



## DAFTAR PUSTAKA

- Abdallah, I. I., dan W.J. Quax. 2017. *A Glimpse into the Biosynthesis of Terpenoids.*[https://knepublishing.com/index.php/KneLife/article/view/98/2601 #info](https://knepublishing.com/index.php/KneLife/article/view/98/2601#info). Diakses pada 28 April 2020 pukul 21.43
- Aguirre-Becerra, H., M.C. Vazquez-Hernandez, D. Sáenz de la O, A. Alvarado, R.G. Guevara Gonzalez, J.F. Garcia-Trejo, A.N. Feregrino-Perez. 2021. Role of stress and defense in plant secondary metabolites production. *Advanced Structured Materials.* 140 : 1-11 10.1007/978-3-030-54027-2\_5.
- Agusta, A. 2006. Review: Diversitas jalur biosintesis senyawa terpena pada makhluk hidup sebagai target obat antinfektif. *Berita Biologi LIPI.* 8 (2) : 141-152.
- Ahmad, M.A., R. Javed, M. Adeel, M. Rizwan, Q. Ao, dan Y. Yang. 2020. Engineered zno and cuo nanoparticles ameliorate morphological and biochemical response in tissue culture regenerants of candyleaf (*Stevia rebaudiana*). *Molecule.* 25 (1356) : 1-14.
- Anitasari, S.D., D. N. R. Sari, I. A. Astarini, M. R. Defiani. 2018. *Dasar Teknik Kultur Jaringan Tanaman.* Yogyakarta: Deepublish Publisher. Hal : 18.
- Bhattacharya, A., P. Sood, dan V. Citovsky. 2010. The roles of plant phenolics in defence and communication during agrobacterium and rhizobium infection. *Molecular Plant Pathology.* 11 (5) : 705-719.
- Berthelot, K., Y. Estevez, A. Deffieux, dan F. Peruch. 2012 Isopentenyl pyrophosphate isomerase: a checkpoint to isoprenoid biosynthesis. *Biochimie.* 94 (8) : 1621-1634.
- Biala, W., dan M. Jasinki. 2018. The phenylpropanoid case-it is transport that matters. *Front. Plant. Sci.* 9 (1610) : 1-8.
- Borges, A., A.C. Alves, dan M. Simões. 2020. Effect of selected terpenoids on antibiotic potentiation and eradication of *Staphylococcus aureus* biofilms a structure activity relationship study. *Biofilms 9 Conference,* Karlsruhe, Germany, <https://doi.org/10.5194/biofilms>.
- Casas, M.E., dan V. Matamoros. 2021. Linking plant-root exudate changes to micropollutant exposure in aquatic plants (*Lemna minor* and *Salvinia natans*). A prospective metabolomic study. *Chemosphere.* 287 (1) : 1-8.
- Cepeda, G.N., M.N. Lisangan, I. Silamba. 2020. Kandungan senyawa fenolik dan terpenoid ekstrak etilasetat daun *Drimys piperita*. *Agritechnology.* 3 (1) : 21-27.
- Chaki, M., J.C. Begara-Morales, J.B. Barosso. 2020. Oxidative stress in plants. *Antioxidants.* 9 (481) : 1-4.
- Chikezie, P.C., C. Ekeanyanwu, dan A.B. Chile-Agada. 2020. GC-MS and FT-IR Analyses of Phytocomponents From petroleum ether Fraction of Leaf Extract of *Psidium guajava*. *Res.J.Med.Plant,* 13: 26-31.
- Chueahongthong, F., C. Ampasavate, S. Okonogi, S. Tima, S. Anuchapreeda. 2011. Cytotoxic effect of crude kaffir lime (*Citrus hystrix DC*) leaf fractional extracts on leukemic cell lines. *J Med Plants Res.* 5(14): 3097–3105.



