. (2010). Chemical analysis of the wood and bark of different Eucalyptus types before and during the shitake cultivation. *R. Árvore Viçosa-MG*, 34(1), 165–175.
- Anisah, Laela N., Syafii, W., Sari, R. K., & Pari, G. (2015). Aktivitas antidiabetes ekstrak etanol jabon (*Neolamarckia cadamba*) (Antidiabetic activity of jabon (*Neolamarckia cadamba*) ethanol extracts). *Jurnal Ilmu Dan Teknologi Kayu Tropis*, 13(2), 111–124.
- Anisah, Laela Nur, Syafii, W., Pari, G., & Sari, R. K. (2018). Antidiabetic activities and identification of chemical compound from samama (*Neolamarckia macrophyllus* (Roxb) Havil). *Indonesian Journal of Chemistry*, 18(1), 66–74.
- Anonim. (1985). Annual Book of ASTM Standards. *Section Four Construction Volume 04.09 Wood*. Philadelphia.
- Aprianis, Y., & Rahmayanri, S. (2009). Dimensi serat dan nilai turunannya dari tujuh jenis kayu asal propinsi Jambi. *Jurnal Penelitian Hasil Hutan*, 27(1), 11–20.
- Arisandi, R., Takahashi, K., Ashitani, T., Marsoem, S.N., & Lukmandaru, G. (2019). Lipophilic extractives of the stem wood and bark from *Eucalyptus pellita* F. Muell grown in Merauke, Indonesia. *Journal of Wood Chemistry and Technology*, 40(2), 146–154.
- Arisandi, R., Nugroho Marsoem, S., Lukmandaru, G., Ashitani, T., & Takahashi, K. (2019). The contents of phenolics and cell wall component of *Eucalyptus pellita* F. Muell stemwood and bark. *Wood Research*, 64(3), 411–422.
- Arisandi, R., Masendra, Brandon, A.V.P, Fatimah, Z.W., Fatra, V.I., Fuad S., & G. Lukmandaru. (2019). Lipophilic extractives of mahogany (*Swietenia macrophylla* King) barks. *9th International Symposium of Indonesian Wood Research Society*, Bali, 26-27 September 2017, 92-102.

- Arisandi, R., S.N. Marsoem, G. Lukmandaru, & J.P.G. Sutapa. (2022). Analysis of sugar components related to heartwood formation in young *Swietenia mahagoni* (L.) Jacq trees. *Journal of Wood Chemistry and Technology*, 42 (3), 137-148.
- Arsad, E. (2016). Penggunaan kayu jabon (*Anthocephalus chinensis* Lamk) dan balangeran (*Shorea balangeran* Korth) untuk kebutuhan masyarakat dan industri. *Jurnal Riset Hasil Hutan*, 8(1), 33–42.
- Baeza, J., & Freer, J. (2001). Chemical characterization of wood and its components. Dalam: Wood and cellulosic chemistry. Hon, D.N.S., & N. Shiraishi (Ed). *Marcel Dekker*, New York.
- Benyamin, R., Supriambodo, B., Santoso, I., Siswoyo, H., David, Widyantoro, B., Soewarso, Erwanyah, Siswoko, E., Yasman, I., Rahmin, K., Purwita, T., Sugianto, & Maksum, J. (2019). Road Map Pembangunan Hutan Produksi Tahun 2019-2045. 1–232.
- Berrocal, A., Baeza, J., Rodriguez, J., Espinosa, M. & Freer, J. (2004). Effect of tree age on variation of *Pinus radiata* D. Don chemical composition. *Journal of the Chilean Chemical Society*, 49(3), 251–256.
- Biswas, D., Misbahuddin, M., Roy, U., Francis, R.C., & Bose, S.K. (2011). Effect of additives on fiber yield improvement for kraft pulping of kadam (*Neolamarckia chinensis*). *Bioresource Technology*, 102(2), 1284–1288.
- Brawner, J.T., Japarudin, Y., Lapammu, M., Rauf, R., Boden, D., & Wingfield, M.J. (2015). Evaluating the inheritance of *Ceratocystis acaciivora* symptom expression in a diverse *Acacia mangium* breeding population. *Southern Forest: a Journal of Forest Science*, 77(1), 83–90.
- Brighente, I.M.C., Dias, M., Verdi, L.G., & Pizzolatti, M.G. (2007). Antioxidant activity and total phenolic content of some brazilian species. *Pharmaceutical Biology*, 45(2): 156-161.
- Brown, H.P., A.J. Panshin, & Forsith. (1952). Text book of wood technology. *McGraw-Hill Book Company, Inc.* New York.
- Browning, B.L. (1967). Methode of Wood Chemistry Vol. I. *Interscience Publisher, A Division of John Wiley and Sons, Inc.* New York.
- Bruice, P.Y. (2004). Organic chemistry. Dalam: Natural products from plants. Cseke, L.J., Kirakosyan, A., Kaufman, P.B., Warber, S.R., Duke, J.A., & Brielmann, H.L. *CRC Press*. Taylor & Francis Group. London, New York.
- Burger, J.A. (2009). Management effects on growth, production and sustainability of managed forest ecosystems: Past trends and future directions. *Forest Ecology and Management*, 258(10), 2335-2346.
- Burtin, P., Jay-Allemand, C., Charpentier, J.P., & Janin, G. (2000). Modifications of hybrid walnut (*Juglans nigra x Juglans regia*) wood color and phenolic

