

## DAFTAR PUSTAKA

- Abdali, E., Javadi, S., Akhgari, M., Hosseini, S., and Dastan, D. (2017). Chemical composition and biological properties of *Satureja avromanica* Maroofi. *J Food Sci Technol*, 54(3), 727-734.
- Adnan, M., Siddiqui, A.J., Jamal, A., Hamadou, W.S., Awadelkareem, A.M., Sachidanandan, M., dan Patel, M. (2021). Evidence-based medicinal potential and possible role of *Selaginella* in the prevention of modern chronic diseases: Ethnopharmacological and ethnobotanical perspective. *Records of Natural Products*, 15(5), 330-355.
- Akdemir, F.N.E, Gulcin, İ., Alwasel, S. (2016). A Comparative study on the antioxidant effects of hesperidin and ellagic acid against skeletal muscle ischemia/reperfusion injury. *J Enzyme Inhib Med Chem*, 31(4), 114-118.
- Alam, N., Bristi, N.C., Rafiquzzaman, M. (2013). Review on in vivo and in vitro methods evaluation of antioxidant activity. *Saudi Pharm J*, 21, 143-152.
- Ames B.N., Shigenaga, M.K., and Hagen, T.M. (1993). Oxidants, antioxidants, and the degenerative diseases of aging. *Proc Natl Acad Sci USA*, 90, 7915-7922.
- André, P., and Villain, F. (2017). Free radical scavenging properties of mannitol and its role as a constituent of hyaluronic acid fillers: a literature review. *Int J Cosmet Sci*, 39(4), 355-360.
- Anraku, M., Gebicki, J.M., Iohara, D., Tomida, H., Uekama, K., Maruyama, T., Hirayama, F., and Otagiri, M. (2018). Antioxidant activities of chitosans and its derivatives in in vitro and in vivo studies. *Carbohydr Polym*, 199, 141-149.
- ArasHisar, Ş., Hisar, O., Beydemir, Ş., Gülçin, İ., and Yanik, T. (2004). Effect of vitamin E on carbonic anhydrase enzyme activity in rainbow trout (*Oncorhynchus mykiss*) erythrocytes in vitro and in vivo. *Acta Vet Hung*, 52, 413-422.
- Asong, J.A., Amoo, S.O., McGaw, L.J., Nkadameng, S.M., Aremu, A.O., Otang-Mbeng, W. (2019). Antimicrobial activity, antioxidant potential, cytotoxicity and phytochemical profiling of four plants locally used against skin diseases. *Plants (Basel)*. 8(9), 350. doi: 10.3390/plants8090350. PMID: 31540194; PMCID: PMC6783968.
- Babu, S., and Jayaraman, S. (2020). An update on  $\beta$ -sitosterol: A potential herbal nutraceutical for diabetic management. *Biomedicine and Pharmacotherapy*, 131, 110702. <https://doi.org/10.1016/j.biopha.2020.110702>
- Barden, A. Awang, N.A., Mulliken, T.A., and Song, M. (2000). *Heart of the Matter: Agarwood Use and Trade and CITES Implementation for Aquilaria malaccensis*. Traffic International, Cambridge.
- Barros, A.I.R.N.A., Nunes, F.M., Gonçalves, B., Bennett, R.N., and Silva, A.P. (2011). Effect of cooking on total vitamin C contents and antioxidant activity of sweet chestnuts (*Castanea sativa* Mill.). *Food Chem*, 128, 165-172.

- Berli, F.J., Moreno, D., Piccolo, P., Hespanhol-Viana, L., Silva, M.F., BressanSmith, R., Cavarnaro, J.B. and Bottini, R. (2010). Abscisis acid is involved in the response of grape (*Vitis vinifera* L.) cv.Malbec leaf Tissues to ultraviolet-B radiation by enhancing ultraviolet – absorbing compounds, antioxidant enzymes and membrane sterols. *Plant cell Environ*, 33(1), 1-10.
- Biparva, P., Ehsani, M., and Hadjmohammadi, M.R. (2012) Dispersive liquid–liquid microextraction using extraction solvents lighter than water combined with high performance liquid chromatography for determination of synthetic antioxidants in fruit juice samples. *J Food Comp Anal*, 27, 87–94.
