

DAFTAR PUSTAKA

- Abbas, A. K. Lichtman, A.H., dan Pillai S.(2010). *Cellular Molecular Immunology*. 6th Ed. Philadelphia: W.B Saunders Company
- Agoes, Azwar. (2010). *Tanaman Obat Indonesia Buku 3*. Jakarta : Salemba Medika.
- Asbahani, A., Jilale, A., Voisin, S.N., Addi, E.H.A., Casabianca, H., El Mousadik, A., Hartmann, D.J., & Renaud, F.N.R.(2015). Chemical composition and antimicrobial activity of nine essential oils obtained by steam distillation of plants from the Souss- Massa Region (Morocco). *J Essent Oil Res*, 27: 34–44.
- Banu, K.S. (2015). General Techniques involved in Phytochemical Analisys. Volume 2, Issue 4, *International Journal of Advanced Research in Chemical Science* (IJARCS).
- Bakkali F, Averbeck S, Averbeck D, Idaomar M.(2008). Biological effects of essential oils – a review. *Food Chem Toxicol* 46:446–75.
- Burt S.(2004). Essential oils: their antibacterial properties and potential applications in foods – a review. *Intl J Food Microbiol* 94:223–53.
- Akhtar, N. M. Y., Ibrahim J., Laiba A., Areeful H.(2019). Standardized ethanol extract, essential oil and zerumbone of *Zingiber zerumbet* rhizome suppress phagocytic activity of human neutrophils. *BMC Complementary and Alternative Medicine*; 19:331. <https://doi.org/10.1186/s12906-019-2748-5>
- Chen, Y. C., Shen, S. C., Lee, W. R., Hou, W. C., Yang, L. L., & Lee, T. J. F. (2001). Inhibition of nitric oxide synthase inhibitors and lipopolysaccharide induced inducible NOS and cyclooxygenase-2 gene expressions by rutin, quercetin, and quercetin pentaacetate in RAW 264.7 macrophages. *Journal of Cellular Biochemistry*, 82(4), 537–548.
- Corwin Elizabeth. J. (2008). *Buku Saku Patofisiologi Corwin*. Edisi ke 3. Jakarta: EGC
- Chaiyana, W.; Anuchapreeda, S.; Leelapornpisid, P.; Phongpradist, R.; Viernstein, H.; Mueller, M.(2017). Development of microemulsion delivery system of essential oil from *Zingiber cassumunar* Roxb. rhizome for improvement of stability and anti-inflammatory activity. *AAPS PharmSciTech*, 18, 1332–1342.

- Chang, C. J., Tzeng, T. F., Chang, Y. S., & Liu, I. M. (2012). Beneficial impact of *Zingiber zerumbet* on insulin sensitivity in fructose-fed rats. *Planta Medica*, 78(4), 317–325. <https://doi.org/10.1055/s-0031-1298136>.
- Chaung Hso-Chi, Chi-Tang Ho & Tzou-Chi Huang.(2008). Anti-hypersensitive and anti-inflammatory activities of water extract of *Zingiber zerumbet* (L.) Smith, Food and Agricultural Immunology, 19:2, 117-129, DOI: 10.1080/09540100802047783
- Chemat, F., Vian, M.A., & Cravotto, G. (2012) Green extraction of natural products: Concept and principles. *Int J Mol Sci*, 13: 8615–8627.
- Chien, T. Y., Huang, S. K. H., Lee, C. J., Tsai, P. W., & Wang, C. C. (2016). Antinociceptive and anti-inflammatory effects of zerumbone against mono-iodoacetate-induced arthritis. *International Journal of Molecular Sciences*, 17(2), 1–11. <https://doi.org/10.3390/ijms17020249>
- Chienthavorn Orapin, Thanaporn Poonsukcharoen dan Thipamon Pathrakorn. (2014). Pressurized Liquid and Superheated Water Extraction of Active Constituents from *Zingiber cassumunar* Roxb. Rhizome. Pubmed
- Coruzzi G, Pozzoli C, Adami M, Grandi D, Guido N, Smits R, de Esch I, Leurs R. (2012).Strain-dependent effects of the histamine H4 receptor antagonist JNJ7777120 in a murine model of acute skin inflammation. *Exp Dermatol*; 21:32-37.
- Depkes RI. (2000). *Parameter Standar Umum Ekstrak Tumbuhan Obat*. Cetakan Pertama. Jakarta: Departemen Kesehatan RI.
- Departemen Kesehatan Republik Indonesia. (2006). *Monografi Ekstrak Tumbuhan Obat Indonesia*. Volume 2. Jakarta: Departemen Kesehatan RI.
- Depkes.(2011). *Kebijakan Obat Tradisional Nasional*. Jakarta: Departemen Kesehatan RI
- Dhifi, W., dkk.(2016). Essential Oils' Chemical Characterization and Investigation of Some Biological Activities: A Critical Review
- Elisawati, W., Sutarjadi, & Coniwati, A. (1999). Ciri-Ciri Farmakognosi Dan Kimiawi Minyak Atsiri Rimpang Lempuyang. *Warta Tumbuhan Obat Indonesia*, 5, 7–10.
- Ezzat,. S.M., dkk. (2017). "The hidden mechanism beyond ginger (*Zingiber officinale* Rosc.) potent in vivo and in vitro anti-inflammatory activity". *Journal of Ethnopharmacology*. <https://doi.org/10.1016/j.jep.2017.12.019>