- composition under various steaming conditions. *Holzforschung*, 54, 33-38.
- Casey, J. P. (1980). Pulp and paper chemistry and chemical technology. Vol I: Pulp and bleaching. *Wild Interscience Publication*. New York.
- Chaerani, N., Sudrajat, D.J., Siregar, I.Z., & Siregar, U.J. (2019). Growth performance and wood quality of white jabon (*Neolamarckia cadamba*) progeny testing at Parung Panjang, Bogor, Indonesia. *Biodiversitas*, 20(8), 2295-2301.
- Chandrasekaran, A. (2021). Solvent physical properties. Diambil dari <https://people.chem.umass.edu/xray/solvent.html>
- Chirinos, R., Betalleluz-Pallardel, I., Huaman, A., Arbizu, C., Pedreschi, R., & Campos, D. (2009). HPLC-DAD characterisation of phenolic compounds from Andan oca (*Oxalis tuberosa* Mol.). *Food Chemical*, 113, 1243-1251.
- Cseke, L.J., Kirakosyan, A., Kaufman, P.B., Warber, S.R., Duke, J.A., & Briemann, H.L. (2006). Natural products from plants. *CRC Press*. Taylor & Francis Group. London. New York.
- Del Río, J.C., Gutiérrez, A., González-Vila, F. J., & Martín, F. (1999). Application of pyrolysis-gas chromatography-mass spectrometry to the analysis of pitch deposits and synthetic polymers in pulp and pulp mills. *Journal of Analytical and Applied Pyrolysis*, 49(1), 165–177.
- Del Río, J.C., Marques, G., Rodríguez, I. M., & Gutiérrez, A. (2009). Chemical composition of lipophilic extractives from jute (*Corchorus capsularis*) fibers used for manufacturing of high-quality paper pulps. *Industrial Crops and Products*, 30(2), 241–249.
- Del Rio, J.C., Rencoret, J., Martinez, A.T., & Gutierrez, A. (2011). Recent advances in Eucalyptus wood chemistry. *5th International Colloquium on Eucalyptus Pulp*, May 9-12., Porto Seguro, Bahia, Brazil.
- Dellus, V., Scalbert, A., & Janin, G. (1997). Polyphenols and color of Douglas-fir heartwood. *Holzforschung*, 51(4): 291-295.
- Dietrichs, H.H. (1965). Das Verhalten von Kohlenhydraten bei der Holzverkernung. *Holzforschung*, 18, 14- 24.
- Direktorat Jenderal Kehutanan. (1976). Vademecum Kehutanan Indonesia. *Direktorat Jenderal Kehutanan Departemen Pertanian*. Jakarta.
- Diouf, P.N., Stevanovic, T., & Cloutier, A. (2009). Antioxidant properties and polyphenol contents of trembling aspen bark extracts. *Wood Science and Technology*, 43(5–6), 457–470.
- Domingues, R.M.A., Sousa, G.D.A., Freire, C.S.R., Silvestre, A.J.D., & Neto, C.P. (2010). *Eucalyptus globulus* biomass residues from pulping industry as a source of high value triterpenic compounds. *Industrial Crops and Products* 31(1), 65–70.

- Domingues, R.M.A., Sausa, G.D.A., Silva, C.M., Freire, C.S.R., Silvestre, A.J.D., & Neto, C.P. (2011). High value triterpenic compound from the outer barks of several *Eucalyptus* species cultivated in Brazil and in Portugal. *Industrial Crop and Poroduct*, 33(1), 158-164.
- Dubey, A., Nayak, S., & Goupale, D. C. (2011). *Neolamarckia cadamba*: A review. *Pharmacognosy Journal*, 2(18), 71–76.
- Ekman, R., & Holmbom, B. (2000). The chemistry of wood resin. In: Back EL, Allen LH (eds) Pitch Control, Wood Resin and Deresination. *TAPPI Press, Atlanta*, 37–76.
- Emil, N. (2014). Analisis komponen kimia dan dimensi serat kayu jabon. *Skripsi Fakultas Kehutanan, Institut Pertanian Bogor*. Bogor.
- Fardani, R.A. (2018). Rendemen dan sifat fisik berdasarkan variasi konsentrasi alkali aktif dan sulfiditas. *Skripsi Fakultas Kehutanan, Universitas Gadjah Mada*. Yogyakarta.
- Fasciotti, M., Roseana, M.A., Elaine, C.C., Valnei, S.C., Paulo, R.M.S., Romeu, J.D., & Marcos, N.E. (2015). Wood chemotaxonomy via ESI-MS profiles of phytochemical markers: the challenging case of African versus Brazilian mahogany woods. *Analytical Methods*, 7(20), 8576-8583.
- Fengel, D., & G. Wegner. (1995). Kayu : Kimia, ultrastruktur, reaksi-Reaksi. Diterjemakan oleh Hardjono Sastrohamidjojo. *Gadjah Mada University Press*. Yogyakarta.
- Fernandes, F.H.A., & Salgado, H. (2016). Gallic acid: review of the methods of determination and quantification. *Analytical Chemistry*, 46(3), 257-265.
- Fiskari, J. & Kilpelainen, P. (2021). Acid sulfite pulping of *Acacia mangium* and *Eucalyptus pellita* as a pretreatment method for multiproduct biorefineries. *Asia-Pacific Journal of Chemical Engineering Curtin University*, 16(6), 1–8.
- Freire, C.S.R., Silvestre, A.J.D., Neto, C.P., & Cavaleiro, J.A.S. (2002). Lipophilic extractives of the inner and outer barks of *Eucalyptus globulus*. *Holzforschung*, 56, 372-379.
- Freire, C.S.R., Pinto, P.C.R., Santiaogo, A.S., Silvestre, A.J.D., Evtuguin, D.M., & Neto, C.P. (2006). Comparative study of lipophilic extractives of hardwood and corresponding ECF bleached craft pulp. *BioResources*, 1(1), 3-17.
- Gao, H., Shupe, T. F., Hse, C. Y., & Eberhardt, T. L. (2006). Antioxidant activity of extracts from the bark of *Chamaecyparis lawsoniana* (A. Murray) Parl. *Holzforschung*, 60(4), 459–462.
- Gao, H., Shupe, T.F., Eberhardt, T.L., & Hse, C.Y., (2007) Antioxidant activity of extracts from the wood and bark of Port Orford cedar. *Journal of Wood Science*, 53, 147-152.
- Gierlinger, N., Jacques, D., Grabner, M., Wimmer, R., Schwaninger, M.,

