

DAFTAR PUSTAKA

- Abdel-Hafez, S. I., Abo-Elyousr, K. A., & Abdel-Rahim, I. R. (2015). Fungicidal activity of extracellular products of cyanobacteria against *Alternaria porri*. *European Journal of Phycology*, 50(2), 239-245.
- Adeniyi, M., Titilawo, Y., Oluduro, A., Odeyemi, O., Nakin, M., & Okoh, A. I. (2018). Molecular identification of some wild nigerian mushrooms using internal transcribed spacer: Polymerase chain reaction. *Amb Express*, 8(1), 1-9.
- Agerer, R. (2006). Fungal relationships and structural identity of their ectomycorrhizae. *Mycological progress*, 5(2), 67-107.
- Al Khairi, V. A., Etika, S. B., Suryelita, S., Ulfah, M., & Riga, R. (2021). Study of the antibacterial activity of endophytic fungus that colonize with the twig of *Andrographis paniculata*. *Eksakta: Berkala Ilmiah Bidang MIPA (E-ISSN: 2549-7464)*, 22(2), 137-144.
- Aly, A. H., Debbab, A., & Proksch, P. (2011). Fungal endophytes: unique plant inhabitants with great promises. *Applied Microbiology and Biotechnology*, 90(6), 1829-1845.
- Amend, A. S., Seifert, K. A., Samson, R., & Bruns, T. D. (2010). Indoor fungal composition is geographically patterned and more diverse in temperate zones than in the tropics. *Proceedings of the National Academy of Sciences*, 107(31), 13748-13753.
- Andersen, M. R., Nielsen, J. B., Klitgaard, A., Petersen, L. M., Zachariassen, M., Hansen, T. J., & Mortensen, U. H. (2013). Accurate prediction of secondary metabolite gene clusters in filamentous fungi. *Proceedings of the National Academy of Sciences*, 110(1), E99-E107.
- Anderson, I. C., & Parkin, P. I. (2007). Detection of active soil fungi by RT-PCR amplification of precursor rRNA molecules. *Journal of microbiological methods*, 68(2), 248-253.
- Aprilia, L., Rusli, R., & Naid, T. (2020). Antibacterial Activity Test of Elephant Ginger (*Zingiber officinale* Rosc.) Endophytic Fungi Variation of Elephants Against Bacteria That Cause Skin Infections. *Jurnal Akta Kimia Indonesia (Indonesia Chimica Acta)*, 7, 68-72.

- Arora, N. K., & Mishra, J. (2016). Prospecting the roles of metabolites and additives in future bioformulations for sustainable agriculture. *Applied Soil Ecology*, 107, 405-407.
- Batubara, R., Hanum, T. I., & Affandi, O. (2021). GC-MS analysis of young and mature wild agarwood leaves (*Aquilaria malaccensis* Lamk) and its antioxidant potential. In *IOP Conference Series: Earth and Environmental Science*, 912(1), 012038.
- Batubara, R., Wirjosentono, B., Siregar, A. H., Harahap, U., & Tamrin, T. (2021). Bioactive compounds of ethanol extract from agarwood leaves (*Aquilaria malaccensis*) and antimicrobial activity against bacteria and fungi growing on the skin. *Biodiversitas Journal of Biological Diversity*, 22(5), 2884-289.
- Beeck, M., Lievens, B., Busschaert, P., Declerck, S., Vangronsveld, J., & Colpaert, J. V. (2014). Comparison and validation of some ITS primer pairs useful for fungal metabarcoding studies. *Plos One*, 9(6), 97629.
- Begum, Y. (2016). Study on agarwood (*Aquilaria malaccensis*) to evaluate antibacterial and antioxidant activities of n-hexane, chloroform and ethyl acetate extracts. *Pharmatutor*, 4(2), 47-50.
- Belanger, F. C. (1996). A rapid seedling screening method for determination of fungal endophyte viability. *Crop Science*, 36(2), 460-462.
- Bele, A. A., & Khale, A. (2011). An overview on thin layer chromatography. *International journal of pharmaceutical sciences and research*, 2(2), 256.
- Bellemain, E., Carlsen, T., Brochmann, C., Coissac, E., Taberlet, P., & Kauserud, H. (2010). ITS as an environmental DNA barcode for fungi: an in silico approach reveals potential PCR biases. *BMC microbiology*, 10(1), 1-9.
- Bezerra, J. D. P., Machado, A. R., Firmino, A. L., Rosado, A. W. C., Souza, C. A. F. D., Souza-Motta, C. M. D., & Fan, X. (2018). Mycological diversity description I. *Acta Botanica Brasilica*, 32, 656-666.
- Bhuiyan, M. A. B., Sultana, N., Mahmud, N. U., Kader, M. A., Hassan, O., Chang, T., & Akanda, A. M. (2021). Characterization of *Pestalotiopsis* sp. causing gray leaf spot in coconut (*Cocos nucifera* L.) in Bangladesh. *Basic Microbiol*, 61(12), 1085-1097.