- Bondet, V., Brand-Williams, W. and Berset, C. (1997). Kinetics and mechanisms of antioxidant activity using the DPPH free radical method. *Lebensmittel-Wissenschaft und-Technologie/Food Science and Technology*, 30, 609-615.
- Brooker, N., Windorski, J. and Blumi, E. (2008). Halogenated coumarins derivatives as novel seed protectants. *Commu Agri Appl Biolog Sci*, 73(2), 81-89.
- Çakmak K.C., and Gülçin, İ. (2019). Anticholinergic and antioxidant activities of usnic acid—an activity-structure insight. *Toxicol Rep*, 6, 1273–1280.
- Carocho, M. and Ferreira, I.C.F.R. (2013) A review on antioxidants, prooxidants and related controversy: natural and synthetic compounds, screening and analysis methodologies and future perspectives. *Food Chem Toxicol*, 51, 15–25.
- Chen, C.-T., Yeh, Y.-T., Chao, D., and Chen, C.-Y. (2013). Chemical constituents from the bark of *Aquilaria sinensis*. *Chem. Nat. Compd*, 48, 1074–1075.
- Chen, H.-Q., Jian-HeWei, Yang, J.-S., Zhang, Z., Yang, Y., Gao, Z.-H., Sui, C., and Gong, B. (2012). Chemical constituents of agarwood originating from the endemic genus *Aquilaria* plants. *Chem. Biodivers*, 9, 236–250.
- Chen, H., Yang, Y., Xue, J., Wei, J., Zhang, Z., and Chen, H. (2011). Comparison of compositions and antimicrobial activities of essential oils from chemically stimulated agarwood, wild agarwood and healthy *Aquilaria sinensis* (Lour.) Gilg trees. *Molecules*, 16(6), 4884–4896. <https://doi.org/10.3390/molecules16064884>.
- Chen, J.H. and Ho, C.T. (1997). Antioxidant activities of caffeic acid and its related hydroxycinnamic acid compounds. *J Agric Food Chem*, 45, 2374–2378.
- Chimi, H., Cillard, J., Cillard, P., and Rahmani, M. (1991). Peroxyl and hydroxyl radical scavenging activity of some natural phenolic antioxidants. *J Am Oil Chem Soc*, 68, 307–312.
- Clifford, M.N. and Scalbert, A. (2000). Ellagitannins-occurrence in food, bioavailability and cancer prevention. *J Sci Food Agric*, 80, 1118–1125.
- Craft, B.D., Kerrihard, A.L., Amarowicz, R., Pegg, R.B. (2012). Phenolbased antioxidants and the in vitro methods used for their assessment. *Compr Rev Food Sci F*, 11, 148–173.
- Croteau, R., Kutchan, T.M. and Lewis, N.G. (2000). *Natural Products (Secondary metabolites)*. In: Buchanan B.B., Gruissem, W., Jones R.L., editors. *Biochemistry & molecular biology of plants*. Courier companies, USA.
- Cuppert, S., Schnepf, M., and Hall, C. (1997). *Natural antioxidant—are they a reality? Natural antioxidants: chemistry, health effects, and applications*. AOCS Press, Champaign.

- Dahham, S.S., Tabana, Y.M., Iqbal, M.A., Ahamed, M.B.K., Ezzat, M.O., Majid, A.S.A., & Majid, A.M.S.A. (2015). The anticancer, antioxidant and antimicrobial properties of the sesquiterpene  $\beta$ -caryophyllene from the essential oil of *Aquilaria crassna*. *Molecules*, 20(7), 11808–11829. <https://doi.org/10.3390/molecules200711808>.
- Di Mascio, P., Martinez, G.R., Miyamoto, S., Ronsein, G.E., Medeiros, M.H.G., and Cadet, J. (2019). Singlet molecular oxygen reactions with nucleic acids, lipids, and proteins. *Chem Rev*, 119, 2043–2086.