- Ghasemzadeh, A., dkk. (2017). "Optimization of microwave-assisted extraction of zerumbone from *Zingiber zerumbet* L. rhizome and evaluation of antiproliferative activity of optimized extracts". Chemistry Central Journal, 11:5
- Goodman and Gilman. (2008). *Manual Farmakologi dan Terapi*. Edisi X. Jakarta: Buku Kedokteran EGC.
- Gupta, S.K., Anand Sharma.(2014). "Medicinal properties of *Zingiber officinale* Roscoe - A Review". IOSR Journal of Pharmacy and Biological Sciences. 2278-3008. Volume 9, Issue 5 Ver. V
- Handayani, Nestri., Wartono, Widyo., dan Wijaya, Nirub (2011). Isolasi, Identifikasi komponen,dan Uji Aktivitas Antibakteri Rimpang lempuyang wangi (*Zingiber aromaticum* Val.). FMIPA Universitas Sebelas Maret Surakarta.
- Haque, M. A., Jantan, I., Arshad, L., & Bukhari, S. N. A. (2017). Exploring the immunomodulatory and anticancer properties of zerumbone. Food & Function, 8(10), 3410–3431. <https://doi.org/10.1039/c7fo00595d>.
- Jeenapongsa, R., dkk.(2003). Anti-inflammatory activity of (E)-1-(3,4 dimethoxyphenyl) butadiene from *Zingiber cassumunar* Roxb. Journal of Ethnopharmacology.143–148
- Kaewchoothong, A.; Tewtrakul, S.; Panichayupakaranant, P.(2012). Inhibitory effect of phenylbutanoid- rich *Zingiber cassumunar* extracts on nitric oxide production by murine macrophage-like RAW264.7 cells. Phytother. Res., 26, 1789–1792.
- Karim, dkk.(2019). Anti-nociceptive and Anti-inflammatory Activities of Asparacosin A Involve Selective Cyclooxygenase 2 and Inflammatory Cytokines inhibition: An in-vivo, in-vitro, and in-silico Approach. Front Immunol.
- Katzung, Bertram G. (2010). *Farmakologi Dasar dan Klinik* (terjemahan). Ed.10. Jakarta: Buku Kedokteran EGC.
- Kalantari, K., dkk.(2017). "A Review of the Biomedical Applications of Zerumbone and the Techniques for Its Extraction from Ginger Rhizomes". A Review of Biomedical.MDPI.
- Kamazeri, T.S.(2012). "*Zingiberaceae Family*". International Journal Of Pharma World Search. Asian Pacific Journal of Tropical Medicine 5(3):202-209