- Rozenberg, P., & Paques, L.E. (2004). Colour of larch heartwood and relationship to extractives and brown-rot decay resistance. *Trees*, 18, 102–108.
- Global Biodiversity Information Facility. (2010). GBIF Backbone Taxonomy: Checklist Dataset. (<https://www.gbif.org/species/5335719>)
- Gominho, J., & Pereira, H. (2000). Variability of heartwood content in plantation-grown *Eucalyptus Globulus* labill. *Wood and Fiber Science*, 32(2), 189–195.
- Gurjar, H., Jain, S.K., Nandanwar, R., & Sahu, V.K. (2010). Phytochemical screening on the stem bark of *Neolamarckia cadamba* (Roxb.) Miq. *International Journal of Phamaceutical Sciences and Research*, 1(7), 108–115.
- Gutierrez, A., del Río, J.C., Gonzalez-Vila, F.J., & Martín, F. (1999). Chemical composition of lipophilic extractives from *Eucalyptus globulus* Labill. wood. *Holzforschung*, 53(5), 481–486.
- Gutiérrez, A., del Río, J.C., & Martínez, A.T. (2004). Chemical analysis and biological removal of wood lipids forming pitch deposits in paper pulp manufacturing. In Environmental Microbiology. Methods in Bio-technology. Vol. 16. Walker, J.M.; Spencer, J.F.T. (Eds.). *Ragout de Spencer A.L. Humana Press*: New Jersey, USA.
- Gutierrez, A., del Rio, J.C., Rencoret, J., Ibarra, D., & Martinez A.T. (2006). Main lipohilic extractives in different paper pulp types can be remove using the laccase-mediator system. *Applied Microbiology and Biotechnology*, 72(4), 845–851.
- Hafizoğlu, H., Holmborn, B., & Reunanen, M. (2002). Chemical composition of lipophilic and phenolic constituents of bark from *Pinus nigra*, *Abies bornmülleriana*, and *Castanea sativa*. *Holzforschung*, 56, 257–260.
- Halawane, J. E., Hidayah, Ha. N., & Kinho, J. (2011). Prospek Pengembangan Jabon Merah (*Neolamarckia macrophyllus* (Roxb.) Havil), Solusi Kebutuhan Kayu Masa Depan. *Badan Peneltian dan Pengembangan Kehutanan, Balai Penelitian Kehutanan Manado*.
- Haneda, N.F., Ichtisinii, A., Siregar, U.J., Istikorini, Y., & Lestari, A. (2020). Chemical componen of sengon tree digested *Xystrocera festiva* (Coleoptera: Cermbycidae) larvae. *Advances in Biological Sciences Research*, 14, 292–295.
- Hansen, J.R., Turk, G., Vogg, R., & Heim, E.B. (1997). Conifer carbohydrates physiology: updating classical views. In *Trees – Contributions to modern tree physiology*, Rennenberg, H., Eschrich, W., Ziegler, H., Eds; *Backhuys Publishers Leiden*: The Netherlands, 97–108.
- Harborne, J. B. (1984). *Phytochemical methods : a guide to modern techniques of plant analysis*. second ed., *Chapman and Hall*, New York, USA.

- Harun, J., & Labosky, P. (1985). Chemical constituents of five northeastern barks. *Wood and Fiber*, 17(2), 274.
- Harwood, C.E., & Nambiar, E.K.S. (2014). Productivity of acacia and eucalypt plantations in Southeast Asia. 2. trends and variations. *International Forestry Review*, 16(2), 249–260.
- Harwood, C.E., Hardiyanto, E.B., & Wong, C.Y. (2015). Genetic improvement of tropical acacias: achievements and challenges. *Southern Forests: a Journal of Forest Science*, 77(1), 11–18.
- Haygreen, J.G., & J.L. Bowyer. (1988). Hasil hutan dan ilmu kayu. *Gadjah Mada University Press* (terjemahan). Yogyakarta.
- Hemingway, R.W. (1981). Bark: Its chemistry and prospects for chemical utilization. In: Goldstein, I.S. (Ed.), *Organic Chemicals and Biomass*. CRC Press, Boca Raton, FL, 189–248.
- Hemingway, R.W., Karchesy, J.J., McGraw, G.W., & Wielesek, R.A. (1983). Heterogeneity of interflavanoid bond located in loblolly pine bark procyanidins. *Phytochemistry*, 22, 275.
- Henriksson, G. (2009). Pulp and paper chemistry and technology volume 1. *Walter de Gruyter GmbH & Co. KG*, 10785 Berlin.
- Hergert, H.T. (1960). Chemical composition of tannins and polyphenolics from conifer wood and bark. *Forest Products Journal*, 10, 610–617.
- Hergert, H.T. (1962). Economic importance of flavonoid compounds: Wood and bark. In: Geissmann, T.A. (Ed.), *The Chemistry of Flavonoid Compounds*. *MacMillan, New York*, Chapter 17, 553–592.
- Heyne, K. (1978). Pertumbuhan berguna Indonesia I-IV. *Badan Peneletian dan Pengembangan Kehutanan. Departemen Kehutanan*. Yayasan Sarana Wana Jaya. Jakarta.
- Higuchi, T., Ito, Y., Shimada, M., & Kawamura, I. (1967). Chemical properties of bark lignins. *Cellulose Chemistry and Technology*, 1, 585–595.
- Hillis, W.E. (1971). Distribution, properties and formation of some wood extractives. *Wood Science and Technology*, 5(4), 272–289.
- Hillis, W.E. (1987). Heartwood and Tree Exudates. *Springer-Verlag Berlin Heidelberg*. Germany.
- Hillis, W.E., & Sumimoto, M. (1989). Effect of extractives on pulping. In: Rowe JW (ed) *Natural products of woody plants*. II. *Springer. Berlin Heidelberg New York*, 880–920.
- Hon, D.N.S., & Minemura, N. (2001). Colour and discoloration. In: wood and cellulosic chemistry. Hon, D.N.S., & Shiraishi, N. (editor). *Marcel Dekker, New York*.