- Diplock, A.T., Charleux, J.L., Crozier-Willi, G., Kok F.J., Rice-Evans, C., Roberfroid, M., Stahl, W., Vina-Ribes, J. (1998). Functional food science and defence against reactive oxidative species. *Brit J Nut*, 80, 77–112.
- Dolatabadi, J.E.N. and Kashanian, S. (2010). A review on DNA interaction with synthetic phenolic food additives. *Food Res Int*, 43, 1223–1230.
- Dhurhanian, C.E. dan Novianto, A. (2018). Uji kandungan fenolik total dan pengaruhnya terhadap aktivitas antioksidan dari berbagai bentuk sediaan sarang semut (*Myrmecodia pendens*). *Jurnal Farmasi dan Ilmu Kefarmasian Indonesia*, 5(2), 62–68.
- Dziezak, J.D. (1986). Preservatives: antioxidants. *Food Technol*, 40, 94–102.
- Fagali, N, and Catalá, A. (2008). Antioxidant activity of conjugated linoleic acid isomers, linoleic acid and its methyl ester determined by photoemission and DPPH techniques. *Biophys Chem*, 137(1), 56–62.
- FoodDB (2022). *Material database*. Diakses Juli 2022 dari <https://foodb.ca/>
- GBIF (2021). *Aquilaria crassna* Pierre ex Lecomte. *GBIF Backbone Taxonomy*. Checklist dataset <https://doi.org/10.15468/39omei>
- Gulcin, İ. (2020). Antioxidants and antioxidant methods: an updated overview. *In Archives of Toxicology*, 94(3), 651–715. <https://doi.org/10.1007/s00204-020-02689-3>.
- Gulcin, I. (2012). Antioxidant activity of food constituents: an overview. *Arch Toxicol*, 86(3), 345–391.
- Gulcin, I. (2007). Comparison of in vitro antioxidant and antiradical activities of l-tyrosine and l-Dopa. *Amino Acids*, 32, 431–438.
- Gulcin, I., Elias, R., Gepdiremen, A., Chea, A., and Topal, F. (2010). Antioxidant activity of bisbenzylisoquinoline alkaloids from *Stephania rotunda*: Cepharanthine and fangchinoline. *J Enzyme Inhib Med Chem*, 25, 44–53.
- Gulcin, I., Mshvildadze, V., Gepdiremen, A., Elias, R. (2006). Antioxidant activity of a triterpenoid glycoside isolated from the berries of *Hedera colchica*: 3-O-( $\beta$ -D-glucopyranosyl)-hederagenin. *Phytother Res*, 20, 130–134.
- Halliwell, B. and Gutteridge, J.M.C. (1989). *Free radicals in biology and medicine*, 2nd edn. Clarendon Press, Oxford.
- Harborne, J.B. (1987). *Metode Fitokimia, Edisi ke-2*. Padmawinata K, Soediro I, penerjemah. Institut Teknologi Bandung, Bandung, Terjemahan dari: *Phytochemical Methods*.
- Harborne, J.B. (1986). *Plant flavonoids in biology and medicine*. In: Cody V, Middleton E, Harborne JB, Alan R (eds). Liss, New York, pp. 15–24.
- Harborne, J.B., Baxter, H., Moss, G.P. (1999). *Phytochemical dictionary: handbook of bioactive compounds from plants*, 2nd edn. Taylor and Francis, London.

- Hasheem, E.Z., Khodadadi, M., Asadi, F., Koohi, M. K., Eslami, M., Hasani-Dizaj, S., and Zadeh, R.T. (2016). The Antioxidant activity of palmitoleic acid on the oxidative stress parameters of palmitic acid in adult rat cardiomyocytes. *Annals of Military and Health Sciences Research*, 14(3). <https://doi.org/10.5812/amh.11467>
- Hashim, Y.Z.H.Y., Kerr, P.G., Abbas, P., and Mohd Salleh, H.. (2016). *Aquilaria* spp. (agarwood) as source of health beneficial compounds: A review of traditional use phytochemistry and pharmacology. *Journal of Ethnopharmacology*, 189, 331–360. doi:10.1016/j.jep.2016.06.055.