- Karim, dkk. (2019). Anti-nociceptive and Anti-inflammatory Activities of Asparacosin A Involve Selective Cyclooxygenase 2 and Inflammatory Cytokines Inhibition: An in-vitro, in-vivo, and in-silico Approach. *Front. Immunol.*
- Karunakaran, R., Ndusa A., Uma., S. A., Khin M.A.(2017). Anti-inflammatory effect of *Zingiber officinale* on Sparague Dawley Rats. Asian Journal of Pharmaceutical and Clinical Research
- Kaulmann, A., & Bohn, T. (2014). Carotenoids, inflammation, and oxidative stress-implications of cellular signaling pathways and relation to chronic disease prevention. *Nutrition Research*, 34(11), 907–929.
<https://doi.org/10.1016/j.nutres.2014.07.010>
- Kawahara, K., Dkk. (2015). Prostaglandin E2-induced inflammation: Relevance of prostaglandin E receptor. *Biochimica et Biophysica Acta (BBA) - Molecular and Cell Biology of Lipids* Volume 1851, Issue 4, Pages 414-421
- Kirana, Chandra, Graeme H. McIntosh, Ian R. Record and Graham P. Jones.(2003). Antitumor Activity of Extract of *Zingiber aromaticum* and Its Bioactive Sesquiterpenoid Zerumbone. *Nutrition and Cancer*, 45(2); 218-225.<http://dx.doi.org/10.1207/S15327914NC4502-12>
- Kristanti, A. N., N. S. Aminah, M. Tanjung, dan B. Kurniadi. (2008). Buku Ajar Fitokimia. Surabaya: Airlangga University Press. Hal. 23, 47.
- Kumar, G., Khartik K. V., Baskhara K.(2011). “A Review on Pharmacological and Phytochemical Properties of *Zingiber officinale* Roscoe (Zingiberaceae)”. Molecular and Microbiology Research Laboratory, Environmental Biotechnology Division
- Kunnumakkara, A. B., Sailo, B. L., Banik, K., Harsha, C., Prasad, S., Gupta, S. C., Aggarwal, B. B. (2018). Chronic diseases, inflammation, and spices: How are they linked? *Jurnalof Translational Medicine*, 16(1), 14.
<https://doi.org/10.1186/s12967018-1381-2>.
- Lafka, T. I., Sinanoglou, V., & Lazos, E. S. (2007). On the extraction and antioxidant activity of phenolic compounds from winery wastes. *Food Chemistry*, 104(3), 1206–1214.
- Lanas, A., (2009). Nonsteroidal anti-inflammatory drugs and cyclooxygenase inhibition in the gastrointestinal tract: A trip from peptic ulcer to colon cancer. *Am. J. Med. Sci.* 338, 96–106.
- Leelarungrayub J., Jiradej Manorsoi, Aranya Manorsoi. (2017). “Anti-inflammatory activity of niosomes entrapped with Plai oil (*Zingiber*

cassumunar Roxb.) by therapeutic ultrasound in a rat model". *International Journal of Nanomedicine*

- Liu J, Zhai W-M, Yang Y-X, Shi J-L, Liu Q-T, Liu G-L, Fang N, Li J, Guo J-Y (2015). GABA and 5-HT systems are implicated in the anxiolyticlike effect of spinosin in mice. *Pharmacology, Biochemistry and Behavior* 128:41-49.
- Luthria, D.L. (2008) Influence of experimental conditions on the extraction of phenolic compounds from parsley (*Petroselinum crispum*) flakes using a pressurized liquid extractor. *Food Chem.*, 107 (2): 745–752.
- Maharani, N., dan Muhtadi. (2017). Aktivitas Antiinflamasi Kombinasi Ekstrak Etanol Lempuyang Gajah (*Zingiber zerumbet*) dan Serbuk Ikan Gabus (*Channa striata*) Terhadap Udem Telapak Kaki Tikus Putih Jantan Galur Wistar. *The 5th Urecol Proceeding*; 400-405.
- Marliana, S. D., V. Suryanti, dan Suyono. (2005). Skrining Fitokimia dan Analisis Kromatografi Lapis Tipis Komponen Kimia Buah Labu Siam (*Sechium edule* Jacq. Swartz.) dalam Ekstrak Etanol. *Biofarmasi*, 3 (1). Pp. 26-31.
- Marliani, L. (2012). Aktivitas Antibakteri dan Telaah Senyawa Komponen Minyak Atsiri Rimpang Bangle (*Zingiber cassumunar* Roxb.). Prosiding Seminar Nasional Penelitian dan PKM: Sains, Teknologi, dan Kesehatan. Bandung. Hal. 1-6.
- Masango P. (2005). Cleaner production of essential oils by steam distillation. *J Cleaner Prod* 13:833–9.
- Mohamed AA, El-Emary GA, Ali HF. (2010). Influence of some citrus essential oils on cell viability, glutathione-s-transferase and lipid peroxidation in *Ehrlich ascites* Carcinoma cells. *J Am Sci* 6:820–6.
- Multazar, A., Nursiah, S., Rambe, A., & Harahap, I. S. (2012). Pada Penderita Rinosinusitis Kronis. *Jurnal ORLI*, 42(2), 96–103.
- Murwanti, R. E.(2004). Efek Ekstrak Etanol Rimpang Temu Putih (*Curcuma zedosia* Rosc.) terhadap Pertumbuhan Tumor Paru Fase Post Inisiasi pada
- Mycek, M.J., Harvey, R.A., Pamela, C.C., dan Fisher, B.D., (2001). *Farmakologi Ulasan Bergambar*. Jakarta: Widya Medika.
- Necas, J. (2013). Carrageenan. *Veterinarni Medicina*, 58, 2013 (4): 187–205
- Nissy, A.P., Nazir Ahmed.(2017). Spectrum of Drug-induced Chronic Diarrhea. *J Clin Gastroenterol.*, Volume 51, Number 2
- Organization W.H.(2010). *WHO traditional medicine strategy*.