- Huang, D., Ou, B., & Prior, R.L. (2005). The chemistry behind antioxidant capacity assays. *Journal of Agricultural and Food Chemistry*, 53, 1841-1856.
- Irawan, U.S., & E. Purwanto. (2014). White jabon (*Neolamarckia cadamba*) and red jabon (*Neolamarckia macrophyllus*) for community land rehabilitation: Improving local propagation efforts. *Agricultural Science*, 2(3), 36-45.
- Jansson, M.B., & Nilvebrant, N. (2009). Wood extractives. In : Pulp and paper chemistry dan technology Vol. 1, wood chemistry dan biotechnology. *De Gruyter*, Berlin.
- Jasni, Gustan, P., & Esti, R.S. (2016). Komposisi kimia dan keawetan alami 20 jenis kayu Indonesia dengan pengujian di bawah naungan. *Jurnal Penelitian Hasil hutan*, 34(4), 323-333.
- Jouogo, D.C.N., Jean-De-Dieu, T., Remy, B.T., Germaine, M-T., Laurence, V-N., Leon, A.T., & David, N. (2022). Chemotaxonomy and antibacterial activity of the extracts and chemical constituents of *Psychotia succulenta* Hern. (Rubiaceae). *BioMed Research International*, 2022, 1-10.
- Kartikaningtyas, D., & Widigdo. (2014). Identifikasi morfologi jabon putih (*Antochepallus cadamba* Miq.) dan jabon merah (*Antochepallus macrophylla* Roxb.) pada tingkat semai. *Informasi Teknis*, 12(2), 51-59.
- Khoddami, A., Wilkes, M.A., & Roberts, T.H. (2013). Techniques for analysis of plant phenolic compounds. *Molecules*, 18(2), 2328-2375.
- Kondo, R., & Imamura, H. (1985). The chemistry of the color of wood. I. The phenolic components of Hazenoki (*Rhus succedanea* L.) and their dyeing properties. *Mokuzai Gakkaishi*, 31, 927-934.
- Kozłowicz, K., Rozyło, R., Gładyszewska, B., Matwijczuk, A., Gładyszewski, G., Chocyk, D., Samborska, K., Piekut, J., & Smolewska, M. (2020). Identification of sugars and phenolic compounds in honey powders with the use of GC–MS, FTIR spectroscopy, and X-Ray diffraction. *Scientific Reports*, 10(16269), 1–10.
- Krisnawati, H., M. Kallio, dan M. Kanninen. (2011). *Neolamarckia cadamba* Miq.: ekologi, silvikultur dan produktivitas. *CIFOR, Bogor*, Indonesia.
- Kumar, V. (2017). Medicinal properties of *Neolamarckia Indicus* (kadam): an indigenous medicinal plant. *Era's Journal of Medical Research*, 4(1), 63–67.
- Kurth, E.F., & Smith, J.E. (1954). The chemical nature of the lignin of Douglas-fir bark. *Pulp Paper. Mag. Canada*, 55, 125.
- Labosky, P. (1979). Chemical constituents of four southern pine parks. *Wood Science*, 12(2), 80–85.
- Laks, P.E. (1991). Chemistry of bark. In: Hon, D.N.-S. and Shiraishi, N. (Eds.) *Wood and Cellulosic Chemistry. Marcel Dekker, New York*, 257–330.

