

## DAFTAR PUSTAKA

- Al-Dhahli, A. S., Al-Hassani, F. A., Mohammed Alarjani, K., Mohamed Yehia, H., Al Lawati, W. M., Najmul Hejaz Azmi, S., & Alam Khan, S. (2020). Essential oil from the rhizomes of the Saudi and Chinese *Zingiber officinale* cultivars: Comparison of chemical composition, antibacterial and molecular docking studies. *Journal of King Saud University - Science*, **32**(8), 3343–3350. <https://doi.org/10.1016/j.jksus.2020.09.020>
- Ali, S., Baharuddin, M., & Sappewali, S. (2013). Pengujian Aktivitas Antibakteri Minyak Atsiri Jahe (*Zingiber Officinale* Roscoe) Terhadap Bakteri *Staphylococcus Aureus* dan *Escherichia Coli*. *Al-Kimia*, **1**(2), 18–31. <https://doi.org/10.24252/al-kimia.v1i2.1629>
- Anamthawat-Jónsson, K., & Umpunjun, P. (2020). Polyploidy in the Ginger Family from Thailand. In T. Aşkın Çelik & S. Dey (Eds.), *Chromosomal Abnormalities*. IntechOpen. <https://doi.org/10.5772/intechopen.92859>
- Ashraf, K., Sultan, S., Adnan, S., Shah, S. A., Mara, A., Campus, P., Alam, D., Ehsan, Malaysia, Teknologi, U., Puncak, M., Campus, A., Alam, P., & Ehsan, D. (2017). Phychemistry, Phytochemical, Pharmacological And Molecular Study Of *Zingiber Officinale* Roscoe: A Review. *International Journal of Pharmacy and Pharmaceutical Sciences*, **9**. <https://doi.org/10.22159/ijpps.2017v9i11.19613>
- Balouiri, M., Sadiki, M., & Ibsouda, S. K. (2016). Methods for in vitro evaluating antimicrobial activity: A review. *Journal of Pharmaceutical Analysis*, **6**(2), 71–79. <https://doi.org/10.1016/j.jpha.2015.11.005>
- Baser, K. H. C., & Buchbauer, G. (Eds.). (2015). *Handbook of Essential Oils: Science, Technology, and Applications, Second Edition* (2nd ed.). CRC Press. <https://doi.org/10.1201/b19393>
- Bellik, Y. (2014). Total antioxidant activity and antimicrobial potency of the essential oil and oleoresin of *Zingiber officinale* Roscoe. *Asian Pacific Journal of Tropical Disease*, **4**(1), 40–44. [https://doi.org/10.1016/S2222-1808\(14\)60311-X](https://doi.org/10.1016/S2222-1808(14)60311-X)
- Bermawie, N., Syahid, S. F., Ajijah, N., Purwiyanti, S., & Martono, B. (2013). *Stabilitas Hasil Dan Mutu Enam Genotipe Harapan Jahe Putih Kecil (Zingiber officinale Rosc. Var amarum) Pada Beberapa Agroekologi*. 58–65.
- Bhuiyan, N. I., Chowdhury, J. U., & Begum, J. (2008). Volatile constituents of essential oils isolated from leaf and rhizome of *Zingiber cassumunar* Roxb. *Bangladesh Journal of Pharmacology*, **3**(2), 69–73.
- Boonyanugomol, W., Kraisiwattana, K., Rukseree, K., Boonsam, K., & Narachai, P. (2017). In vitro synergistic antibacterial activity of the essential oil from *Zingiber cassumunar* Roxb against extensively drug-resistant *Acinetobacter*

- baumannii strains. *Journal of Infection and Public Health*, **10**(5), 586–592.  
<https://doi.org/10.1016/j.jiph.2017.01.008>
- Branney. (2005). *Hardy gingers: Including Hedychium, Roscoe, and Zingiber*. Timber Press. <https://www.cabi.org/ISC/abstract/20053128737>
- Bua-in, S., & Paisooksantivatana, Y. (2009). Essential Oil and Antioxidant Activity of Cassumunar Ginger (Zingiberaceae: *Zingiber montanum* (Koenig) Link ex Dietr.) Collected from Various Parts of Thailand. *Agriculture and Natural Resources*, **43**(3), 467–475.