- Bibi, S. N., Gokhan, Z., Rajesh, J., & Mahomoodally, M. F. (2020). Fungal endophytes associated with mangroves—Chemistry and biopharmaceutical potential. *South African Journal of Botany*, 134, 187-212.
- Carroll, F. E. (1977). Preliminary studies on the incidence of needle endophytes in some european conifers. *Sydowia*, 29, 87-103.
- Chhipa, H., & Kaushik, N. (2017). Fungal and bacterial diversity isolatd from *Aquilaria malaccensis* tree and soil, induces agarospirol formation within 3 months after artificial infection. *Frontiers in microbiology*, 8, 1286.
- Chikezie, P.C., Ibegbulem, C.O & Mbagwu, F.N. (2015). Bioactive principles from medicinal plants. *Research Journal of Phytochemistry*, 9(3), 88–115.
- Chini, C., Bilia, A. R., Keita, A., & Morelli, I. (1992). Protoalkaloids from *Boscia angustifolia*. *Planta medica*, 58(05), 476-476.
- CITES. 2005. Conservation on International Trade in Endangered Species of Wild Fauna and Flora. Appendice I, II, and III of CITES. UNEP. 48 pp.
- Cord-Landwehr, S., Melcher, R. L., Kolkenbrock, S., & Moerschbacher, B. M. (2016). A chitin deacetylase from the endophytic fungus *Pestalotiopsis* sp. efficiently inactivates the elicitor activity of chitin oligomers in rice cells. *Scientific reports*, 6(1), 1-11.
- Darmapatni, K. A. G. (2016). Pengembangan metode GC-MS untuk penetapan kadar acetaminophen pada spesimen rambut manusia. *Jurnal Biosains Pascasarjana*, 18(3), 255-266.
- Del Rio, D., Rodriguez-Mateos, A., Spencer, J. P., Tognolini, M., Borges, G., & Crozier, A. (2013). Dietary (Poly) phenolics in human health: Structures, bioavailability, and evidence of protective effects against chronic diseases. *Antioxidants & redox signaling*, 18(14), 1818-1892.
- Du G, Zhao HY, Song YL, Zhang QW, & Wang YT. (2011). Rapid simultaneous determination of isoflavones in radix puerariae using high-performance liquid chromatography-triple quadrupole mass spectrometry with novel shell-type column. *Journal of Separation Science*, 34(19), 2576–85.
- Efendi, M. R., Rusdi, M. S., & Dinda, A. (2022). Antibacterial activity of ethyl acetate extracts of fungal endophytes isolatd from leaf gambir leaves