- Osabor, V.N., F. I. Bassey., U. U. Umoh. "Phytochemical Screening and Quantitative Evaluation of Nutritional Values of *Zingiber officinale* (Ginger)". Nigeria. Department of Pure and Applied Chemistry, University of Calabar
- Prakash, R.O.(2011). "Zingiber zerumbet (L.) Sm., a reservoir plant for therapeutic uses: A Review". Pharmacognosy & Phytochemistry Division,
- Parmar, N. S. Dan Shiv Prakash.(2006). *Screening Methods In Pharmacology 4.* Oxford: Alpha Science International Ltd.
- Polat, B. E., dkk. (2011). Ultrasound-mediated transdermal drug delivery: Mechanisms, scope, and emerging trends. Journal of Controlled Realese. 330-348
- Rahayu, I.D. (2019). "Antibacterial activity of ethanolic extracts from *Zingiber zerumbet* rhizome against *Salmonella* spp". Doctoral Program of Agricultural Science, Universitas Muhammadiyah Malang
- Raktham Mektrira, Terdsak Yan, Siriporn Okonog, Wasan Katip dan Surachai Pikulkaew Rehman, R., Akram M., Naveed A. (2011). "Zingiber officinale Roscoe (pharmacological activity)". Pakistan. Faculty of Pharmacy and Alternative Medicine
- Revindran, P. N., and Babu, K. N. (2005) Ginger The Genus *Zingiber*. RC Press New York, 87-90.
- Ruberto G, Baratta MT.(2000). Antioxidant activity of selected essential oil components in two lipid model systems. Food Chem 69:167–74.
- Rowe R. C., Sheskey, P. J., Queen, M. E. (2006). Hanbook *Handbook of Pharmaceutical Excipients Sixth Edition*. London: Pharmaceutical Press and American Pharmacists Assosiation.
- Saifudin, A., Rahayu, V., & Teruna, H. Y. (2011). *Standardisasi Bahan Obat Alam*. Yogyakarta: Graha Ilmu.
- Sakinah, S. A., Handayani, S. T., & Hawariah, L. P. (2007). Zerumbone induced apoptosis in liver cancer cells via modulation of Bax/Bcl-2 ratio. Cancer Cell International, 7, 4. <https://doi.org/10.1186/1475-2867-7-4>.
- Sander, M, A. (2010). *Atlas Berwarna Patologi Anatomi*. Jakarta: Rajawali Pers.
- Shipra Bhargava., dkk., (2012). "Zingiber Officinale : Chemical and phytochemical screening and evaluation of its antimicrobial activities". *Journal of Chemical and Pharmaceutical Research*

- Silalahi, Marina. (2019). Kencur (*Kaempferia galangal*) dan Bioaktivitasnya. Jurnal Pendidikan Informatika dan Sains. Volume 8(1).
- Singh, C.B.(2012). "Biological and chemical properties of *Zingiber zerumbet* Smith: a review ". *J Pharmacogn. Phytochem*
- Singh, A dkk. (2008). Antiinflammatory and Analgesic Agents from Indian Medicinal Plants. *International Journal of Integrative Biology*.
- Singh, C.B.; Manglembi, N.; Swapana, N.; Chanu, S.B.(2015). Ethnobotany, Phytochemistry and Pharmacology of *Zingiber cassumunar* Roxb. (Zingiberaceae). *J Pharmacogn. Phytochem.* 4, 1–6.
- Somala, L.(2006). Sifat Reproduksi Mencit (*Mus musculus* L.) Betina yang Mendapat Pakan Tambahan Kemangi (*Ocimum basilicum*) Kering. Program Studi Teknologi Produksi Ternak Fakultas Peternakan, Institut Pertanian Bogor. Bogor.
- Somchit, M.N. (2012). "Zerumbone isolated from *Zingiber zerumbet* inhibits inflammation and pain in rats". Department of Biomedical Sciences: Malaysia
- Srinivasan, K. (2017). "Ginger Rhizome (*Zingiber officinale*): A spice of Multiple Health Benefical Potential". Department of Biochemistry And Nutrition
- Sulaiman, M. R. (2010). "Antiinflammatory Effect of Zerumbone on Acute And Chronic Inflammation Model in Mice ". Department of Biomedical Science
- Stables, M. J., & Gilroy, D. W. (2011). Old and new generation lipid mediators in acute inflammation and resolution. *Progress in Lipid Research*, 50(1), 35–51. <https://doi.org/10.1016/j.plipres.2010.07.005>
- Supranto, J. (2001). Statistik teori dan aplikasi. Edisi 6. Jakarta: Erlangga
- Sweetman, S. C. (2009). *Martindale The Complete Drug Reference*. 36nd Edition. New York: Pharmaceutical Press
- Shimoda H. (2010). "Anti-Inflammatory Properties of Ginger (*Zingiber officinale*) Extract and Suppression of Nitric Oxide Production by Its Constituents" . Research and Development Division, Oryza Oil & Fat Chemical Co., Ltd
- Taiz, L., & Zeiger, E. (2006). Plant Physiology. *Sinauer Associates, Inc, Sunderland*, 764.
- Tririzqi, F. (2013). Ekstraksi Senyawa Gingerol Dari Rimpang Jahe Dengan Metode Maserasi Bertingkat. Institut Pertanian Bogor, 11-26.