- Lal, M., Dutt, D., Tyagi, C. H., Upadhyay, J. S., & Upadhyay, S. (2010). Characterization of *Neolamarckia cadamba* and its delignification by kraft pulping. *Tappi Journal*, 9(3), 30–37.
- Langga, I.F., Restu, M., & Kuswinanti, T. (2012). Optimization of temperature and length of incubation in extracting Bitti Plant (*Vitex cofassus* Reinw.) DNA and genetic variation analysis with RAPD-PCR. *Jurnal Sains Teknologi*, 12 (3), 265-276
- Latib, N.A., Tamat, N.S.M., & Kasim, J. 2014. Physical and chemical properties of kelempayan (*Neolamarckia cadamba*) wood. *International Journal of Latest Research in Science and Technology*, 3(6), 215-219.
- Lednicer, D. (2011). Steroid chemistry at a Glance.1 Ed. *John Wiley & Sons Ltd.* United Kingdom.
- Lempang, M. (2014). Sifat dasar dan potensi kegunaan kayu jabon merah. *Jurnal Penelitian Kehutanan Wallacea*, 5(1), 163-175.
- Le Normand, M., Edlund, U., Holmbom, B., & Ek, M. (2012). Hot-water extraction and characterization of spruce bark non-cellulosic polysaccharides. *Nordic Pulp and Paper Research Journal*, 27(1), 18-23.
- Leone, R., & C. Breuil. (1998). Filamentous fungi can degrade aspen steryl esters and waxes. *International Biodeterioration & Biodegradation*, 41, 133–137.
- Lourenco, A., Gominho, J., & Pereira, H. (2010). Pulping and delignification of sapwood and heartwood from *Eucalyptus globulus*. *Journal of Pulp and Paper Science*, 36(6), 85-90.
- Lukmandaru, G. (2009). Perubahan warna pada kayu teras jati (*Tectona grandis*) doeng melalui ekstraksi berturutan. *Jurnal Ilmu dan Teknologi Hasil Hutan*, 2(1), 15-20.
- Lukmandaru, G. (2009). Pengukuran kadar ekstraktif dan sifat warna pada kayu teras jati doreng (*Tectona grandis*). *Jurnal Ilmu Kehutanan*, 3(2), 67-73.
- Lukmandaru, G. (2011). Variability in the natural termite resistance of plantation teak wood and its relations with wood extractive content and color properties. *Journal Forest Research*, 8(1), 17-31.
- Lukmandaru G. (2012). Komposisi ekstraktif pada kayu mangium (*Acacia mangium*). *Jurnal Ilmu dan Teknologi Kayu Tropis*, 10(2), 150-156.
- Lukmandaru, G., Sayudha, I.G.N.D., Gustomo, L.S., & Prasetyo, V.E. (2011). Pengukuran kadar ekstraktif dan sifat warna kayu *Acacia mangium* dari lima provenans. *Prosiding Semnas MAPEKI XII di Bali*, 372-380.
- Lukmandaru, G., R.M. Arsy, W. Pito, & E.P. Vendy. (2016). Studi mutu kayu jati di hutan rakyat Gunungkidul. *Jurnal Ilmu Kehutanan*, 10(2), 108-118.
- Lukmandaru, G., Zumaini, U.F., Soeprijadi, D., Nugroho, W.D., & Susanto, M.

- (2016). Chemical properties and fiber dimension of *Eucalyptus pellita* from the 2nd generation of progeny test in Pelaihari, South Borneo, Indonesia. *J. Korean Wood Sci. Technol.*, 44(4), 571-558.
- Magel, E., Jay-Allemand, C., & Ziegler, H. (1994). Formation of heartwood substances in the stemwood of *Robinia pseudoacacia* L. II. Distribution of non-structural carbohydrates and wood extractives across the Trunk. *Trees*, 8, 165–171.
- Mansur, I., & F.D. Tuheteru. (2012). Kayu Jabon. *Penebar Swadaya*. Jakarta.
- Marsoem, S.N. (2012). Buku ajar pulp dan kertas. *Laboratorium Kimia dan Serat Kayu Jurusan Teknologi Hasil Hutan*. Fakultas Kehutanan UGM (tidak dipublikasikan). Yogyakarta.
- Martawijaya, A., Kartasujana, I., Mandang, Y.I., Prawira, S.A., & Kadir, K. (1989) Atlas kayu Indonesia Jilid II. *Pusat Penelitian dan Pengembangan Hasil Hutan*, Bogor, Indonesia.
- Masendra. (2016). Komposisi kimia ekstraktif kulit kayu (*Pinus merkusii*). *Skripsi. Fakultas Kehutanan Universitas Gadjah Mada*. Yogyakarta.
- Masendra, Tatsuya, A., Koetsu, A., & Ganis, L. (2018). Lipophilic extractives of the inner and outer barks from six different *Pinus* species grown in Indonesia. *Journal of Forestry Research*, 29(5), 1329-1336.
- Masriani, R., Teddy, K., Hana, R., & Raeshifa, D.A. (2020). Kajian pengembangan standar metode uji holoselulosa. *Prosiding Pertemuan dan Presentasi Ilmiah Standardisasi 5 November 2020*, 285-292.
- McGinnis, G.D., & Parikh, S. The chemical constituents of loblolly pine. *Wood Science*, 7(4), 295–297.
- McLean, D.S., Stack, R.S., & Richardson, D.E. (2014). The effect of wood extractives composition, pH and temperature on pitch deposition. *Appita Journal*, 58 (1), 52-76.
- Menezes, R.P.B., Zoe, S., Eugene, M., Luciana, S., & Marcus, T.S. (2021). Secondary metabolites extracted from Annonaceae and chemotaxonomy study of terpenoids. *Journal of the Brazilian Chemical Society*, 32(11), 2016-2070.
- Mihara, R., Barry, K.M., Mohammed, C.L., & Mitsunaga, T. (2005). Comparison of antifungal and antioxidant of *Acacia mangium* and *A. auriculiformis*. *Journal of Chemical Ecology*, 31(4), 789-804.
- Mindawati, N., Bogidarmanti, R., Nuroniah, H.S., Kosasih, A.S., Suhartati, Rahmayanti, S.A., Rachmat, E., & Rochmayanto, Y. (2009). Sintesa hasil penelitian silvikultur jenis alternatif penghasil kayu pulp. *Pusat Penelitian dan Pengembangan Peningkatan Produktivitas Hutan*, Badan Penelitian dan Pengembangan Kehutanan. Bogor.