- (*Uncaria gambir* (Hunter) Roxb), *Journal of Pharmaceutical Science*, 19(1), 17-23.
- Ekowati, N., Kasiamdari, R. S., Pusposendjojo, N., & Soegihardjo, C. J. (2011). Hubungan kekerabatan fenetik jamur shiitake (*Lentinula edodes* (Berk.) Pegler) berdasarkan karakter morfologi. *Majalah Ilmiah Biologi Biosfera: A Scientific Journal*, 28(2), 110-117.
- Ellis, D.I., Dunn, W.B., Griffin, J.L., Allwood, J.W & Goodacre, R. (2007). Metabolic fingerprinting as a diagnostic tool. *Pharmacogenomic Review*, 8(9), 1243-1266.
- Emelia, A. J. (2020). Aktivitas antibakteri fraksi metanol dan fraksi kloroform kayu gaharu buaya (*Aetoxylon sympetalum*) terhadap *Staphylococcus aureus* dan *Escherichia coli*. *Jurnal Kimia Khatulistiwa*, 8(3), 72-77.
- Faizal, A., Esyanti, R. R., Adn'ain, N., Rahmani, S., Azar, A. W. P., & Turjaman, M. (2021). Methyl jasmonate and crude extracts of *Fusarium solani* elicit agarwood compounds in shoot culture of *Aquilaria malaccensis* Lamk. *Heliyon*, 7(4), 06725.
- Fajarningsih, N. D. (2016). Internal transcribed spacer (ITS) as DNA barcoding to identify fungal species: A review. *Squalen Bulletin of Marine and Fisheries Postharvest and Biotechnology*, 11(2), 37-44.
- Fang, X., Yang, C. Q., Yu-Kun, W. E. I., Qi-Xia, M. A., Yang, L., Xin, F. A. N. G., & Xiao-Ya, C. H. E. N. (2011). Genomics grand for diversified plant secondary metabolites. *Plant Diversity*, 33(01), 53.
- Fesel, P. H., & Zuccaro, A. (2016). Dissecting endophytic lifestyle along the parasitism/mutualism continuum in arabidopsis. *Current Opinion in Microbiology*, 32, 103-112.
- Fiehn, O., Kopka, J., Dormann, P., Altmann, T., Trethewey, R.N & Willmitzer, L. (2000). Metabolite profiling for plant functiona genomics. *Nature Biotechnology*, 18, 1157–1161.
- Fitriarni, D., & Kasiamdari, R. S. (2018). Isolation and identification of endophytic fungi from leave and stem of *Calopogonium mucunoides*. *Journal of Tropical Biodiversity and Biotechnology*, 3(1), 30.

- Frank, A., & Groll, M. (2017). The methylerythritol phosphate pathway to isoprenoids. *Chemical Reviews*, 117(8), 5675-5703.
- Gandjar, I., Samson, R. A., Tweel-Vermeulen Kvd, O. A., & Santoso, I. (1999). *Pengenalan Kapang Tropik Umum*. Yogyakarta: Yayasan Obor Indonesia.
- Garcia-Aroca, T., Price, P. P., Tomaso-Peterson, M., Allen, T. W., Wilkerson, T. H., Spurlock, T. N., & Doyle, V. P. (2021). *Xylaria necrophora*, sp. nov., is an emerging root-associated pathogen responsible for taproot decline of soybean in the southern united states. *Mycologia*, 113(2), 326-347.
- Gardes M, Bruns TD. (1993). ITS primers with enhanced specificity for *Basidiomycetes*: Application to the identification of Mycorrhizae and Rusts. *Molecular Ecology*, 2(2), 113–118.
- Gimenez, C., Cabrera, R., Reina, M., & Gonzalez-Coloma, A. (2007). Fungal endophytes and their role in plant protection. *Current Organic Chemistry*, 11(8), 707-720.
- Gomes, R. R., Glienke, C., Videira, S. I. R., Lombard, L., Groenewald, J. Z., & Crous, P. W. (2013). *Diaporthe*: a genus of endophytic, saprobic and plant pathogenic fungi. *Persoonia-Molecular Phylogeny and Evolution of Fungi*, 31(1), 1-41.
- Gramaje, D., León, M., Pérez-Sierra, A., Burgess, T., & Armengol, J. (2014). New *Phaeoacremonium* species isolatd from sandalwood trees in Western Australia. *International Mycological Association*, 5(1), 67-77.
- Gunawan, I. W., Bawa, I. G. G., & Sutrisnayanti, N. L. (2008). Isolasi dan identifikasi senyawa terpenoid yang aktif antibakteri pada herba meniran (*Phyllanthus niruri* Linn). *Jurnal Kimia (Journal of Chemistry)*, 2(1), 31-39.
- Gupta, S., Chaturvedi, P., Kulkarni, M. G., & Van Staden, J. (2020). A critical review on exploiting the pharmaceutical potential of plant endophytic fungi. *Biotechnology advances*, 39, 107462.
- Gusnawaty H.S., Taufik, M., Triana, L & Asniah. (2014). Morphological characterization *Trichoderma* spp. indigenous southeast of Sulawesi. *Jurnal Agroteknos*, 4(2), 88-94.
- Gusti, D. R., Maulana, R. G. R., Permana, E., Lestari, I., & Tarigan, I. L. (2020). Profile analysis of fatty acids of Tengkawang (*Shorea sumatrana*) oil using