- Daisy, B. H., D. Ezra, J. Sears, G.A. Strobel, U. Castillo, D.K. Weaver, dan J.B. Runyon. 2002. Naphthalene, an insect repellent, is produced by Muscodor vitigenus, a novel endophytic fungus. *Microbiology*, 148(11) : 3737–3741.
- Dalimarta, S. 2000. *Atlas Tumbuhan Obat Indonesia Jilid 2*. Jakarta: Trubus Agriwidya. Hal : 94.
- Deb, C.R. dan T. Inchan. 2010. An efficient *in vitro* hardening techniques of tissue culture raised plant. *Biotechnology*. 9(1) : 79-83
- Demain AL, Fang A. The natural functions of secondary metabolites. 2000. *Adv Biochem Eng Biotechnol*. 69: 1-39. doi: 10.1007/3-540-44964-7\_1. PMID: 11036689.
- Dertyasasa, E.D., dan W.A.S. Tunjung. 2017. Volatile Organic Compounds of Kaffir Lime (*Citrus hystrix DC.*) Leaves Fractions and their Potency as Traditional Medicine. *Biosci Biotech Res Asia*. 14 (4) : 1235-1250.
- Dodds, J.H. dan L.W. Roberts. 1985. *Experiments In Plant Tissue Culture Second Edition*. Cambridge : Cambridge University Press. Pp : 54-58.
- Doorant, S.H, L.C. Rose, H. Suhaimi, Mohammad, H. Rozaini dan M.Z.H., TAI M. 2011. Preliminary evaluation on the antibacterial activities of *Citrus hystrix* oil emulsions stabilized by tween 80 and span 80. *Int J Pharm Pharm Sci* 3 (Suppl 2). Pp : 209–211.
- Fajarina, S., B. H. Prabowo, F. Damayanti, A. Widyasari, A. B. Sasongko, A. Indrianto, E. Semiarti, L. Hidayati, W.A.S. Tunjung. 2021. Evaluation of anticancer bioactive compounds and cytotoxicity of *Citrus hystrix* DC. callus extract post preservation. *Indonesian Journal of Pharmacy*. 32 (2) : 179-192.
- Fibriana, F. dan R. Susanti. 2017. *Teknologi Enzim*. Yogyakarta: Penerbit Andi. Hal : 14.
- Gochev, V., L. Jirovetz, K. Wlcek, G. Buchbauer, E. Schmidt, A. Stoyanova, dan A. Dobreva. 2009. Chemical Composition and Antimicrobial Activity of Historical Rose Oil from Bulgaria. *Journal of Essential Oil Bearing Plants*, 12(1) : 1–6. doi:10.1080/0972060x.2009.10643684
- Gresh, N., N. Audiffren, J. P. Piquemal, J. D. Ruyck, M. Ledecq, dan J. Wouters. 2010. Analysis of the interactions taking place in the recognition site of a bimetallic Mg(II)-Zn(II) enzyme, Isopentenyl Diphosphate Isomerase. A parallel quantum-chemical and polarizable molecular mechanics study. *J. Phys. Chem. B*. 114 : 4884-4895.
- Hahn, F. M dan C. D. Poulter. 1995. Isolation of *Schizosaccharomyces pombe* isopentenyl diphosphate isomerase cDNA clones by complementation and synthesis of the enzyme in *Escherichia coli*. *Journal of Biological Chemistry*. 270 (19): 11298-11303.
- Hakim, R. J., Y. Mulyani, T. Y. Hendrawati, dan I. Ismiyati. 2019. pemilihan bagian tanaman jeruk purut (*Citrus hystrix DC.*) potensial sebagai minyak essensial aromaterapi hasil proses maserasi dengan metode analytical hierarkhi process (AHP). *Prosiding Semnastek*. Hal : 1-7.
- Hendaryono, D.P., dan A. Wijayani. 1994. *Teknik Kultur Jaringan*. Yogyakarta : Kanisius. Hal : 32.