- Miranda, I., & H. Pereira. (2002). Variation of pulpwood quality with provenances and site in *Eucalyptus globulus*. *Annals of Forest Science*, 59(3), 283–291.
- Miranda, I., Gominho, J., Mirra, I., & Pereira, H., (2012). Chemical characterization of barks from *Picea abies* and *Pinus sylvestris* after fractioning into different particle sizes. *Industrial Crops and Products*, 36(1), 395–400.
- Miranda, I., Gominho, J., Mirra, I., & Pereira, H. (2013). Fractioning and chemical of barks of *Betula pendula* and *Eucalyptus globulus*. *Industrial Crops and Products*, 41, 299–305.
- Misbahuddin, M., Biswas, D., & Roy, U. (2019). Suitability of eight years kadam tree (*Neolamarckia cadamba*) in chemical pulping. *Nordic Pulp and Paper Research Journal*, 34(4), 417–421.
- Moldeveanu, S. C., & David, V. (2018). Derivatization Methods in GC and GC/MS.
- Molyneux, P. (2003). The use of the stable free radical diphenylpicrylhydrazyl (DPPH) for estimating antioxidant activity. *Macrophile Associates*. Wiltshire.
- Mukhdlor, A., Haqiqi, M. T., Tirkaamiana, M. T., Suwinarti, W., & Amirta, R. (2021). Assessment of wood biomass productivity from *Neolamarckia macrophyllus* forest plantation for energy production. *Proceedings of the Joint Symposium on Tropical Studies (JSTS-19)*, 11, 21–25.
- Neiva, D.M., Araujo, S., Laurencio, A., Gominho, J., & Pereira, H. (2015). Kraft pulping and wood chemical composition for 12 *Eucalyptus* species. *Industrial Crops dan Products*, 66, 89-95.
- Niamke, F.B., Amusant, N., Charpentier, J.P., Chaix, G., Baissac, Y., Boutahar, N., Adima, A.A., Kati-Coulibaly, S., & Jay-Allemand, C. (2011). Relationships between biochemical attributes (Non-structural carbohydrates and phenolics) and natural durability against fungi in dry teak wood (*Tectona Grandis* L. f.). *Annals of Forest Science*, 68, 201–211.
- Nunes, E., Quilhó, T., & Pereira, H. (1999). Anatomy and chemical composition of *Pinus pinea* L. bark. *Annals of Forestry Science*, 56, 479-484.
- Nurhasybi, & A. Muharam. (2010). Atlas Benih Tanaman Hutan Indonesia. *Balai Penelitian dan Pengembangan Kehutanan Departemen Kehutanan*, Bogor.
- Obst, J.R. (1998). Special (secondary) metabolites from wood. In: Alan Bruce and John W. Palfreyman (eds.). *Forest products biotechnology*. Taylor & Francis, London, UK. 151–165.
- Orwa, C., Mutua, A., Kindt, R., Jamnadass, R., & Anthony, S. (2009). Agroforestry tree database: a tree reference and selection guide version 4.0. (<http://www.worldagroforestry.org/af/treedb/>).
- Pakpahan, E. (2015). Peningkatan produksi Centellosida pada pegangan (*Centella*

- asiatica). Dalam: kumpulan karya tulis ilmiah. 20 Juni 2017. <http://tugasakhiramik.blogspot.co.id/2015/10/peningkatan-produksi-centellosida-pada.htmL>.
- Panche, A.N., Diwan, A.D., & Chandra, S.R. (2016). Flavonoids: An overview. *Journal of Nutritional Science*, 5.
- Pathauer, P.S., Lopez, G.A., & Gelid, P.E. (2004). Genetic parameter for growth, pilodyn penetration, and tree form in *Eucalyptus dunnii*. In: Borralho, N, *et al.* *Eucalyptus in a Changing World*. Proc IUFRO Conf., Aveiro 11-15 October 2004.
- Pereira, J.T., Hastie, A.Y.L., Sugau, J.B., & Chung, A.Y.C. (2015). The Fast-growing tree jabon merah *Neolamarckia macrophylla* (Roxb.) Bosser (Rubiaceae). *Annual Report Sabah Forestry Departement*.
- Pereira, H., Grac, A.J., & Rodrigues, J.C. (2003). Wood chemistry in relation to quality. In: Barnett, J.R., Jeronimidis, G. (eds) *Wood quality and its biological basis*. Blackwell, United Kingdom, 53-86.
- Pereira, D. M., Valentao, P., Pereira, J. A., & Andrade, P. B. (2009). Phenolics: from chemistry to biology. *Molecules*, 14, 2202–2211.
- Pietarinen, S., Willfor, S. & Holmbom, B. (2004). Wood resin in *Acacia Mangium* and *Acacia Crassicarpa* wood and knots. *Appita Journal*, 57(2), 146–150.
- Piispanen, R. & Saranpaa, P. (2001). Variation of non-structural carbohydrates in silver birch (*Betula pendula* Roth) wood. *Trees*, 15, 444–451.
- Pontis, J.A., Alves da Costa, L.A.M., Reis da Silva, S.J., & Flach, A. (2014). Color, phenolic and flavonoid content of honey from Roraima, Brazil. *Food Science and Technology*, 34(1), 69-73.
- Prananta, Y. E., Rakhman, K. A., & Saleh, J. (2020). Antioxidant activities of red jabon (*Neolamarckia macrophylla*) ethanol extract. *IOP Conference Series: Earth and Environmental Science*, 415(1), 1-8.
- Pratiwi. (2003). Prospek Pohon Jabon Untuk Pengembangan Hutan Tanaman. *Buletin Penelitian dan Pengembangan Kehutanan, Bogor*, 4(1), 62-66.
- Prawirohatmodjo, S. (2004). Kimia kayu. *Universitas Gadjah Mada*. Yogyakarta. (Tidak diterbitkan).
- Purba, B.A.V., Sunarti, S., & Lukmandaru, G. (2021). Phenolics content and antioxidant activity of wood extractives from three clones of *Acacia Hybrid* (*Acacia mangium* x *Acacia auriculiformis*). *Maderas Ciencia y tecnologia*, 23(28), 1-12.
- Quang, T.H., Kien, N.D., von Arnold, S., Jansson, G., Thinh, H.H., & Clapham, D. (2010). Relationship of wood composition to growth traits of selected open-pollinated families of *Eucalyptus urophylla* from a progeny trial in Vietnam. *New Forest*, 39(3), 301-312.