- GC-MS and antibacterial activity. *Indonesian Journal of Chemical Research*, 8(2), 114-119.
- Hallmann, J., Quadt-Hallmann, A., Mahaffee, W. F., & Kloepper, J. W. (1997). Bacterial endophytes in agricultural crops. *Canadian journal of microbiology*, 43(10), 895-914.
- Hameed, I. H., Altameme, H. J., & Mohammed, G. J. (2016). Evaluation of antifungal and antibacterial activity and analysis of bioactive phytochemical compounds of *Cinnamomum zeylanicum* (Cinnamon bark) using gas chromatography-mass spectrometry. *Oriental Journal of Chemistry*, 32(4), 1769.
- Hamzah, T. N. T., Lee, S. Y., Hidayat, A., Terhem, R., Faridah-Hanum, I., & Mohamed, R. (2018). Diversity and characterization of endophytic fungi isolatd from the tropical mangrove species, *Rhizophora mucronata*, and identification of potential antagonists against the soil-borne fungus, *Fusarium solani*. *Frontiers in microbiology*, 9, 1707.
- Handoyo, D., & Rudiretna, A. (2001). General principles and implementation of polymerase chain reaction. *Unitas*, 9(1), 7.
- Hardoim, P. R., Van Overbeek, L. S., Berg, G., Pirttilä, A. M., Compant, S., Campisano, A. & Sessitsch, A. (2015). The hidden world within plants: ecological and evolutionary considerations for defining functioning of microbial endophytes. *Microbiology and molecular biology reviews*, 79(3), 293-320.
- Harnelly, e., Kusuma, h. I., Thomy, z., & Samingan, s. (2022). Internal transcribed spacer (ITS) gene as an accurate DNA barcode for identification of macroscopic fungus in Aceh. *Biodiversitas Journal of Biological Diversity*, 23(5), 2369-2378.
- Hasanah. U, Riwayati, & Idramsa. (2014). Description of endophytic fungi of plants raru (*Cotylelobium melanoxydon*) genus *Alternaria*. Proceeding: The first international seminar on trends in science and science education – ISBN 978-602-9115-37-6.
- Hashim, Y. Z. H., Jihadi, N. I. M., & Maifiah, M. H. M. (2020). Antibacterial activity of ethanolic leaf extract of *Aquilaria malaccensis* against multidrug-resistant gram-negative pathogen. *Food Research*, 4(6), 1962-1968.

- Hasiani, V. V., Ahmad, I., & Rijai, L. (2015). Isolasi jamur endofit dan produksi metabolit sekunder antioksidan dari daun pacar (*Lawsonia inermis* L.). *Jurnal Sains dan Kesehatan*, 1(4), 146-153.
- Hassani, M., Durán, P., & Hacquard, S. (2018). Microbial interactions within the plant holobiont. *Microbiome*, 6(1), 1-17.
- Hateet, R. R. (2020). GC-MS Analysis of extract for Endophytic fungus *Acremonium coenophialum* and its Antimicrobial and Antidiabetic. *Research Journal of Pharmacy and Technology*, 13(1), 119-123.
- Herliani, H. (2018) Analisis volume minyak gaharu tipe *Aquilaria malaccensis* L. pada proses penyulingan minyak gaharu. In *proceeding biology education conference: Biology, Science, Enviromental, and Learning*, 15(1), 743-749.
- Huang, W. Y., Cai, Y. Z., & Zhang, Y. (2009). Natural phenolic compounds from medicinal herbs and dietary plants: Potential use for cancer prevention. *Nutrition and cancer*, 62(1), 1-20.
- Hung, P. Q., & Annapurna, K. (2004). Isolation and characterization of endophytic bacteria in soybean (*Glycine* sp.). *Omonrice*, 12, 92-101.
- Husbands, D. R., Urbina, H., Lewis, S. M., & Aime, M. C. (2018). *Xylaria karyophthora*: a new seed-inhabiting fungus of Greenheart from Guyana. *Mycologia*, 110(2), 434-447.
- Hyde, K. D., Abd-Elsalam, K., & Cai, L. (2010). Morphology: Still essential in a molecular world. *Mycotaxon*, 114, 439-451.
- Ibrahim, M., Oyebanji, E., Fowora, M., Aiyeolemi, A., Orabuchi, C., Akinnawo, B., & Adekunle, A. A. (2021). Extracts of endophytic fungi from leaves of selected Nigerian ethnomedicinal plants exhibited antioxidant activity. *BMC Complementary Medicine and Therapies*, 21(1), 1-13.
- Irizarry, I., & White, J. F. (2018). *Bacillus amyloliquefaciens* alters gene expression, ROS production and lignin synthesis in cotton seedling roots. *Journal of applied microbiology*, 124(6), 1589-1603.
- Jeewon, R., Liew, E. C., & Hyde, K. D. (2002). Phylogenetic relationships of *Pestalotiopsis* and allied genera inferred from ribosomal DNA sequences