- Ho, Y., N. Suphrom, K. Daowtak, P. Potup, Y. Thongsri, dan K. Usuwanthim. 2020. Anticancer effect of *Citrus hystrix* DC. leaf extract and its bioactive constituents citronellol and, citronellal on the triple negative breast cancer MDA-MB-231 cell line. *Pharmaceuticals.* 13 (476) : 1-17.
- Iskandar. D, A. Susanto, D. Prasetyaningati. 2018. *Uji Efektifitas Kulit Jeruk Purut (Citrus hystrix DC) Terhadap Pertumbuhan Jamur Candida albicans.* Doctoral dissertation STIKES Insan Cendekia Medika. Hal : 1-4.
- Jeon, D.H., G.Y. Park, I.S. Kwak, K.H. Lee, dan H.J. Park. 2007. Antioxidants and their migration into food simulants on irradiated LLDPE film. *LWT.* 40 : 151-156.
- Kannan, V., R. Anandan, D.K. Sudalaimani, S. Srinivasan, N. Athiappan. 2021. *Antibacterial and Antioxidant Activity of Metabolites From Bioconverted Docosahexaenoic Acid Using Gut Bacteria.*
- Kavianifar, Ghodrati, N. Badi, A. Etminan. 2018. Effects of nano elicitors on callus induction and mucilage production in tissue culture of *Linum usitatissimum* L. *Journal of Medicinal Plant.* 17 (67) : 45-54.
- Kothari, S.L., K. Agarwal, S. Kumar. 2004. inorganic nutrient manipulation for highly improved *in vitro* plant regeneration in finger millet: *Eleusine coracana* (L.) Gaertn. *Plant.* 40 (5) : 515-519.
- Kuzuyama, T., M. Takagi, K. Kaneda, T. Dairi, dan H. Seto. 2000. Formation of 4 (cytidine 5'-diphospho)-2-C-methyl-d-erythritol from 2-C-methyl-d erythritol 4-phosphate by 2-C-methyl-d-erythritol 4-phosphate cytidyl transferase, a new enzyme in the nonmevalonate pathway. *Tetrahedron Lett.* 41 (5) :703-706.
- Kuzuyama, T., M. Takagi, K. Kaneda, T. Dairi, dan H. Seto. 2000. Conversion of 4 (cytidine 5'- diphospho)-2-C-methyl-D-erythritol to its 2- phosphor derivative by 4 (cytidine5'-diphospho)-2-C-methyl-D-erythritol kinase. *Tetrahedron Lett.* 41(16): 2925-2928.
- Kuzuyama T, Takashi S, Watanabe H dan Seto H. 1998. Direct Formation of 2-C Methyl-D-erythritol 4- phosphate from 1-Deoxy-D-xylulose 5-phosphate by 1-Deoxy-D-xylulose 5-phosphate Reductoisomerase. *Tetrahedron Lett.* 39 (7) : 4509- 4513.
- Manna, M., dan K.D. Kim. 2018. Biocontrol Activity of Volatile-Producing *Bacillus megaterium* and *Pseudomonas protegens* Against *Aspergillus* and *Penicillium* spp. Predominant in Stored Rice Grains: Study II. *Mycobiology.* 46 (1) : 52-63.
- Mastuti, R. 2017. *Dasar-dasar Kultur Jaringan Tumbuhan.* Malang: UB Press. Hal : 68-69.
- Milman, B. 2015. General principles of identification by mass spectrometry. *TrAC Trends in Analytical Chemistry.* 69 (1) : 24-33.
- Mulyani, H., S.H. Widayastuti, dan V. I. Ekowati. 2016. Tumbuhan herbal sebagai jamu pengobatan tradisional terhadap penyakit dalam serat primbon jampi jawi jilid I. *Jurnal Penelitian Humaniora UNY.* 21(2): 73-91.
- Nurchayati, Y., S. Santosa, L.H. Nugroho, A. Indrianto. 2018. Penggunaan kinetin, asam naftalen asetat, dan benzil adenin dalam induksi kulus kecubung