- Burt, S. (2004). Essential oils: Their antibacterial properties and potential applications in foods—a review. *International Journal of Food Microbiology*, **94**(3), 223–253.  
<https://doi.org/10.1016/j.ijfoodmicro.2004.03.022>
- Chairgulprasert, V., Prasertsongsun, S., & Wichaporn, W. (2005). *Chemical constituents of the essential oil and anti-bacterial activity of Zingiber wrayi var. Halabala*.
- Das, A., Dey, S., Sahoo, D., Sahoo, S., & Subudhi, E. (2019). Antibiofilm and Antibacterial Activity of Essential Oil Bearing *Zingiber officinale* Rosc. (Ginger) Rhizome Against Multi-drug Resistant Isolates. *Journal of Essential Oil Bearing Plants*, **22**, 1163–1171.  
<https://doi.org/10.1080/0972060X.2019.1683080>
- Dhanik, J., Verma, A., Arya, N., & Nand, V. (2017). Chemical Profiling and Antioxidant Activity of Essential Oil of *Zingiber officinale* Roscoe from Two Different Altitudes of Uttarakhand. *Journal of Essential Oil Bearing Plants*, **20**(6), 1547–1556.  
<https://doi.org/10.1080/0972060X.2017.1417747>
- Dhifi, W., Bellili, S., Jazi, S., Bahloul, N., & Mnif, W. (2016). Essential Oils' Chemical Characterization and Investigation of Some Biological Activities: A Critical Review. *Medicines (Basel, Switzerland)*, **3**(4), E25.  
<https://doi.org/10.3390/medicines3040025>
- Dorman, H. J. D., & Deans, S. G. (2000). Antimicrobial agents from plants: Antibacterial activity of plant volatile oils. *Journal of Applied Microbiology*, **88**(2), 308–316. <https://doi.org/10.1046/j.1365-2672.2000.00969.x>
- Elhassan, I. A., & Ayoub, S. M. H. (2014). Effect of Geographical location on essential oil Content and Composition of *Xylopia aethiopica*. *American Journal of Research Communication*, **2**(1), 251–261.
- Etikawati, N., & Setyawan, A. D. (2000). A Cytotaxonomic Study in the Genus *Zingiber*. *Biodiversitas Journal of Biological Diversity*, **1**(1), Article 1.  
<https://doi.org/10.13057/biodiv/d010101>
- Fatisa, Y. (2013). Daya Antibakteri Estrak Kulit Dan Biji Buah Pulasan. *Jurnal Peternakan*, **10**(1), 8.
- Fernández-Sestelo, M., & Carrillo, J. M. (2020). Environmental Effects on Yield and Composition of Essential Oil in Wild Populations of Spike Lavender

- (*Lavandula latifolia* Medik.). *Agriculture*, **10**(12), 626.  
<https://doi.org/10.3390/agriculture10120626>
- Figueiredo, A. C., Barroso, J. G., Pedro, L. G., & Scheffer, J. J. C. (2008). Factors affecting secondary metabolite production in plants: Volatile components and essential oils. *Flavour and Fragrance Journal*, **23**(4), 213–226.  
<https://doi.org/10.1002/ffj.1875>
- Gershenzon, J., & Croteau, R. (1991). Chapter 5—Terpenoids. In G. A. Rosenthal & M. R. Berenbaum (Eds.), *Herbivores: Their Interactions with Secondary Plant Metabolites (Second Edition)* (pp. 165–219). Academic Press.  
<https://doi.org/10.1016/B978-0-12-597183-6.50010-3>
- Han, A.-R., Kim, H., Piao, D., Jung, C.-H., & Seo, E. K. (2021). Phytochemicals and Bioactivities of *Zingiber cassumunar* Roxb. *Molecules*, **26**(8), 2377.  
<https://doi.org/10.3390/molecules26082377>
- Han, J. S., Lee, S., Kim, H. Y., & Lee, C. H. (2015). MS-Based Metabolite Profiling of Aboveground and Root Components of *Zingiber mioga* and *Officinale*. *Molecules*, **20**(9), 16170–16185.  
