DAFTAR PUSTAKA

[BSN]. Badan Standarisasi Nasional. 1996. *SNI Tabir Surya* (SNI 16-439). Badan Standarisasi Nasional.

Ahmad, I, Arifianti, A. E, Sakti, A. S, Saputri, F. C, & Mun'im, A. 2020. Simultaneous Natural Deep Eutectic Solvent-Based Ultrasonic-Assisted Extraction of Bioactive Compounds of Cinnamon Bark and Sappan Wood as a Dipeptidyl Peptidase IV Inhibitor. *Molecules*, *25*(17). https://doi.org/10.3390/molecules25173832

Akmal, T, Tanjung, Y. P, Julianti, A. I, & Lestari, A. G. 2024. Influence of extraction method on total phenolic content and antioxidant activity of Sappan Wood (*Caesalpinia sappan L.*) extract. *Sasambo Journal of Pharmacy*, *5*(2), 55–62.

Ateş, E, Kaya, C, Yücel, E. E, & Bayram, M. 2022. Effects of ultrasound-assisted extraction procedure on total phenolics, catechin and caffeine content of green tea extracts. *Emirates Journal of Food and Agriculture*, *34*(8), 664–674. https://doi.org/10.9755/ejfa.2022.v34.i8.2911

Batubara, I, Mitsunaga, T, & Ohashi, H. 2009. Screening antiacne potency of Indonesian medicinal plants: Antibacterial, lipase inhibition, and antioxidant activities. *Journal of Wood Science*, *55*(3), 230–235. https://doi.org/10.1007/s10086-008-1021-1

Bharathi, K, & Nair, D. 2022. Evaluation of Laxative Activity of Caesalpinia Sappan Wood Extracts in Rats. *International Journal of Pharmaceutical Research and Applications*, *7*(6), 64–69. https://doi.org/10.35629/7781-07066469

Cai, D, Li, X, Chen, J, Jiang, X, Ma, X, Sun, J, Tian, L, Vidyarthi, S. K, Xu, J, Pan, Z, & Bai, W. 2022. A comprehensive review on innovative and advanced stabilization approaches of anthocyanin by modifying structure and controlling environmental factors. *Food Chemistry*, *366*, 1–13. https://doi.org/10.1016/j.foodchem.2021.130611

Cao, Y, Xia, Q, Aniya, Chen, J, & Jin, Z. 2023. Copigmentation Effect of Flavonols on Anthocyanins in Black Mulberry Juice and Their Interaction Mechanism Investigation. *Food Chemistry*, *399*. https://doi.org/https://doi.org/10.1016/j.foodchem.2022.133927

Chinnasamy, R, Sasindranathan, S, Shourimuthu, M, & Natchiappan, S. 2010. Analysis of Anthocyanin in Caesalpinia sappan Linn. and Carissa carandas Linn. using HPLC. *International Journal of Biotechnology and Bioengineering Research*, *1*(1), 115–123. http://www.ripublication.com/ijbbr.htm

Dachriyanus. 2004. *Analisis Struktur Senyawa Organik Secara Spektroskopi*. LPTIK Universitas Andalas.

Dermatologist, C. 2024. *Sun Protection Fact Sheet*. https://www.skinhealthinfo.org.uk/wp-content/uploads/2024/05/Sun-Protection-Fact-Sheet.pdf

Djaeni, M, Cahyo, A, Dwi, F, & Eka, I. 2021. *Enhancement of The Sappanwood Extract Yield by Aqueous Ultrasound- Assisted Extraction Using Water Solvent*. *11*(4), 1514–1520.