- Hendra, H., Moeljopawiro, S., and Nuringtyas, T.R. (2016). Antioxidant and antibacterial activities of agarwood (*Aquilaria malaccensis* Lamk.) leaves. *AIP Conference Proceedings*. 1755(1), 140004.
- Hernani dan Raharjo, M. (2005). *Tumbuhan Berkhasiat Antioksidan*. Penebar Swadaya, Jakarta.
- Homma, T., Kobayashi, S., and Fujii, J. (2019). Induction of ferroptosis by singlet oxygen generated from naphthalene endoperoxide. *Biochem Biophys Res Commun*, 518, 519–525.
- Hou, Y.C., Janczuk, A., Wang, P.G. (1999). Current trends in the development of nitric oxide donors. *Curr Pharm Des*, 5, 417–441.
- Hou, W.C., Lin, R.D., Cheng, K.T., Hung, Y.T., Cho, C.H., Chen, C.H., Hwang S.Y., and Lee, M.H. (2003). Free radical-scavenging activity of Taiwanese native plants. *Phytomedicine*, 10, 170–175.
- Hu, J.P., Calomme, M., Lasure, A., De Bruyne, T., Peters, L., Vlietinck, A., and Van den Berghe, D.A. (1995). Structure-activity relationship of flavonoids with superoxide scavenging activity. *Biol Trace Element Res*, 47, 327–331.
- Husain, S.R., Cillard, J., Cillard, P. (1987). Hydroxyl radical-scavenging activity of flavonoids. *Phytochemistry*, 26, 2489–2491.
- Isik, M., Beydemir, S., Yilmaz, A., Naldan, M.E., Aslan, H.E., and Gulcin, I. (2017). Oxidative stress and mRNA expression of acetylcholinesterase in the leukocytes of ischemic patients. *Biomed Pharmacother*, 87, 561–567.
- Jiang, Q., Christen, S., Shigenaga, M.K., and Ames, B.N. (2001). Gamma-tocopherol, the major form of vitamin E in the US diet, deserves more attention. *Am J Clin Nut*, 74, 714–722.
- Jovanovic, S.V., Steenken, S., Tosic, M., Marjanovic, B., and Simic, M.G. (1994). Flavonoids as antioxidants. *J Am Chem Soc*, 116, 4846–4851.
- Kang, S.Y. and Kim, Y.C. (2007). Decursinol and decursin protect primary cultured rat cortical cells from glutamate-induced neurotoxicity. *J Pharmacy Pharmacol*, 59(6), 863-870.
- Kashanian, S., and Dolatabadi, J.E.N. (2009). DNA binding studies of 2-tert-butylhydroquinone (TBHQ) food additive. *Food Chem*, 116, 743–747.
- Khatana, K. And Gupta, A. (2020). An update on natural occurrence and biological activity of benzofurans. *Acta Scientific Medical Sciences*, 4(10), 114-123.
- Khatua, S., Pandey, A., Biswas, S. J., Surjyo, C., and Biswas, J. (2016). Phytochemical evaluation and antimicrobial properties of *Trichosanthes dioica* root extract. *Journal of Pharmacognosy and Phytochemistry*, 5(5), 410–413.
- Koudelka, S., Knotigova, P.T., Masek, J., Prochazka, L., Lukac, R., Miller, A.D.,

- and Turanek, J. (2015). Liposomal delivery systems for anti-cancer analogues of vitamin E. *J Control Release*, 207, 59–69.
- Krishna, M.S., Joy, B., and Sundaresan, A. (2015). Effect on oxidative stress, glucose uptake level and lipid droplet content by Apigenin 7, 4'-dimethyl ether isolated from *Piper longum* L. *J Food Sci Technol*, 52(6), 3561-3570.
- Krishnamoorthy, K., and Subramaniam, P. (2014). Phytochemical profiling of leaf, stem, and tuber parts of *Solena amplexicaulis* (Lam.) Gandhi Using GC-MS. *International Scholarly Research Notices*, 1–13. <https://doi.org/10.1155/2014/567409>
- Lake, J.A., Field, K.J., Davey, M.P., Beerling, D.J. and Lomax, B.H. (2009). Metabolomic and physiological responses reveal multiphasic acclimation of *Arabidopsis thaliana* to chronic UV radiation. *Plant cell Environ.* 32 (10), 1377-1389.