<https://doi.org/10.3390/molecules200916170>
- Hartati, R., Suganda, A. G., & Fidrianny, I. (2014). Botanical, Phytochemical and Pharmacological Properties of *Hedychium* (Zingiberaceae) – A Review. *Procedia Chemistry*, **13**, 150–163.  
<https://doi.org/10.1016/j.proche.2014.12.020>
- Helen, P. A., Nizzy, A. M., & TR, J. (2009). Phytochemical characterization and antimicrobial activity of shampoo ginger (*Zingiber zerumbet*) from Tamil Nadu, India. *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*, **11**, 625–628.
- Huang, Z., Xie, L., Wang, H., Zhong, J., Li, Y., Liu, J., Ou, Z., Liang, X., Li, Y., Huang, H., Lin, Z., Zhang, K., Zhang, L., & Zheng, X. (2019). Geographic distribution and impacts of climate change on the suitable habitats of *Zingiber* species in China. *Industrial Crops and Products*, **138**, 111429.  
<https://doi.org/10.1016/j.indcrop.2019.05.078>
- Kamaliroosta, Z., Kamaliroosta, L., & Elhamirad, A. H. (2013). Isolation and Identification of Ginger Essential Oil. *Journal of Food Biosciences and Technology*, **3**(Journal of Food Biosciences and Technology), 73–80.
- Kamazeri, T. S. A. T., Samah, O. A., Taher, M., Susanti, D., & Qaralleh, H. (2012). Antimicrobial activity and essential oils of *Curcuma aeruginosa*, *Curcuma mangga*, and *Zingiber cassumunar* from Malaysia. *Asian Pacific Journal of Tropical Medicine*, **5**(3), 202–209. [https://doi.org/10.1016/S1995-7645\(12\)60025-X](https://doi.org/10.1016/S1995-7645(12)60025-X)
- Khade, A., & Bhuktar, A. (2017). *Impact Factor: 5.2 IJAR*.
- Kitayama, T., Yamamoto, K., Utsumi, R., Takatani, M., Hill, R. K., Kawai, Y., Sawada, S., & Okamoto, T. (2001). Chemistry of *Zerumbone*. 2. Regulation of Ring Bond Cleavage and Unique Antibacterial Activities of *Zerumbone*

- Derivatives. *Bioscience, Biotechnology, and Biochemistry*, **65**(10), 2193–2199. <https://doi.org/10.1271/bbb.65.2193>
- Kizhakkayil, J., & Bhas, S. (2011). Diversity, characterization and utilization of ginger: A review. *Plant Genetic Resources*, **9**, 464–477. <https://doi.org/10.1017/S1479262111000670>
- Koga, A. Y., Beltrame, F. L., & Pereira, A. V. (2016). Several aspects of *Zingiber zerumbet*: a review. *Revista Brasileira de Farmacognosia*, **26**, 385–391. <https://doi.org/10.1016/j.bjp.2016.01.006>
- Kusuma, I. W., Kuspradini, H., Arung, E. T., Aryani, F., Min, Y.-H., Kim, J.-S., & Kim, Y. (2011). Biological Activity and Phytochemical Analysis of Three Indonesian Medicinal Plants, *Murraya koenigii*, *Syzygium polyanthum* and *Zingiber purpurea*. *Journal of Acupuncture and Meridian Studies*, **4**(1), 75–79. [https://doi.org/10.1016/S2005-2901\(11\)60010-1](https://doi.org/10.1016/S2005-2901(11)60010-1)
- Langeveld, W., Veldhuizen, E., & Burt, S. (2013). Synergy between essential oil components and antibiotics: A review. *Critical Reviews in Microbiology*, **40**. <https://doi.org/10.3109/1040841X.2013.763219>
- Lely, N., Firdiawan, A., & Martha, S. (2016). Efektivitas Antibakteri Minyak Atsiri Rimpang Jahe Merah (*Zingiber officinale* var. *Rubrum*) Terhadap Bakteri Jerawat. *SCIENTIA: Jurnal Farmasi dan Kesehatan*, **6**(1), 44–49. <https://doi.org/10.36434/scientia.v6i1.41>
- Loi, N. V. (2019). Primary study on the components and physico chemical as well as biological properties of the essential oil from zingiber montanum growing in Lai Chau, Vietnam. *Journal of Science and Technology*, **2**(2), 48–52.