Donglikar, M. M, & Deore, S. L. 2016. Sunscreens : A review. *Pharmacognosy Journal*, *8*(3), 171–179. https://doi.org/10.5530/pj.2016.3.1

Farhamzah, Kusumawati, A. H, Alkandahri, M. Y, Hidayah, H, Sujana, D. 2022. Sun Protection Factor Activity of Black Glutinous Rice Emulgel Extract (*Oryza sativa var glutinosa*). *Indian Journal of Pharmaceutical Education and Research*, *56*(1), 302–310. https://doi.org/10.5530/ijper.56.1.36

Fauzan, M. R, Rosniawaty, S, Maxiselly, Y, & Ariyanti, M. 2024. Respons pertumbuhan tanaman secang (*Caesalpinia sappan* L.) terhadap dosis pupuk kandang sapi Growth response of sappanwood plants (*Caesalpinia sappan* L .) To varying doses of cow manure. *COMPOSITE : Jurnal Ilmu Pertanian*, *6*(2), 120–126. https://doi.org/https:/doi.org/10.37577/composite.v6i2.715

Flores, G, S, Rocha, L A, Rodriguez, M, A, Camacho,F,Y, Escareno, J,R. 2024. Characterization of Adsorbed Hydrocarbons in Deposit Sands and Well Fracture in The Burgos Basin. Revista de Gestão Social e Ambiental. 18(9) : 1-19. DOI: https://doi.org/10.24857/rgsa.v18n9-197

Gan, Y, Liu, R, & Yu, Z. 2019. Application of UV Photocatalytic Degradation of Benzene. *Journal Urban Science*, 8(2), 29–34. https://doi.org/https://doi.org/10.22645/udi.2019.12.30.029

Golonka, I, Wilk, S, & Musiał, W. 2020. *The Influence of UV Radiation on the Degradation of Pharmaceutical Formulations Containing Quercetin*. *25*, 1–15. https://doi.org/doi:10.3390/molecules25225454

Hamidi, W, & Elida, S. 2018. Analysis Of Value Added And Development Strategy Of Public Sago Agroindustry Business In Kepulauan Meranti Regency. *International Journal of Scientific & Technology Research*, *7*(2), 94–99.

Hayami, Y, Morooka, Y, & Siregar, M. 1987. *Agricultural Marketing and Processing in Upland Java A Perspective From A Sunda Village.* Bogor CGPRT Centre.

Herbie, T. 2015. Kitab Tanaman Berkhasiat Obat-226. In *Tumbuhan Obat untuk Penyembuhan Penyakit dan Kebugaran Tubuh* (Issue Yogyakarta : Octopus Publishing House, p:359). octopus publishing house.

Insuan, W, Sillawatthumrong, N, Chahomchuen, T, & Khamchun, S. 2024. Brazilin content and potential biological properties of Caesalpinia sappan L . heartwood extracts from different extraction methods. *Discover Applied Sciences*. https://doi.org/10.1007/s42452-024-06222-4

Jamaddar, S, Sarkar, C, Akter, S, Mubarak, M. S, El-nashar, H. A. S, El-shazly, M, & Torequl, M. 2023. South African Journal of Botany Brazilin : An updated literature-based review on its promising therapeutic approaches and toxicological studies. *South African Journal of Botany*, *158*, 118–132. https://doi.org/https://doi.org/10.1016/j.sajb.2023.04.053

Khurshid, Z, Zafar, M. S, Zohaib, S, Najeeb, S, & Naseem, M. 2016. *Green Tea (Camellia Sinensis): Chemistry and Oral Health*. 166–173. https://doi.org/10.2174/1874210601610010166

Kipsura, E, Koech, R, Mwangi, S, Kamunya, S, Ngeno, V, Koech, J, & Bii, C. 2025. *Biochemical Composition Of Specialty Tea Extracts From Multistage Extractions Using Solvents Treatments*. https://doi.org/10.1101/2025.01.29.635473.

Kurniasari, L, Kumoro, A. C, & Djaeni, M. 2024. Ultrasound assisted extraction of sappan wood (*Caesalpinia sappan* L.) using different solvents. *Food Research*, *8*, 23–28. https://doi.org/10.26656/fr.2017.8(S1).4

Kusmana, C, & Hikmat, A. 2015. The Biodiversity of Flora in Indonesia. *Journal of Natural Resources and Environmental Management*, *5*(2), 187–198. https://doi.org/10.19081/jpsl.5.2.187

Maghiszha, D. F. 2019. *Teh (Camelia Sinensis)*. https://www.tribunnewswiki.com/2019/07/31/teh-camellia-sinensis