- Lung, J. K. S., dan Destiani, D. P. (2017). Uji Aktivitas Antioksidan Vitamin A, C, E dengan Metode DPPH. *Farmaka*, 15(1), 53–62.
- Macheix, J.J., Fleurit, A., and Billot, J. (1990). *Fruit phenolics*. CRC Press, Boca Raton.
- Majewska, M., Skrzycki, M., Podsiad, M., and Czeczot, H. (2011). Evaluation of Antioxidant Potential of Flavonoids: An in Vitro Study. *Acta Poloniae Pharmaceutica*. 68, 611-615.
- Mahmoodreza, M., Forough, K., Hossein, T., and Younes, G. (2010). Composition of the essential oil of *Rosa damascena* Mill. from South of Iran. *Iranian Journal of Psychiatry Sciences Winter*, 6(1), 59-62.
- Mandal, S., Yadav, S., Yadav, S. & Nema, R.K. (2009). Antioxidants: a review. *Journal of Chemical and Pharmaceutical Research*, 1(1), 102-104.
- Masita, R., Nuringtyas, T.R., Wijayanti, N., and Hidayati, L. (2020). Antiviral activity of agarwood *Aquilaria malaccensis* lamk and *Gyrinops verteegeeii* (Gilg.) Domke leaves ethanolic extract against dengue serotype 3 virus in vitro. *AIP Conference Proceedings*. 2231, 040077.
- Millaty I.N.K., Wijayanti, N., Hidayati, L., and Nuringtyas, T.R. (2020). Identification of anticancer compounds in leaves extracts of agarwood (*Aquilaria malaccensis* Lamk.). *IOP Conf. Ser.: Earth and Environ. Sci.* 457, 012036
- Molyneux, P. (2004). The Use of the Stable Free Radical Diphenylpicryl-hydrazyl (DPPH) for Estimating Antioxidant Activity. *Songklanakarin Journal of Science and Technology*, 26, 211–219. <https://doi.org/10.1287/isre.6.2.144>.
- Musialik, M., Kuzmich, R., Pawłowski, T.S., and Litwinienko, G. (2009). Acidity of hydroxyl groups: an overlooked influence on antiradical properties of flavonoids. *J Org Chem*, 74, 2699–2709.
- Nanditha, B., and Prabhasankar, P. (2009). Antioxidants in bakery products: a review. *Crit Rev Food Sci Nutr*, 49, 1–27.
- National Center for Biotechnology Information (2022). *PubChem Compounds*. Diakses Juli 2022 dari <https://pubchem.ncbi.nlm.nih.gov/>
- Nazck, M. and Shahidi, F. (2006). Phenolics in cereals, fruits and vegetables: occurrence, extraction and analysis. *J Pharm Biomed Anal*, 41, 1523–1542.
- Oh, Y.T., Lee, J.Y., Lee, J., Lee, J.H., Kim, J.E., Ha, J., and Kang, I. (2010). Oleamide suppresses lipopolysaccharide-induced expression of iNOS and COX-2 through inhibition of NF-kappaB activation in BV2 murine



- microglial cells. *Neurosci Lett.* 474(3), 148-153.
- Pacher, P., Beckman, J.S., and Liaudet, L. (2007). Nitric oxide and peroxynitrite in health and disease. *Physiol Rev*, 87, 315–424.
- Packer, L. (1996). Nitric oxide. Part A: sources and detection of NO; NO synthase. *Method Enzymol*, 268, 331–340.
- Pagare, S., Bathia, M., Tripathi, N., Pagare, S., and Bansal, Y.K. (2015). Secondary metabolites of plants and their role: Overview. *Current Trends in Biotechnology and Pharmacy*, 9(3), 293–304.
- Peng, K., Mei, W.L., Zhao, Y.X., Tan, L.H., Wang, Q.H., Dai, H.F. (2011). A novel degraded sesquiterpene from the fresh stem of *Aquilaria sinensis*. *J. Asian Nat. Prod. Res.*, 13, 951–955.