- Mahboubi, M. (2019). *Zingiber officinale* Rosc. Essential oil, a review on its composition and bioactivity. *Clinical Phytoscience*, **5**(1), 6. <https://doi.org/10.1186/s40816-018-0097-4>
- Manochai, B., Paisooksantivatana, Y., Choi, H., & Hong, J. H. (2010). Variation in DPPH scavenging activity and major volatile oil components of cassumunar ginger, *Zingiber montanum* (Koenig), in response to water deficit and light intensity. *Scientia Horticulturae*, **126**(4), 462–466. Scopus. <https://doi.org/10.1016/j.scienta.2010.07.011>
- Mesomo, M. C., Corazza, M. L., Ndiaye, P. M., Dalla Santa, O. R., Cardozo, L., & Scheer, A. de P. (2013). Supercritical CO<sub>2</sub> extracts and essential oil of ginger (*Zingiber officinale* R.): Chemical composition and antibacterial activity. *The Journal of Supercritical Fluids*, **80**, 44–49. <https://doi.org/10.1016/j.supflu.2013.03.031>
- Moghaddasi, M. S., & Kashani, H. H. (2012). Ginger (*Zingiber officinale*): A review. *Journal of Medicinal Plants Research*, **6**(26). <https://doi.org/10.5897/JMPR011.787>
- Mulyani, S. (2010). *Komponen dan anti-bakteri dari fraksi kristal minyak Zingiber zerumbet*. 7.

- Mulyani, S., Purwanto, & Sudarsono. (2021). *Minyak Atsiri Tumbuhan Obat*. UGM PRESS.
- Munda, S., Dutta, S., Haldar, S., & Lal, M. (2018). Chemical Analysis and Therapeutic Uses of Ginger (*Zingiber officinale* Rosc.) Essential Oil: A Review. *Journal of Essential Oil Bearing Plants*, **21**(4), 994–1002. <https://doi.org/10.1080/0972060X.2018.1524794>
- Natta, L., Orapin, K., Krittika, N., & Pantip, B. (2008). Essential oil from five Zingiberaceae for anti food-borne bacteria. *International Food Research Journal*, **15**(3), 337–346.
- Nurchayati, N., & Ardiyansyah, F. (2018). KAJIAN ETNOBOTANI TANAMAN FAMILI ZINGIBERACEAE PADA MASYARAKAT SUKU USING KABUPATEN BANYUWANGI. *JURNAL BIOSENSE*, **1**(01), 24–35.
- Padalia, R. C., Verma, R. S., Chauhan, A., Singh, V. R., Goswami, P., Singh, S., Verma, S. K., Luqman, S., Chanotiya, C. S., & Darokar, M. P. (2018). *Zingiber zerumbet* (L.) Roscoe ex Sm. from northern India: Potential source of zerumbone rich essential oil for antiproliferative and antibacterial applications. *Industrial Crops and Products*, **112**, 749–754. <https://doi.org/10.1016/j.indcrop.2018.01.006>
- Padmasari, P. D., Astuti, K. W., & Warditiani, N. K. (2013). SKRINING FITOKIMIA EKSTRAK ETANOL 70% RIMPANG BANGLE (*Zingiber purpureum* Roxb.). *Jurnal Farmasi Udayana*. <https://ojs.unud.ac.id/index.php/jfu/article/view/7395>
- Rana, V. S., Verdeguer, M., & Blazquez, M. A. (2012). Chemical Composition of the Essential Oil of *Zingiber Zerumbet* Var. *Darcyi*. *Natural Product Communications*, **7**(10), 1934578X1200701031. <https://doi.org/10.1177/1934578X1200701031>
- Ravindran, P. N., & Babu, K. N. (2016). *Ginger: The Genus Zingiber*. CRC Press.