Mahmad, N, & Taha, R. . 2018. Effects of pH , UV-B radiation and NaCl on anthocyanin stability from vivid blue petals of Clitoria ternatea L , a potential natural colourant from legume crop. *Pigment & Resin Technology*. https://doi.org/10.1108/PRT-11-2016-0106

Março, P. H, Poppi, R. J, Scarminio, I. S, & Tauler, R. 2011. Investigation of the pH effect and UV radiation on kinetic

degradation of anthocyanin mixtures extracted from Hibiscus acetosella OH HO OH OH HO. *Food Chemistry*, *125*, 1020–1027. https://doi.org/10.1016/j.foodchem.2010.10.005

Miksusanti, Elfita, & S, H. 2012. Aktivitas Antioksidan dan Sifat Kestabilan Warna Campuran Ekstrak Etil Asetat Kulit Buah Manggis (*Garcinia mangostana* L.) dan Kayu Secang (*Caesalpinia sappan* L.). *Jurnal Penelitian Sains*, *15*(2), 60–69.

Mumtazah, edlia fadilah, Salsabila, S, Lestari, E. suci, Rohmatin, alfin khoirul, Ismi, alif N, Rahmah, hana aulia, Mugiarto, D, Daryanto, I, Billah, M, Salim, odilia stefani, & Damaris, alfin renaldi. 2020. Pengetahuan Mengenai sunscreen dan Bahaya Paparan Sinar Matahari serta Perilaku Mahasiswa Teknik Sipil terhadap Penggunaan Sunscreen. *Junal Farmasi Komunitas*, *7*(2), 63–68.

Musial, C, Kuban-jankowska, A, & Gorska-ponikowska, M. 2020. *Beneficial Properties of Green Tea Catechins*.

Nagarajan, S, Nagarajan, R, Kumar, J, Salemme, A, Togna, A. R, Saso, L, & Bruno, F. (2020). Antioxidant Activity of Synthetic Polymers of Phenolic Compounds. *Polymers*, *12*(1646), 1–27. https://doi.org/doi:10.3390/polym12081646

Ngamwonglumlert, L, & Devahastin, S. 2023. Brazilein as an alternative pigment: Isolation, characterization, stability enhancement and food applications. *Food Chemistry*, *398.* https://doi.org/10.1016/j.foodchem.2022.133898

Ngamwonglumlert, L, Devahastin, S, Chiewchan, N, & Raghavan, G. S. V. 2020. Color and molecular structure alterations of brazilein extracted from Caesalpinia sappan L. under different pH and heating conditions. *Scientific Reports*, 10(1): 1–10. https://doi.org/10.1038/s41598-020-69189-3

Nia, B. R. 2020. *Formulasi Dan Evaluasi Skin Lotion Tabir Surya Berbahan Baku Vco (Virgina Coconut Oil) Dengan Penambahan Ekstrak Berbagai Bahan baku* [Universitas Andalas]. http://scholar.unand.ac.id/62875/.

Nirmal, N. P, & Panichayupakaranant, P. 2015. activities of standardized brazilin-rich Caesalpinia sappan extract. *Pharmaceutical Biology*, *53*(9), 1339–1343. https://doi.org/10.3109/13880209.2014.982295

Nirmal, N. P, Rajput, M. S, Prasad, R. G. S. V, & Ahmad, M. 2015. Brazilin from Caesalpinia sappan heartwood and its pharmacological activities: A review. *Asian Pacific Journal of Tropical Medicine*, *8*(6), 421–430. https://doi.org/10.1016/j.apjtm.2015.05.014

Nomer, N. M. G. R, Duniaji, A. S, & Nocianitri, K. A. 2019. Kandungan Senyawa Flavonoid dan Antosianin Ekstrak Kayu Secang (*Caesalpinia sappan* L.) Serta Aktivitas Antibakteri Terhadap Vibrio cholerae. *Jurnal Ilmu Dan Teknologi Pangan (ITEPA)*, *8*(2), 216. https://doi.org/10.24843/itepa.2019.v08.i02.p12

Nugrahadista, betria dana. 2018. *Analisis Nilai Tambah, Kelayakan Usaha dan Strategi Pengembangan pada UMKM Keripik Tempe Putra Ridhlo Di Kota Malang.* Universitas Brawijaya.