- Pinto, M., Araujo, S., Morais, M., Sá, N., Lima, C., Rosa, C., Siqueira, E., Johann, S., Lima, L. (2017). Antifungal and antioxidant activity of fatty acid methyl esters from vegetable oils. *Anais da Academia Brasileira de Ciências*, 89, doi:10.1590/0001-3765201720160908.
- Pokorny, J. (1999). *Antioxidants in food preservation*. In: Shafiur Rahman M (ed) Handbook of food preservation. Marcel Dekker, New York, pp. 309–337.
- Pokorny, J. (1987). *Major factors affecting the autoxidation of lipids*. In: Chan HWS (ed) Autoxidation of unsaturated lipids. Academic Press, London, pp. 141–206.
- Posmyk, M.M., Kontek, R., and Janas, K.M. (2009). Antioxidant enzymes activity and phenolic compounds content in red cabbage seedlings exposed to copper stress. *Ecotoxicol Environ Safety*. 72(2), 596-602.
- Prakash, A. R. (2001). Antioxidant Activity. *Analytical Progress*, 19, 2.
- Pyrzynska, K. and Pękal, A. (2013). Application of free radical diphenylpicrylhydrazyl (DPPH) to estimate the antioxidant capacity of food samples. *Anal Methods*, 5, 4288. doi: 10.1039/C3AY40367J.
- Raman, B.V., Samuel, L.A., Saradhi, M.P., Rao, B.N., Krishna, A.N.V., Sudhakar, M., and Radakrishnan, T.M. (2012). Antibacterial, Antioxidant Activity and GC-MS Analysis of *Eupatorium odoratum*. *Asian Journal of Pharmaceutical and Clinical Research*, 5(2), 99-106.
- Rahman, M.M., Ahmad, S.H., Mohamed, M.T.M., Ab Rahman, M.Z. (2014). Antimicrobial compounds from leaf extracts of *Jatropha curcas*, *Psidium guajava*, and *Andrographis paniculata*. *The Scientific World Journal*, 635240-635240, doi:10.1155/2014/635240.
- Ravikumar, V.R., Gopal, V., and Sudha, T. (2012). Analysis of phytochemical constituents of stem bark extracts of *Zanthoxylum tetraspermum* Wight & Arn. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 3(4), 391-402.
- Reaven, P.D. and Witztum, J.L. (1996). Oxidized low density lipoproteins in atherogenesis: role of dietary modification. *Ann Rev Nut*, 16, 51–71.
- Rhetso, T., Shubharani, R., and Roopa, M.S. (2020). Chemical constituents, antioxidant, and antimicrobial activity of *Allium chinense* G. Don. *Futur J Pharm Sci*, 6, 102. <https://doi.org/10.1186/s43094-020-00100-7>
- Rice-Evans, C.A., Miller, N.J., and Paganga, G. (1996). Structure-antioxidant activity relationships of flavonoids and phenolic acids. *Free Radical Bio Med*, 20, 933–956.
- Rubab, M., Chelliah, R., Saravanakumar, K., Barathikannan, K., Wei, S., Kim, J.

- R., Yoo, D., Wang, M. H., and Oh, D. H. (2020). Bioactive potential of 2-methoxy-4-vinylphenol and benzofuran from *Brassica oleracea* L. var. capitata f. rubra (Red Cabbage) on oxidative and microbiological stability of beef meat. *Foods*, 9(5). <https://doi.org/10.3390/foods9050568>
- Saeed, N.M., El-Demerdash, E., Abdel-Rahman, H.M., Algandaby, M.M., Al-Abbasi, F.A., and Abdel-Naim, A.B. (2012). Anti-inflammatory activity of methyl palmitate and ethyl palmitate in different experimental rat models. *Toxicology and Applied Pharmacology*, 264(1), 84–93.
- Samsonowicz, M., Regulska, E. (2017). Spectroscopic study of molecular structure, antioxidant activity and biological effects of metal hydroxyflavonol complexes. *Spectrochim Acta Part A: Mol Biomol Spec*, 173, 757–771.