- Rehman, R., Hanif, M. A., Mushtaq, Z., & Al-Sadi, A. M. (2016). Biosynthesis of essential oils in aromatic plants: A review. *Food Reviews International*, **32**(2), 117–160. <https://doi.org/10.1080/87559129.2015.1057841>
- Rialita, T., Rahayu, W. P., Nuraida, L., & Nurtama, B. (2017). Aktivitas Antimikroba Minyak Esensial Jahe Merah (*Zingiber officinale* var. *Rubrum*) dan Lengkuas Merah (*Alpinia purpurata* K. Schum) terhadap Bakteri Patogen dan Perusak Pangan. *AgriTECH*, **35**(1), 43–52. <https://doi.org/10.22146/agritech.9418>
- Rini, E. (2015). Pasokan dan Permintaan Tanaman Obat Indonesia Serta Arah Penelitian dan Pengembangannya. *Perspektif*, **8**(1), 52–64. <https://doi.org/10.21082/p.v8n1.2009.%p>
- Rohma, L. N., Rohma, L. N., Sjoefjan, O., & Natsir, M. H. (2019). Komposisi Minyak Atsiri dan Aktivitas Antimikroba Rimpang Temu Putih dan Jahe Gajah sebagai Fitobiotik Pakan Unggas. *Jurnal Ilmu dan Teknologi Peternakan Tropis*, **6**(2), 181. <https://doi.org/10.33772/jitro.v6i2.5560>



- Sabulal, B., Dan, M., J, A. J., Kurup, R., Pradeep, N. S., Valsamma, R. K., & George, V. (2006). Caryophyllene-rich rhizome oil of *Zingiber nimmonii* from South India: Chemical characterization and antimicrobial activity. *Phytochemistry*, **67**(22), 2469–2473. <https://doi.org/10.1016/j.phytochem.2006.08.003>
- Salih, B., & Çelikbıçak, Ö. (2011). *Gas Chromatography in Plant Science, Wine Technology, Toxicology and Some Specific Applications*. <https://doi.org/10.5772/2517>
- Sanatombi, R., & Sanatombi, K. (2017). Biotechnology of *Zingiber montanum* (Koenig) Link ex A. Dietr.: A review. *Journal of Applied Research on Medicinal and Aromatic Plants*, **4**, 1–4. <https://doi.org/10.1016/j.jarmap.2016.09.001>
- Şanlı, A., & Karadoğan, T. (2017). Geographical impact on essential oil composition of endemic *Kundmannia anatolica* Hub. -Mor. (Apiaceae). *African Journal of Traditional, Complementary and Alternative Medicines*, **14**(1), 131–137. <https://doi.org/10.4314/ajtcam.v14i1>
- Santosh Kumar, S. C., Srinivas, P., Negi, P. S., & Bettadaiah, B. K. (2013). Antibacterial and antimutagenic activities of novel zerumbone analogues. *Food Chemistry*, **141**(2), 1097–1103. <https://doi.org/10.1016/j.foodchem.2013.04.021>
- Şener, N., Özkinali, S., Gür, M., Güney, K., Özkan, O. E., & Khalifa, M. M. (2017). Determination of Antimicrobial Activity and Chemical Composition of Pimento & Ginger Essential Oil. *Indian Journal of Pharmaceutical Education and Research*, **51**(3). <https://doi.org/DOI: 10.5530/ijper.51.3s.19>
- Sermakkani, M., & Thangapandian, V. (2012). GC-MS analysis of *Cassia italica* leaf methanol extract. *Asian Journal of Pharmaceutical and Clinical Research*, **5**, 90–94.
- Setyawan, A. D., & Listyawati, S. (2001). *Studi Kemotaksonomi pada Genus Zingiber*. **2**(1), 6.