- Rahayu, S., Lee, S.S., & Shukor, N. A. A. (2010). *Uromycladium tepperianum*, the gall rust fungus from *Falcataria moluccana* in Malaysia and Indonesia. *Mycoscience*, 51(2), 149–153.
- Rahman, W.M.N.W.A., Yunus, N.Y.M, Kasim, J., & Tamat, N.S.M. (2018). Effects of tree portion and radial position on physical and chemical properties of kelampayan (*Neolamarckia cadamba*) wood. *BioResources*, 13(2), 4536–4549.
- Rencoret, J., Gutierrez, A., & Del Rio, J.C. (2011). Chemical composition of different Eucalyptus wood species used for paper pulp manufacturing. *Instituto de Recursos Naturales Agrobiología de Sevilla, CSIC*.
- Rowell, R.M., R. Petersen, & M.A. Tshabalala. (2005). Cell wall chemistry. Dalam: handbook of wood chemistry and wood composites (second edition). CRC Press. Taylor & Francis Group.
- Rutiaga Quiñones, J.G., Windeisen, E., & Strobel, C. (1998). Polysaccharide von *Swietenia macrophylla* King. *European Journal of Wood and Wood Product*, 56(4), 234.
- Saifudin, A. (2014). Senyawa alam metabolit sekunder: teori, konsep, dan teknik pemurnian. Ed.1. Deepublish. CV Budi utama. Yogyakarta.
- Sakai, K. (2001). Chemistry of bark. In: Hon, D.N.-S., Shiraishi, N. (Eds.), Wood and Cellulosic Chemistry, 2nd ed. *Marcel Dekker*, New York.
- Sandved, K.B., Prance, G.T., & Prance, A.E. (1992). Bark: the formation, characteristics, and uses of bark around the world. *Timber Press*, Portland, OR, United States.
- Sari, E.T., & Hamzari. (2021). Analisis Potensi Hutan Tanaman Jabon (*Neolamarckia cadamba* Miq). *Jurnal Warta Rimba*, 9(2), 125–132.
- Sarkanen, K.V., & Hergert, H.L. (1971). Classification and distribution, In: Sarkanen, K.V and Ludwig, C.H. (Eds.), Lignins, Occurrence, formation, structure and reactions, *Wiley-Interscience*, New York.
- Schofield, P., Mbugua, D., & Pell, A.N. (2001). Analysis of condensed tannins: A review. *Animal Feed Science Technology*, 91(1), 21–40.
- Sell, C.S. (2003). A fragrant introduction to terpenoid chemistry. *Published by The Royal Society of Chemistry*, Thomas Graham House, Science park, Milton Road, Cambridge CB4 0WF. UK.
- Setyaji, T. (2011). Jabon dan Prospeknya untuk Hutan Rakyat. *Informasi Teknis*, 9(2), 45–54.
- Setyaji, T., Nirsatmanto, A., & Sunarti, S. (2013). Genetic variation on early growth of jabon (*Neolamarckia spp.*) observed in first generation seedling seed orchard. *International Conference of Indonesia Forestry Researchers*. Bogor.

- Setyaji, T., Nirsatmanto, A., Sunarti S., Surip, Kartiksningtyas, D., Yuliastuti, D.S., & Sumaryana. (2014). Budi daya intensif jabon merah (*Neolamarckia macrophyllus*) “Si jati kebon dari Timur”. *IPB Press*. Bogor.
- Silverio, F.O., Barbosa, L.C.A., Maltha, C.R.A., Silvestre, A.J.D., Veloso, D.P., & Gomide, J.L. (2007). Characterization of lipophilic wood extractives from clones of *Eucalyptus urograndis* cultivate in Brazil. *BioResources*, 2(2), 157-168.
- Sjostrom, E. (1998). Kimia kayu: dasar-dasar penggunaan. *Gadjah Mada University Press* (terjemahan). Yogyakarta.
- Stolarski, M.J., Szczukowski, S., Tworkowski, J., Wróblewska, H., & Krzyżaniak, M. (2011). Short rotation willow coppice biomass as an industrial and energy feedstock. *Industrial Crops and Products*, 33, 217–223
- Soerianegara I. & Lemmens, R.H.M.J. (1994). Plant resources of South-East Asia 5(1) Timber trees: Major commercial timbers. *Prosea*. Bogor.
- Sokanandi, A., Pari, G., Setiawan, D., & Saepuloh. (2012). Komponen kimia sepuluh jenis kayu kurang dikenal: kemungkinan penggunaan sebagai bahan baku pembuatan bioetanol. *Jurnal Penelitian Hasil Hutan*, 32(2), 209-218.
- Soon, L.K., & Chiang, L.K. 2012. Influence of different extraction solvents on lipophilic extractives of Acacia hybrid in different wood portions. *Asian Journal of Applied Sciences*, 5(2), 107-116.
- Stackpole, D.J., Vaillancourt, R.E., Alves, A., Rodrigues, J. & Potts, B.M. (2011). Genetic variation in the chemical components of *Eucalyptus globulus* wood. *Genetics*, 1(2), 151-159.
- Streit, W., & Fengel, D. (1994). On the changes of the extractive composition during heartwood formation in *Quebracho colorado* (*Schinopsis balansae* Engl.). *Holzforschung*, 48, 15–20.
- Sumarni, G. (2004). Keawetan kayu terhadap serangga. Upaya menuji efisiensi penggunaan kayu. *Orasi Pengukuhan Ahli Peneliti Utama*, Jakarta. Balai Penelitian dan Pengembangan Kehutanan.
- Sun, J., Wang, X., Zhu, Y., Wang, X., & Gao, Z. (2012). Study on the chemical properties of *Neolamarckia chinensis*. *Advanced Materials Research*, 518–523, 5366–5370.
- Syafii, W., & Siregar, I.Z. (2006). Sifat kimia dan dimensi serat kayu mangium (*Acacia mangium* Wild.) dari tiga provenans. *Journal Tropical Wood Science & Technology*, 4(1), 28-32.
- Swan, B. 1967. Extractives of unbleached and bleached prehydrolysis-kraft pulp from *Eucalyptus globulus*. *Svensk Papperstidn*, 70, 616–619.
- TAPPI. (2002). Acid-insoluble lignin in wood and pulp. Technical Association of the Pulp and Paper Industry, T 222 om-02. *Technical Association of the Pulp*