- Santisuk, T., and Larsen, K. (1997). *Flora of Thailand*. Vol. 6, Part 3. The Forest Herbarium, Royal Forest Department, Bangkok.
- Sarikaya, S.B.O., Gulcin, I., and Supuran, C.T. (2010). Carbonic anhydrase inhibitors. Inhibition of human erythrocyte isozymes I and II with a series of phenolic acids. *Chem Biol Drug Des*, 75, 515–520.
- Sen, C.K. and Packer, L. (1996). Antioxidant and redox regulation of gene transcription. *FEBS Lett*, 10, 709–720.
- Shahidi, F. and Ambigaipalan, P. (2015). Phenolics and polyphenolics in foods, beverages and spices: antioxidant activity and health effects—a review. *J Funct Foods*, 18, 820–897.
- Shahidi, F., and Wanasundara, U. (1995). Effect of natural antioxidants on the stability of canola oil. *Dev Food Sci*, 37, 469–479.
- Shahidi, F. and Zhong, Y. (2015). Measurement of antioxidant activity. *J. Funct. Foods*, 18, 757–781.
- Shahidi, F., Janitha, P.K., and Wanasundara, P.D. (1992). Phenolic antioxidants. *Crit Rev Food Sci Nutr*, 32, 67–103.
- Sindhi, V., Gupta, V., Sharma, K., Bhatnagar, S., Kumari, R., Dhaka, N. (2013). Potential applications of antioxidants—a review. *J Pharm Res*, 7, 828–835.
- Soosairaj, S., and Dons, T. (2016). Bio-active compounds analysis and characterization in ethanolic plant extracts of *Justicia tranquebariensis* L. (Acanthaceae) using GC-MS. *International Journal of ChemTech Research*, 9(7), 260–265.
- Sreevidya, V.S., Srinivasa, R.C., Rao, C., Sullia, S.B., Ladha, J.K. and Reddy, P.M. (2006). Metabolic engineering of rice with soyabean isoflavone synthase for promoting nodulation gene expression in rhizobia. *J Exp Bot*. 57(9), 1957-1969.
- Takahama, U. (1985). Inhibition of lipoxygenase-dependent lipid peroxidation by quercetin: mechanism of antioxidative function. *Phytochemistry*, 24, 1443–2146.
- Takahama, U. (1984). Hydrogen peroxide dependent oxidation of quercetin by intact spinach chloroplasts. *Plant Physiol*, 74, 852–857.
- Tanizawa, H., Ohkawa, Y., Takino, Y., Ueno, A., Kageyama, T., and Hara, S. (1992). Studies on natural antioxidants in citrus species. I. Determination of antioxidant activities of citrus fruits. *Chem Pharm Bull*, 40, 1940–1942.
- Taslimi, P. and Gulcin, I. (2018). Antioxidant and anticholinergic properties of olivetol. *J Food Biochem*, 42(3), 12516.

- The Good Scents Company (2022). *Flavor and fragrance catalog information*. Diakses Juli 2022 dari <http://www.thegoodscentscompany.com/>
- Togashi, N., Shiraishi, A., Nishizaka, M., Matsuoka, K., Endo, K., Hamashima, H., Inoue, Y. (2007). Antibacterial activity of long-chain fatty alcohols against *Staphylococcus aureus*. *Molecules*, 12(2), 139-48.
- Traber, M.G. and Atkinson, J. (2007). Vitamin E, antioxidant and nothing more. *Free Radic Biol Med*, 43(1), 4-15.
- Tsuji, K., and Robertson, J.H. (1973). Microbial toxicity of isopropyl myristate used for sterility testing of petrolatum-based ophthalmic ointments. *Applied Microbiology*, 25(1), 139-145.
- Udrobe A.S., Etim, E.I., Udobang, J.A., and Udoh, A.E. (2015). Antimicrobial Activity of Stigmast-4-en-3-one and 2,4-Dimethylhexane Isolated from *Nauclea latifolia*. *Int. J. of. Phytopharmacy Research*. 6(2), 65-68.