- Sharifi-Rad, M., Varoni, E. M., Salehi, B., Sharifi-Rad, J., Matthews, K. R., Ayatollahi, S. A., Kobarfard, F., Ibrahim, S. A., Mnayer, D., Zakaria, Z. A., Sharifi-Rad, M., Yousaf, Z., Iriti, M., Basile, A., & Rigano, D. (2017a). Plants of the Genus *Zingiber* as a Source of Bioactive Phytochemicals: From Tradition to Pharmacy. *Molecules*, **22**(12), 2145. <https://doi.org/10.3390/molecules22122145>
- Sharifi-Rad, M., Varoni, E. M., Salehi, B., Sharifi-Rad, J., Matthews, K. R., Ayatollahi, S. A., Kobarfard, F., Ibrahim, S. A., Mnayer, D., Zakaria, Z. A., Sharifi-Rad, M., Yousaf, Z., Iriti, M., Basile, A., & Rigano, D. (2017b). Plants of the Genus *Zingiber* as a Source of Bioactive Phytochemicals: From Tradition to Pharmacy. *Molecules*, **22**(12), 2145. <https://doi.org/10.3390/molecules22122145>
- Sharma, P., Singh, V., Ali, M., & Ali, M. (2016). Chemical Composition and Antimicrobial Activity of Fresh Rhizome Essential Oil of *Zingiber*

- Officinale Roscoe. *Pharmacognosy Journal*, **8**(3), 185–190. <https://doi.org/10.5530/pj.2016.3.3>
- Silalahi, M. (2018). Botani dan Bioaktivitas Lempuyang (*Zingiber zerumbet* (L.) Smith.). *Jurnal EduMatSains*, **2**(2), 49–62.
- Singh, C. B. (2015). Ethnobotany, Phytochemistry and Pharmacology of *Zingiber cassumunar* Roxb. (*Zingiberaceae*). *Journal of Pharmacognosy and Phytochemistry*, **3**(1), 01–06.
- Singh, C. B., Chanu, S. B., Kh, L., Swapana, N., Cantrell, C., & Ross, S. A. (2014). *Chemical composition and biological activity of the essential oil of rhizome of Zingiber zerumbet* (L.) Smith. <https://pubag.nal.usda.gov/catalog/62328>
- Singh, C. B., Nongalleima, Kh., Brojendrosingh, S., Ningombam, S., Lokendrajit, N., & Singh, L. W. (2012). Biological and chemical properties of *Zingiber zerumbet* Smith: A review. *Phytochemistry Reviews*, **11**(1), 113–125. Scopus. <https://doi.org/10.1007/s11101-011-9222-4>
- Singh, G., Kapoor, I. P. S., Singh, P., de Heluani, C. S., de Lampasona, M. P., & Catalan, C. A. N. (2008). Chemistry, antioxidant and antimicrobial investigations on essential oil and oleoresins of *Zingiber officinale*. *Food and Chemical Toxicology*, **46**(10), 3295–3302. <https://doi.org/10.1016/j.fct.2008.07.017>
- Sivasothy, Y., Chong, W. K., Hamid, A., Eldeen, I. M., Sulaiman, S. F., & Awang, K. (2011a). Essential oils of *Zingiber officinale* var. *Rubrum* Theilade and their antibacterial activities. *Food Chemistry*, **124**(2), 514–517. <https://doi.org/10.1016/j.foodchem.2010.06.062>
- Sivasothy, Y., Chong, W. K., Hamid, A., Eldeen, I. M., Sulaiman, S. F., & Awang, K. (2011b). Essential oils of *Zingiber officinale* var. *Rubrum* Theilade and their antibacterial activities. *Food Chemistry*, **124**(2), 514–517. <https://doi.org/10.1016/j.foodchem.2010.06.062>
- Sukatta, U., Rugthaworn, P., Punjee, P., Chidchenchey, S., & Keeratinijakal, V. (2009). Chemical Composition and Physical Properties of Oil from Plai (*Zingiber cassumunar* Roxb.) Obtained by Hydro Distillation and Hexane Extraction. *Agriculture and Natural Resources*, **43**(5), 212–217.