- and morphological characters. *Molecular phylogenetics and evolution*, 25(3), 378-392.
- Jiang, Z., Kempinski, C., & Chappell, J. (2016). Extraction and analysis of terpenes/terpenoids. *Current protocols in plant biology*, 1(2), 345-358.
- Kamaluddin, M. T., Yuliarni, Y., Agustin, Y., Parisa, N., Hidayat, R., Wahyuni, T., & Perryanis, P. (2017). Efek sedativa dan kebugaran teh celup daun gaharu (*Aquilaria malaccensis* L). *Jurnal Jamu Indonesia*, 2(3), 114-119.
- Kandel, S. L., Joubert, P. M., & Doty, S. L. (2017). Bacterial endophyte colonization and distribution within plants. *Microorganisms*, 5(4), 77.
- Kanjana, M., Kanimozhi, G., Udayakumar, R., & Panneerselvam, A. (2019). GC-MS analysis of bioactive compounds of endophytic fungi *Chaetomium globosum*, *Cladosporium tenuissimum* and *Penicillium janthinellum*. *Journal of Biomedical and Pharmaceutical Sciences*, 2(2).
- Karakaya, A. (2001). First report of infection of kiwifruit by *Pestalotiopsis* sp. in Turkey. *Plant disease*, 85(9), 1028-1028.
- Kaur, N., Arora, D. S., Kalia, N., & Kaur, M. (2020). Bioactive potential of endophytic fungus *Chaetomium globosum* and GC-MS analysis of its responsible components. *Scientific Reports*, 10(1), 1-10.
- Kawuri, R., & Darmayasa, I. B. G. (2019). Bioactive compound of *streptomyces capoamus* as biocontrol of bacterial wilt disease on banana plant. In *IOP Conference Series: Earth and Environmental Science*, 347(1), 012054.
- Kim, D. H., Park, M. H., Choi, Y. J., Chung, K. W., Park, C. H., Jang, E. J., & Chung, H. Y. (2013). Molecular study of dietary heptadecane for the anti-inflammatory modulation of NF- κ B in The Aged Kidney. *PloS one*, 8(3), 59316.
- Kubo, I., Muroi, H., & Kubo, A. (1993). Antibacterial activity of long-chain alcohols against *Streptococcus mutans*. *Journal of Agricultural and Food Chemistry*, 41(12), 2447-2450.
- Kumar, S., Jyotirmayee, K., & Sarangi, M. (2013). Thin layer chromatography: A tool of biotechnology for isolation of bioactive compounds from medicinal plants. *International Journal of Pharmaceutical Sciences Review and Research*, 18(1), 126-132.
- Kusari, P., Kusari, S., Spiteller, M., & Kayser, O. (2015). Implications of endophyte-plant crosstalk in light of quorum responses for plant

biotechnology. *Applied microbiology and biotechnology*, 99(13), 5383-5390.

Leach, J. E., Triplett, L. R., Argueso, C. T., & Trivedi, P. (2017). Communication in the phytobiome. *Cell*, 169(4), 587-596.

Li, Q., Li, X., Chen, C., Li, S., Huang, W., Xiong, C., & Zheng, L. (2016). Analysis of bacterial diversity and communities associated with *Tricholoma matsutake* fruiting bodies by barcoded pyrosequencing in Sichuan province, southwest China. *Journal of Microbiology and Biotechnology*, 26(1), 89-98.