- Valko, M., Izakovic, M., Mazur, M., Rhodes, C.J., Telser, J. (2004). Role of oxygen radicals in DNA damage and cancer incidence. *Mol Cell Biochem*, 266, 37-56.
- Voight, R. (1995). *Buku Pelajaran Teknologi Farmasi*, diterjemahkan oleh Soendari Noerono. Gajah Mada University Press, Yogyakarta.
- Wang, Q.H., Peng, K., Tan, L.H., and Dai, H.F. (2010). Aquilarin A, a new benzenoid derivative from the fresh stem of *Aquilaria sinensis*. *Molecules*, 15, 4011-4016.
- Wardana, T.A.P., Nuringtyas, T.R., Wijayanti, N., and Hidayati, L. (2019). Phytochemical analysis of agarwood (*Gyrinops versteegii* (Gilg.) Domke) leaves extracts as anticancer using GC-MS. *AIP Conference Proceedings*, 2194 (December). <https://doi.org/10.1063/1.5139868>
- Weber, P., Bendich, A., and Schalch, W. (1996). Vitamin C and human health-a review of recent data relevant to human requirements. *Int J Vit Nut Res*, 66, 19-30.
- Werdhasari, A. (2014). Peran Antioksidan Bagi Kesehatan. *Jurnal Biotek Medisiana Indonesia*, 3(2), 59-68.
- Widayat, T., Hidayati, L., Wijayanti, N., and Nuringtyas, T.R. (2021). Metabolite profiles of agarwood *Gyrinops versteegii* (Gilg) Domke leaves collected from different locations. *Research Journal of Biotechnology*. 16(4), 12-19.
- Wisutthathum, S., Kamkaew, N., Inchan, A., Chatturong, U., Paracha, T.U., Ingkaninan, K., Wongwad, E., and Chootip, K. (2019). Extract of *Aquilaria crassna* leaves and mangiferin are vasodilators while showing no cytotoxicity. *Journal of Traditional and Complementary Medicine*, 9(4), 237-242.
- Wishart, D.S., Guo, A.C., and Oler, E. (2022). HMDB 5.0: the Human Metabolome Database for 2022. *Nucleic Acids Res*. 7;50(D1):D622-31. 34986597
- Wongwad, E., Pingyod, C., Saesong, T., Waranuch, N., Wisutiprot, W., Sritularak, B., Temkitthawon, P., and Ingkaninan, K. (2019). Assessment of the bioactive components, antioxidant, antiglycation and anti-inflammatory properties of *Aquilaria crassna* Pierre ex Lecomte leaves, *Industrial Crops and Products*, 138 (January), 111448. doi:10.1016/j.indcrop.2019.06.011.
- Wuyts, N., De Waele, D. and Swennen, R. (2006). Extraction and partial characterization of polyphenol oxidase from banana (*Musa acuminata*



- grandr naine) roots. *Plant Physiol Biochem*, 44, 308-314.
- Yana, H.Y. (2021). Aktivitas imunomodulator ekstrak daun gaharu *Aquilaria malaccensis* Lamk. terhadap fagositosis makrofag mencit (*Mus musculus* L.) secara in vitro. *Skripsi*, hal. 25.
- Yana, H.Y., Hidayati, L., Wijayanti, N., and Nuringtyas, T.R. (2022). Immunomodulator activity of agarwood *Aquilaria malaccensis* Lamk. leaf extracts on *Staphylococcus aureus*-infected macrophages in vitro. *Indones Biomed J. in press*, 2085-3297.
- Yang, J.F., Yang, C.H., Liang, M.T., Gao, Z.J., Wu, Y.W., and Chuang, L.Y. (2016). Chemical composition, antioxidant, and antibacterial activity of wood vinegar from *Litchi chinensis*. *Molecules*, 21(9), 1–10. <https://doi.org/10.3390/molecules21091150>
- Yogeswari, S., Ramalakshmi, S., Neelavathy, R., Muthumary, J. (2012). Identification and comparative studies of different volatile fractions from *Monochaetia kansensis* by GCMS. *Global J Pharm*, 6(2), 65-71.