Nurasiah, L, Hernawati, D, & Putra, R. R. 2023. *Secang: Etnobotani dan Potensi Khasiatnya melalui Molecular Docking*. Universitas Siliwangi.

Pratiwi, A. , Yusran, Islawati, & Artati. 2023. Analisis Kadar Antioksidan pada Ekstrak Daun Binahong Hijau *Anredera cordifolia* (Ten.) Steenis. *Bioma : Jurnal Biologi Makassar*, *8*(August 2022), 66–74. https://journal.unhas.ac.id/index.php/bioma

Putra, satria iswara, Istiqomah, Gunawan, diah setyorini, & Purnomo, sodik dwi. 2020. Analisis Pendapatan dan Nilai Tambah Industri Pengolahan Kopi : Pendekatan Metode Hayami. *Indonesian Journal of Development Economics*, *3*(3), 994–1005. https://doi.org/https://doi.org/10.15294/efficient.v3i3.43518

Rahmi, I, & Trimo, L. 2019. Nilai Tambah Pada Agroindustri Dodol Tomat (Studi Kasus Pada Usaha Kelompok Wanita Tani Mentari Desa Genteng, Kecamatan Sukasari, Kabupaten Sumedang). *Journal of Food Systems and Agribusiness*, *3*(2), 50–56. https://doi.org/https://doi.org/10.25181/jofsa.v3i2.1510

Rajput, M. S, Nirmal, N. P, Nirmal, S. J, & Santivarangkna, C. 2022. Bio-actives from Caesalpinia sappan L.: Recent advancements in phytochemistry and pharmacology. *South African Journal of Botany*, *151*, 60–74. https://doi.org/10.1016/j.sajb.2021.11.021

RAL colorchart. 2025. *RAL Classic colors*. https://www.ralcolorchart.com/ral-classic

Rohmah, A, Hafshah, M, & Mardliyah, A. 2022. Potential of Secang Wood (*Caesalpinia sappan* L .) Ethanol Extract as Antioxidant and Sun-Protection. *Al-Kimia*, 126–132. https://doi.org/10.24252/al-kimiav10i2.28619

Rondao, R. J, Melo, J. S. S. De, Pina, J, Melo, M. J, Vitorino, T, & Parola, A. J. D. 2013. Brazilwood Reds : The chemistry of Brazilin and Brazilein Brazilwood Reds : the Chemistry of Brazilin and Brazilein. *The Journal of Physical Chemistry*, 1–29. https://doi.org/10.1021/jp404789f

Salsabilla, S, Haryono, D, & Syarief, yuniar aviati. 2019. Analisis Pendapatan dan Nilai Tambah Agroindustri Keripik Pisang di Desa Sungai Langka Kecamtan Gedong Tataan Kabupaten Pesawaran. *Jurnal Ilmu Ilmu Agribisnis*, *7*(1), 68–74. https://doi.org/http://dx.doi.org/10.23960/jiia.v7i1.3333

Septiani, D, Suryadi, H, & Mun'im, A. 2022. Improving Enzyme-Assisted Extraction of Brazilin from Sappanwood (*Caesalpinia Sappan* L.) Extract by Fungal Cellulase. *Pharmacognosy Journal*, *14*(1), 21–28. https://doi.org/10.5530/pj.2022.14.4

Shah, Y, & Mewada, R. 2023. *Preparation and evaluation of herbal sunscreen creams*. *10*(2), 116–124.

Sinuraya, G. N. 2021. *Pengaruh Penambahan Ekstrak Kayu Secang (Caesalpinia Sappan , L .) Terhadap Karakteristik Fisiko Kimia Dan Nilai Spf (Sun Protection Factor) Skin Lotion Tabir Surya Berbahan Baku Vco (Virgin Coconut Oil)*. [Skripsi]. Universitas Andalas.

Siregar, R. S, Tanjung, A. F, Siregar, A. F, Bangun, I. H, & Mulya, M. O. 2020. *Studi Literatur Tentang Pemanfaatan Tanaman Obat Tradisional*. 7.