Liao, P., Hemmerlin, A., Bach, T. J., & Chye, M. L. (2016). The potential of the mevalonate pathway for enhanced isoprenoid production. *Biotechnology advances*, 34(5), 697-713.

Lisdayani, L., Anna, N., & Siregar, E. B. M. (2015). Isolation and identifying of fungi from the stem of agarwood (*Aquilaria malaccensis* Lamk.) was had been inoculation. *Science journal*, 4, 1-5.

Maadon, S.N., Wakid, S.A., Zainudin, I.I., Rusli, L.S., Mohdzan, M.S., Hasan, N., Shah, N.A & Rohani, E.R. (2018). Isolation and identification of endophytic fungi from UiTM reserve forest, Negeri Sembilan. *Sains Malaysiana*, 47(12), 3025–3030.

Maciel, C. G., Muniz, M. F. B., Mezzomo, R., & Reiniger, L. R. S. (2015). *Lasiodiplodia theobromae* associated with seeds of *Pinus* spp. originated from the northwest of Rio Grande do Sul, Brazil. *Scientia Forestalis*, 43(107), 639-646.

Madrid, H., Da Cunha, K. C., Gené, J., Dijksterhuis, J., Cano, J., Sutton, D. A., & Crous, P. (2014). Novel *Curvularia* species from clinical specimens. *Persoonia-Molecular Phylogeny and Evolution of Fungi*, 33(1), 48-60.

Manamgoda, D. S., Cai, L., McKenzie, E. H., Crous, P. W., Madrid, H., Chukeatirote, E., & Hyde, K. D. (2012). A phylogenetic and taxonomic re-evaluation of the *Bipolaris-Cochliobolus-Curvularia* Complex. *Fungal diversity*, 56(1), 131-144.

- Marrufo, T., Nazzaro, F., Mancini, E., Fratianni, F., Coppola, R., De Martino, L., & De Feo, V. (2013). Chemical composition and biological activity of the essential oil from leaves of *Moringa oleifera* Lam. cultivated in mozambique. *Molecules*, 18(9), 10989-11000.
- Mena, E., Stewart, S., Montesano, M., & Ponce de León, I. (2020). Soybean stem canker caused by *Diaporthe caulivora*; pathogen diversity, colonization process, and plant defense activation. *Frontiers in Plant Science*, 10, 1733.
- Mendes, R., Garbeva, P., & Raaijmakers, J. M. (2013). The rhizosphere microbiome: Significance of plant beneficial, plant pathogenic, and human pathogenic microorganisms. *FEMS microbiology reviews*, 37(5), 634-663.
- Mochahari, D., Kharnaier, S., Sen, S., & Thomas, S. C. (2020). Isolation of endophytic fungi from juvenile *Aquilaria malaccensis* and their antimicrobial properties. *Journal of Tropical Forest Science*, 32(1), 97-104.
- Mohamed, R., Jong, P. L., & Kamziah, A. K. (2014). Fungal inoculation induces agarwood in young *Aquilaria malaccensis* trees in the nursery. *Journal of forestry research*, 25(1), 201-204.
- Mosunova, O., Navarro-Muñoz, J. C., & Collemare, J. (2021). The biosynthesis of fungal secondary metabolites: from fundamentals to biotechnological applications. *Reference Module in Life Sciences*, 2, 458-476.
- Murat, C., Payen, T., Noel, B., Kuo, A., Morin, E., Chen, J., & Martin, F. M. (2018). *Pezizomycetes* genomes reveal the molecular basis of ectomycorrhizal truffle lifestyle. *Nature ecology & evolution*, 2(12), 1956-1965.
- Newman, M. A., Sundelin, T., Nielsen, J. T., & Erbs, G. (2013). MAMP (Microbe-Associated molecular pattern) triggered immunity in plants. *Frontiers in plant science*, 4, 139.
- Nithya, T. G., Jayanthi, J., & Raghunathan, M. G. (2015). Phytochemical, antibacterial and GC MS analysis of a floating Fern *salviniamolesta* DS Mitchell. *International Journal of Pharm Tech Research*, 8(9), 85-90.
- Noverita, F. D., Sinaga, E., Nasional, F. B. U., Manila, J. S., Pejaten, P. M., & Selatan, J. (2009). Isolasi dan uji aktivitas antibakteri jamur endofit dari daun dan rimpang *Zingiber ottensii* Val. *Jurnal Farmasi Indonesia*, 4(4), 171-176.
- Ojha, K. K., Mishra, S., & Singh, V. K. (2022). Computational molecular phylogeny: concepts and applications. *Bioinformatics*, 67-89.