- (*Datura metel* L.) secara *in vitro*. *Buletin Anatomi dan Fisiologi*. 3(1) : 105-109.
- Octarya, Z., R. Novianty, N. Suraya, dan Saryono. 2021. Antimicrobial activity and GC-MS analysis of bioactive constituents of *Aspergillus fumigatus* 269 isolated from Sungai Pinang Hot Spring, Riau, Indonesia. *Biodiversitas*. 22 (4) : 1839-1845.
- Pan, X., H. Li, D. Chen, J. Zheng, L. Yin, J. Zou, Y. Zhang, K. Deng, M. Xiao, L. Meng, F. He. 2021. Comparison of essential oils of *houttuynia cordata* thunb. from different processing methods and harvest seasons based on gc ms and chemometric analysis. *Int J of Analytical Chem*. 1-13.
- Priyanto, D., W.A.S. Tunjung, dan A. Indriyanto. 2018. Extract of elicited kaffir lime (*Citrus hystrix* DC.) cells suspension by *Saccharomyces cerevisiae* H. and its citotoxicity against T47D cells. *Indian Journal of Physiotherapy and Occupational Therapy*. 12(4): 202-209.
- Puspitasari, A. D. 2019. Aktivitas antioksidan perasan jeruk manis (*Citrus sinensis*) dan jeruk purut (*Citrus hystrix*) menggunakan metode abts. *Majalah Farmasi dan Farmakologi*. 23 (2) : 48-51.
- Ramadani, R. 2016. Senyawa kimia bahan alam terpenoid. *Jurnal Ilmu Pendidikan*. 1(1) : 1-9.
- Ramulifho, E., T. Goche, J.V. As, T.J. Tsilo, S.Chivasa, dan R. Ngara. 2019. Establishment and characterization of callus and cell suspension cultures of selected *Sorghum bicolor* (L.) moench varieties: a resource for gene discovery in plant stress biology. *Agronomy*. 9 (218) : 1-18.
- Rokade, Y.B., dan R.Z. Sayyed. 2009. Naphthalene derivatives : a new range of antimicrobials with high therapeutic value. *RASAYAN J Chem*. 2(4) : 972-980.
- Rowe, R.C., P.J. Shekey, dan M.E.Quinn. 2009. *Handbook of Pharmaceutical Excipients Sixth Edition*. USA : Pharmaceutical Press and American Pharmacist Association
- Sathyanarayana, B.N. dan D.B. Varghese. 2007. *Plant Tissue Culture Practices and New Experimental Protocols*. New Delhi : I.K. International. P : 44.
- Satuhu, S dan Y. Sri. 2012. *Panduan Lengkap Minyak Atsiri*. Jakarta : Penebar Swadaya. Hal : 90
- Sparkman, O. D., Z. E. Penton, dan F. G. Kitson. 2011. *Gas Chromatography and Mass Spectrometry: A Practical Guide Second Wdition*. Oxford : Elsevier Inc. P: 211.
- Srinivasan, S., dan U. Muruganathan. 2016. Antidiabetic efficacy of citronellol, citrus monoterpane by ameliorating the hepatic key enzymes of carbohydrate metabolism in streptozotocin-induced diabetic rats. *Chemico Biological Interactions*. 250 : 38-46.
- Susheela, P., R. Mary, R. Radha. 2018. Gas chromatography and mass spectrometry of the ethanolic extract of nest material of mud dauber wasp, *sceliphron caementarium*. *Asian J Pharm Clin Res*. 11(7) : 234-236.
- Syahid, S.F., dan Hernani. 2001. Pengaruh zat pengatur tumbuh terhadap pembentukan dan pertumbuhan serta kandungan sinensetin dalam kalus