Sundoro, aries koes, Syukur, M, Elisa, N, & Advistasari, yustisisa dian. 2024. Penentuan Nilai Ic 50 Ekstrak Daun Jambu (*Syzygium aqueum*) dengan Metode DPPH. *Jurnal Ilmiah Farmasi*, *13*(2), 176–180.

Suzery, M, Lestari, S, & Cahyono, B. 2010. Penentuan Total Antosianin (Hibiscus Sabdariffa L) Dengan Metode Maserasi Dan Sokshletasi. *Jurnal Sains & Matematika*, 1(1) : 1–6.

Taufiqurrahman, Fajri, & Hakim, L. 2020. The Value Added Analysis of Gayo Arabica Coffee based on Processing. *International Journal of Multicultural and Multireliqious Understanding*, *7*(1), 56–59. http://dx.doi.org/10.18415/ijmmu.v7i1.1281

Tu, W. C, Ding, L. F, Peng, L. Y, Song, L. D, Wu, X. De, & Zhao, Q. S. 2022. Cassane diterpenoids from the seeds of Caesalpinia bonduc and their nitric oxide production and α-glucosidase inhibitory activities. *Phytochemistry*, *193*. https://doi.org/10.1016/j.phytochem.2021.112973

Verma, A, Zanoletti, A, Yusuff, K, Bashir, K, & Kumar, P. 2024. Skin protection from solar ultraviolet radiation using natural compounds : a review. *Environmental Chemistry Letters*, *22*(1), 273–295. https://doi.org/10.1007/s10311-023-01649-4

Vij, T, Anil, P. P, Shams, R, Dash, K. K, Kalsi, R, Pandey, V. K, Harsányi, E, Kovács, B, & Shaikh, A. M. 2023. A Comprehensive Review on Bioactive Compounds Found in Caesalpinia sappan. *Molecules*, *28*(17), 1–22. https://doi.org/10.3390/molecules28176247

Villalba, A. M, Monteoliva, J. M, & Pattini, A. E. 2020. Development of a simplified light reflectance value assessment tool for indoor surface coverings. *Indoor and Built Environment*, *0*(0), 1–15. https://doi.org/10.1177/1420326X20925138

Whirlwind. 2025. *RAL color chart*. https://www.ralcolorchart.com/ral-classic/red-hues

Wibowo, N. A, Kunarto, B, & Pratiwi, E. 2018. Ekstraksi Antosianin Oleoresin Kayu Secang (*Caesalpinia Sappan* L), Stabilitas Antosianin Dan Aktivitas Antioksidannya. *May*, 1–10.

Wulandari, I. S. A, Safitri, R. E, & Susanti, R. E. E.2020. Pemanfaatan Pewarna Brazilin dari Ekstrak Kayu Secang (*Caesalpinia sappan* L) untuk Pembuatan Hand Body. *Jurnal Crystal*, *2*(2), 41–53.

Xie, H, Zhang, L, Shao, P, Li, L, & Han, Y. 2017. Effect of Ultraviolet Radiation on Antioxidant Activity of Jujube Pigment. *Science and Technology of Food Industry*, 44–48. https://doi.org/https://dx.doi.org/10.13386/j.issn1002-0306.2017.23.010

Yadav, H. K. S, Usman, S, Alabdin, R. H. E. Z, Ahmed, H. S, & Usman, H. A. 2020. Formulation and Evaluation of Topical Gel Using Avocado Extract. *American Journal of Pharmacy and Health Rsearch*, 8(08): 31–37.

Yulianty, R, Murdifin, M, & Asma, N. 2016. Aktivitas Antioksidan Kombinasi Ekstrak etanol kayu secang dan kelopak bunga rosella. *Prosiding Seminar Nasional Tumbuhan Obat Indonesia Ke-50*, *April*, 349–356.

Zheng, X, Zhang, X, Gao, H, Huang, L, Ye, J, Ye, J, Lu, J, Ma, S, & Liang, Y. 2024. Green Tea Catechins and Skin Health. *Antioxidants*, *13*(1506), 1–25. https://doi.org/https://doi.org/10.3390/antiox13121506