- Op De Beeck, M., Lievens, B., Busschaert, P., Declerck, S., Vangronsveld, J., & Colpaert, J. V. (2014). Comparison and validation of some ITS primer pairs useful for fungal metabarcoding studies. *PloS one*, 9(6), 97629.
- Paudel, M. R., Chand, M. B., Pant, B., & Pant, B. (2019). Assessment of antioxidant and cytotoxic activities of extracts of *Dendrobium crepidatum*. *Biomolecules*, 9(9), 478.
- Pazouki, L., & Niinemets, Ü. (2016). Multi-substrate terpene synthases: Their occurrence and physiological significance. *Frontiers in Plant Science*, 7, 1019.
- Petrini, L. (1985). *Xylariaceous* Fungi as Endophytes. *Sydowia*, 38, 216-234.
- Poling, S. M., Wicklow, D. T., Rogers, K. D., & Gloer, J. B. (2008). *Acremonium Zeae*, A protective endophyte of Maize, produces dihydroresorcylic acid and 7-hydroxydihydroresorcylic acids. *Journal of agricultural and food chemistry*, 56(9), 3006-3009.
- Prasannath, K., Shivas, R. G., Galea, V. J., & Akinsanmi, O. A. (2021). *Neopestalotiopsis* Species associated with flower diseases of *Macadamia integrifolia* in Australia. *Journal of Fungi*, 7(9), 771.
- Prastiwi, R. (2021). Review tanaman gaharu (*Aquilaria malaccensis* Lam.) ditinjau dari segi farmakognosi, fitokimia, dan aktivitas farmakologi. *Farmasains: Jurnal Ilmiah Ilmu Kefarmasian*, 8(2), 105-114.
- Premalatha, K., & Kalra, A. J. F. E. (2013). Molecular phylogenetic identification of endophytic fungi isolated from resinous and healthy wood of *Aquilaria malaccensis*, A red listed and highly exploited medicinal tree. *Fungal Ecology*, 6(3), 205-211.
- Puteri, I. T., Jayuska, A., & Alimuddin, A. H. (2016). Aktivitas Antirayap Daun Gaharu (*Aquilaria malaccensis* Lam.) Terhadap Rayap Tanah *Coptotermes* sp. *Jurnal KImia Khatulistiwa*, 5(2), 6-14.
- Ramadhani, I., Rohadi, H., Yuliani, Y., & Ilyas, M. (2020). Study on endophytic fungi associated with *Moringa oleifera* Lam. collected from Lombok Island, West Nusa Tenggara. *Annales Bogorienses*, 24(2), 71.
- Ratnaweera, P. B., Williams, D. E., de Silva, E. D., Wijesundera, R. L., Dalisay, D. S., & Andersen, R. J. (2014). Helvolic acid, an antibacterial nortriterpenoid

from a fungal endophyte, *Xylaria* sp. of orchid *Anoectochilus setaceus* endemic to SriLanka. *Mycology*, 5(1), 23-28.