- pada tanaman kumis kucing (*Orthosiphon aristatus*). *Jurnal Littri.* 7 (4) : 99-103.
- Szöke, E., dan E. Lemberkovics. 2021. Comparative investigation of sesquiterpene components of essential oils originating from intact plants and hairy root chamomile cultures. *GSC Advanced Research and Reviews.* 6(2) : 1-22
- Taji, Kumar dan Lakshmanan. 2002. *In-vitro Plant Breeding.* New York : Haworth Press, Inc. pp : 11-15.
- Tanzil, L., L. Latirah, P.D. Nugroho. 2017. Antidandruff activity of extracts from kaffir lime (*Citrus hystrix DC.*) prepared by different solvents. *Jurnal Teknologi Dan Seni Kesehatan.* 8(1) : 57-62.
- Thakur, D.R. dan J. Brari. 2016. Insecticidal potential properties of citronellol derived ionic liquid against two major stored grain insect pests. *Journal of Entomology and Zoology Studies.* 4(3) : 365-370.
- Toruan, N.S., L. Solahudin, D. Winata, Sastra-pradja, dan K. Padmawinata. 1990. Pengaruh 2,4-D, kolesterol dan radiasi Co-60 terhadap pertumbuhan dan kandungan diosgenin dalam kultur jaringan *Costus spesiosus*. *Forum Pasca Sarjana.* 13 (1): 1-14.
- Trigiano, R. N. dan D. J. Gray. 2000. *Plant Tissue Culture Concepts and Laboratory Exercises.* London: CRC Press. P : 24.
- Tunjung, W.A.S., J.Cinatl Jr, M. Michaelis, M. Smales. 2015. Anti-cancer effect of kaffir lime (*Citrus hystrix*, DC.) leaf extract in cervical and neuroblastoma cell lines. *Procedia Chem.* 14: 465–468
- Tunjung, W. A. S., D. Liana, Hennisa, and L. Hidayati. 2018. Antibacterial activity and composition of Lime (*Citrus hystrix DC.*) raw extracts of leaves and callus. *B. Life and Environmental Sciences.* 55 (2) : 45-53.
- Tunjung, W.A.S, V. Fatonah, G.P. Christy, S.Triono, L.Hidayati, D. Priyanto, Y.A. Purwestri, A. B. Sasongko, Hennisa, N. Faizah dan A.Indrianto. 2020. Effect of growth factor in callus induction and bioactive compounds in seed explant of kaffir lime (*Citrus hystrix DC.*). *Indonesian Journal of Pharmacy.* 31 (2) : 61-68.
- USDA Plant Database. 2014. *Citrus hystrix* DC. <https://plants.sc.egov.usda.gov/home/plantProfile?symbol=CIHY2>
- USP Convention. 2007. United States of Pharmacopeia National Formulary, USP 30/NF 25. Twinbrook Pathway : United States Pharmacopeia Convention
- Vo, Q. V., N.M. Tam, L.T. Hieu, M. Van Bay, N.M. Thong, T. Le Huyen, N.T. Hoa, A. Mechler. 2020. The antioxidant activity of natural diterpenes: theoretical insights. *RSC Advances.* 10(25) : 14937–14943.
- Wardhani, L.K. dan N. Sulistyani. 2012. Uji aktivitas antibakteri ekstrak etil asetat daun binahong (*Anredera scandens* (L.)Moq.) terhadap *Shigella flexneri* dan profil kromatografi lapis tipis. *Jurnal Ilmiah Kefarmasian.* 2(1) : 1-16.
- Waryastuti, D. E., Setyobudi, L. dan Wardiyati, T. 2017. Pengaruh tingkat konsentrasi 2,4-D dan BAP pada medium MS terhadap induksi kalus embrionik temulawak (*Curcuma xanthorrhiza* Roxb.). *Jurnal Produksi Tanaman.* 5(1) : 140–149.
- Wang, X., Zeng, L., Liao, Y., Li, J., Tang, J., dan Yang, Z. (2019). Formation of  $\alpha$  farnesene in tea (*Camellia sinensis*) leaves induced by herbivore-derived



wounding and its effect on neighboring tea plants. *International Journal of Molecular Sciences*, 20(17) : 4151-4159. doi:10.3390/ijms20174151

Zhang H, Stephanopoulos G. 2016. Co-culture engineering for microbial biosynthesis of 3-amino-benzoic acid in *Escherichia coli*. *Biotechnol J*. 11(7) : 981-987.

Zhao, F., P. Wang, R.D. Lucardi, Z.Su, dan S.Li. 2020. Natural Sources and Bioactivities of 2,4-Di-Tert-Butylphenol and Its Analogs. *Toxins*. 12 (35) : 1-26.

Zuo, Y. Huali, F. Huang, W. Xia, Zhi-Ning. 2013. Preparative gas chromatography and its applications. *Journal of Chromatographic Science*. 51 (7): 704-715.