- Supriyanto, & Cahyono, B. (2019). PERBANDINGAN KANDUNGAN MINYAK ATSIRI ANTARA JAHE SEGAR DAN JAHE KERING. *CHEMISTRY PROGRESS*, **5**(2), Article 2. <https://doi.org/10.35799/cp.5.2.2012.771>
- Syamsuri, S., & Alang, H. (2021). Inventarisasi *Zingiberaceae* yang Bernilai Ekonomi (Etnomedisin, Etnokosmetik dan Etnofood) di Kabupaten Kolaka Utara, Sulawesi Tenggara, Indonesia. *Agro Bali : Agricultural Journal*, **4**(2), 219–229. <https://doi.org/10.37637/ab.v4i2.715>
- Tian, M., Wu, X., Hong, Y., Wang, H., Deng, G., & Zhou, Y. (2020). Comparison of Chemical Composition and Bioactivities of Essential Oils from Fresh and Dry Rhizomes of *Zingiber zerumbet* (L.) Smith. *BioMed Research International*, 2020, e9641284. <https://doi.org/10.1155/2020/9641284>

- Verma, R. S., Joshi, N., Padalia, R. C., Singh, V. R., Goswami, P., Verma, S. K., Iqbal, H., Chanda, D., Verma, R. K., Darokar, M. P., Chauhan, A., & Kandwal, M. K. (2018). Chemical composition and antibacterial, antifungal, allelopathic and acetylcholinesterase inhibitory activities of cassumunar-ginger. *Journal of the Science of Food and Agriculture*, **98**(1), 321–327. <https://doi.org/10.1002/jsfa.8474>
- Wang, X., Shen, Y., Thakur, K., Han, J., Zhang, J.-G., Hu, F., & Wei, Z.-J. (2020). Antibacterial Activity and Mechanism of Ginger Essential Oil against *Escherichia coli* and *Staphylococcus aureus*. *Molecules*, **25**(17), 3955. <https://doi.org/10.3390/molecules25173955>
- Washikah. (2016). TUMBUHAN ZINGEBERACEAE SEBAGAI OBAT-OBATAN | Wasikhah | Serambi Saintia: Jurnal Sains dan Aplikasi. *Serambi Saintia*, **IV**(1). <http://ojs.serambimekkah.ac.id/serambi-saintia/article/view/114/111>
- Wibowo, D., Mariani, R., Hasanah, S., & Aulifa, D. (2020a). Chemical Constituents, Antibacterial Activity and Mode of Action of Elephant Ginger (*Zingiber officinale* var. *Officinale*) and Emprit Ginger Rhizome (*Zingiber officinale* var. *Amarum*) Essential Oils. *Pharmacognosy Journal*, **12**(2), 404–409. <https://doi.org/10.5530/pj.2020.12.62>
- Wibowo, D., Mariani, R., Hasanah, S., & Aulifa, D. (2020b). Chemical Constituents, Antibacterial Activity and Mode of Action of Elephant Ginger (*Zingiber officinale* var. *Officinale*) and Emprit Ginger Rhizome (*Zingiber officinale* var. *Amarum*) Essential Oils. *Pharmacognosy Journal*, **12**(2), 404–409. <https://doi.org/10.5530/pj.2020.12.62>
- Wilkinson, J. (2006). Methods for Testing the Antimicrobial Activity of Extracts. In *Modern Phytomedicine: Turning Medicinal Plants into Drugs* (pp. 157–171). <https://doi.org/10.1002/9783527609987.ch8>
- Yob, N. J., Jofrry, S. M., Affandi, M. M. R. M. M., Teh, L. K., Salleh, M. Z., & Zakaria, Z. A. (2011). *Zingiber zerumbet* (L.) Smith: A Review of Its Ethnomedicinal, Chemical, and Pharmacological Uses. *Evidence-Based Complementary and Alternative Medicine*, 2011, e543216. <https://doi.org/10.1155/2011/543216>
- Yu, F., Okamoto, S., Nakasone, K., Adachi, K., Matsuda, S., Harada, H., Misawa, N., & Utsumi, R. (2008). Molecular cloning and functional characterization of ??-humulene synthase, a possible key enzyme of zerumbone biosynthesis in shampoo ginger (*Zingiber zerumbet* Smith). *Planta*, **227**, 1291–1299. <https://doi.org/10.1007/s00425-008-0700-x>