Tjay T.H. dan Rahardja K. (2015) Obat-Obat Penting Khasiat. Penggunaan dan Efek - Efek Sampingnya. Jakarta: PT Elex Media Komputindo.

Thakur, R., Kamlesh Y., Khim B.K.(2013). "Study of antioxidant, antibacterial and anti-inflammatory activity of cinnamon (*Cinnamomum tamala*), ginger (*Zingiber officinale*) and turmeric (*Curcuma longa*)". *American Journal of Life Sciences*

Tongnuachan, P., Soottawat B. (2014). Essential Oils: Extraction, Bioactivities, and Their Uses for Food Preservation. Dept. of Food Technology, Faculty of Agro-Industry

Thaweboon, S., Boonyanit, T., Rattiporn K.(2018). Antifungal, Anti-inflammatory, and Cytotoxic of *Zingiber cassumunar* Gel. Key Engeneering Material.

Tóth, L; Muszbek, L; Komáromi, I (2013). "Mechanism of the irreversible inhibition of human cyclooxygenase-1 by aspirin as predicted by QM/MM calculations". *Journal of Molecular Graphics and Modelling*. **40**: 99–109. doi:10.1016/j.jmgm.2012.12.013. PMID 23384979

Vishwakarma, S. L., Pal, S. C., kasture, Veena S., dan kasture S. B. (2002). Anxiolytic and Antiemetic Activity of *Zingiber officinale*. Wiley InterScience. 16, 621-626.

Wahyuni, S., Bermawie, N., dan Kristina, N. N.(2013).Karakteristik Morfologi, Potensi Produksi dan Komponen Utama Rimpang 9 Nomor Lempuyang Wangi. Jurnal Penelitian Taman Industri, 19(3); 00-107. <http://doi.org/10.21082/littri.v19n3.2013.99-107>

Wilmania, P. Freedy dan Gan, Sulistia. (2007). Analgesik-Antipiretik Anti Inflamasi Non Steroid dan Obat Gangguan Sendi Lainnya dalam Farmakologi dan Terapi. Jakarta: FKUI

Wohlmuth, H. (2008). Phytochemistry and pharmacology of plants from the ginger family, Zingiberaceae (PhD thesis).

Wulandari, E. T. (1999). Identifikasi perbedaan rimpang lempuyang pahit, lempuyang wangi dan lempuyang gajah. Warta Tumbuhan Obat Indonesia. 5(1), 11-13.

Xu, G. H., Chen, J. C., Liu, D. H., Zhang, Y. H., Jiang, P., & Ye, X. Q. (2008). Minerals, phenolic compounds, and antioxidant capacity of citrus peel extract by hot water. *Journal of Food Science*, 73(1), C11–C18.

Yongliang, J.(2011). “Analgesic and Anti-inflammatory Effects of Ginger Oil”.
Department of Pharmacology, Medical College of Zhejiang University

Younis, A., A. Riaz, M.A. Khan, A.A. Khan and M.A. Pervez, (2008). Extraction and identification of chemical constituents of the essential oil of *Rosa* species. *Acta Hort.*, 766: 485-492.

Zakaria, Z.A., dkk.(2010). Anti-Inflammatory Activity and Anti-nociceptic of *Zingiber zerumbet* Methanol Extract in Experimental Model Systems. Biological Research for Nursing

Zaman, S.u., dkk.(2014). “Evaluation of Antiinflammatory Effect of *Zingiber Officinale* (Ginger) Root in Rats”. Department of Pharmacology, Institute of Medical Science and Research