and Paper Industry, New York.

- TAPPI. (2009). Carbohydrate composition of extractive-free wood and wood pulp by gas-liquid chromatography. Technical Association of the Pulp and Paper Industry, T 249 om-09. *Technical Association of the Pulp and Paper Industry*, New York.
- Tarigan, M., Roux, J., van Wyk, M., Tjahjono B., & Wingfield, M.J. (2011). A new wilt and die-back disease of *Acacia mangium* associated with *Ceratocystis manginecans* and *C. acaciivora* sp nov. in Indonesia. *South African Journal of Botany*, 77(2), 292-304.
- Thompson, A., Cooper, J., & Ingram, I. (2006). Distribution of terpenes in heartwood and sapwood of loblolly pine. *Forest Products Journal*, 56(7/8), 46-48.
- Umezawa, T. (2001). Chemistry of extractives. Dalam: wood and cellulosic chemistry. Hon, D.N.S., & N. Shiraishi (Ed). *Marcel Dekker*, New York.
- Valente, C.A., Sousa, A.P.M., Furtado, F.P., & Carvalho, A.P. (1992). Improvement program for *Eucalyptus globulus* at Portucel: technological component. *Appita*, 45(6), 403-407.
- Van Putten, R.-J., Winkelman, J.G.M., Keihan, F., Van der Waal, J.C., De Jong, E., & Heeres, H.J. (2014). Experimental and modelling studies on the solubility of D-arabinose, D-fructose, D-glucose, D-mannose, sucrose and D-cylose in methanol and methanol-water mixtures. *Industrial & Engineering Chemistry Research*, 53(19), 8285–8290.
- Vassilev, S.V., Baxter, D., Andersen, L.K., Vassileva, C.G., & Morgan, T.J. (2012). An overview of the organic and inorganic phase composition of biomass. *Fuel*, 94, 1–33.
- Venkataraman, K. (1972). Wood phenolics in the chemotaxonomy of the moraceae. *Phytochemistry*, 11(5), 1571-1586.
- Vek, V., Oven, P., Ters, T., Poljansek, I., & Hinterstoisser, B. (2014). Extractives of mechanically wounded wood and knots in beech. *Holzforschung*, 68, 529–539.
- Villar, E., Klopp, C., Noirot, C., Novaes, E., Kirst, M., Plomion, C., & Jean-Marc, G. (2011). RNA-Seq reveals genotype-specific molecular responses to water deficit in eucalyptus. *BMC Genomics*, 12(538), 1-18.
- Wang, F., Zhang, Q., Tian, Y., Yang, S., Wang, H., Wang, L., Li, Y., Zhang, P., & Zhao, X. (2018). Comprehensive assessment of growth traits and wood properties in half-sib *Pinus koraiensis* families. *Euphytica*, 204(202), 1-15.
- Wanli, B., Yang, Z., & Wang, S. Studies on chemical composition and paper-making propeties of 6 kinds of poplar. *Liaoning Forestry Science and Technology*, 4, 56-61.

- Wilcox, W.W., & Piirto, D.D. (1976). Chemical characterization of wood and its components. Dalam: wood and cellulosic chemistry. Hon, D.N.S., & N. Shiraishi (Ed). *Marcel Dekker*, New York.
- Wistara, N. J., Carolina, A., Pulungan, W. S., Emil, N., Lee, S. H., & Kim, N. H. (2015). Effect of tree age and active alkali on kraft pulping of white jabon. *Journal of the Korean Wood Science and Technology*, 43(5), 566–577.
- Wissam, Z., Ghada, B., Wassim, A., & Warid, K. (2012). Effective extraction of polyphenols and proanthocyanidins from pomegranate's peel. *International Journal of Pharmacy and Pharmaceutical Science*, 4(2), 673- 682.
- Yudohartono, T.P. (2013). Growth characteristic of jabon from Sumbawa provenance at nursery and after planting. *Jurnal Pemuliaan Tanaman Hutan*, 7(2), 85-96.
- Zhao, X., Ouyang, K., Gan, S., Zeng, W., Song, L., Zhao, S., Li, J., Doblin, M.S., Basic, A., Chen, X., Marchant, A., Deng, X., & Wu, A.M. (2014). Biochemical and molecular changes associated with heteroxylan biosynthesis in *Neolamarckia cadamba* (Rubiaceae) during xylogenesis. *Front Plant Sci*, 5, 602.
- Zhao, X., Tong, T., Li, H., Ren, J., Zhang, A., Deng, X., Chen, X., & Wu, A. (2016). Characterization of hemicelluloses from *Neolamarckia cadamba* (Rubiaceae) during xylogenesis. *Carbohydrate Polymers*, 156, 333-339.
- Zobel, B.J., & van Buijtenen, J.P. (1989). Wood variations, its causes and control. *Springer-Verlag*. Berlin.