- Revathi, P., Jeyaseelansenthinath, T., & Thirumalaikolundhusubramaian, P. (2015). Preliminary phytochemical screening and GCMS analysis of ethanolic extract of mangrove Plant-*Bruguiera cylindrica* (Rhizho) L. *International Journal of Pharmacognosy and Phytochemical Research*, 6(4), 729-740.
- Rhetso, T., Shubharani, R., Roopa, M. S., & Sivaram, V. (2020). Chemical constituents, antioxidant, and antimicrobial activity of *Allium chinense* G. Don. *Future Journal of Pharmaceutical Sciences*, 6(1), 1-9.
- Samadi, M., Abidin, Z. Z., Yunus, R., Biak, D. R. A., Yoshida, H., & Lok, E. H. (2017). Assessing the kinetic model of hydro-distillation and chemical composition of *Aquilaria malaccensis* leaves essential oil. *Chinese Journal of Chemical Engineering*, 25(2), 216-222.
- Sanchez-Vallet, A., Mesters, J. R., & Thomma, B. P. (2015). The battle for chitin recognition in plant-microbe interactions. *FEMS microbiology reviews*, 39(2), 171-183.
- Schulz, B., & Boyle, C. (2005). The endophytic continuum. *Mycological Research*, 109(6), 661-686.
- Schulz, B., Römmer, A. K., Dammann, U., Aust, H. J., & Strack, D. (1999). The endophyte-host interaction: A balanced antagonism?. *Mycological Research*, 103(10), 1275-1283.
- Sen S, Dehingia M, Talukdar NC & Khan MR. (2017). Chemometric analysis reveals links in the formation of fragrant bio-molecules during agarwood (*Aquilaria malaccensis*) and fungal interactions. *Scientific Reports*, 7, 44406.
- Senthilkumar, N., Murugesan, S., Babu, D. S., & Rajeshkannan, C. (2014). GC-MS analysis of the extract of endophytic fungus, *Phomopsis* sp. isolated from tropical tree species of India, *Tectona grandis* L. *International Journal of Innovative Research in Science, Engineering and Technology*, 3, 10176-10179.
- Septiana, E., Rahmawati, S. I., Izzati, F. N., & Simanjuntak, P. (2019). Antioxidant activity, total phenolic, and flavonoid contents of the extract of endophytic fungi derived from turmeric (*Curcuma longa*) leaves. *Jurnal Farmasi Sains dan Komunitas*, 16(2), 78-85.
- Septiana, E., Yadi, Y., & Simanjuntak, P. (2020). Antioxidant activity of endophytic fungi isolated from turmeric flowers. *Biosaintifika: Journal of Biology & Biology Education*, 12(2), 268-273.

- Shoeb, M., Begum, S., & Nahar, N. (2010). Study of an endophytic fungus from *Aquilaria malaccensis* Lamk. *Bangladesh Journal of Pharmacology*, 5(1), 21-24.
- Shoemaker, R. A. (1959). Nomenclature of drechslera and bipolaris, grass parasites segregated from 'Helminthosporium'. *Canadian Journal of Botany*, 37(5), 879-887.
- Singh, M., Kumar, A., Singh, R., & Pandey, K. D. (2017). Endophytic bacteria: A new source of bioactive compounds. *3 biotechnology*, 7(5), 1-14.
- Srikandace, Y., Hapsari, Y., & Simanjuntak, P. (2007). Selection of endophytic microbes of *Curcuma zedoaria* in producing antimicrobial compounds. *Jurnal Ilmu Kefarmasian Indonesia*, 5(2), 77-84.
- Subowo, Y. B. (2010). Jamur pembentuk gaharu sebagai penjaga kelangsungan hidup tanaman gaharu (*Aquilaria* sp). *Jurnal Teknologi Lingkungan*, 11(2), 167-173.
- Suhardiman, A., & Juanda, D. (2019). Pengembangan obat herbal fraksi daun gaharu (*Aquilaria malaccensis* Lam) dalam bentuk gel untuk penyembuhan luka bakar. *Jurnal Sains dan Teknologi Farmasi Indonesia*, 8(1), 621-630.
- Sulistiyono, F. D., & Mahyuni, S. (2019). Isolasi dan identifikasi jamur endofit pada umbi talas (*Colocasia esculenta* (L.) Schoot). *Jurnal Sains Natural*, 9(2), 66-70.
- Sumarna, Y. (2008). Beberapa aspek ekologi, populasi pohon, dan permudaan alam tumbuhan penghasil gaharu kelompok karas (*Aquilaria* spp.) di wilayah Provinsi Jambi. *Jurnal Penelitian Hutan dan Konservasi Alam*, 5(1), 93-99.
- Sumarna, Y. (2013). Budidaya dan bisnis gaharu. *Cetakan Pe. Jakarta: Penebar Swadaya*.
- Sumner, L.W., Mendes, P. & Dixon, R.A. (2003). Plant metabolomics: Large-Scale phytochemistry in the functional genomics era. *Phytochemistry*, 62, 817-836.
- Surdiah, R. N., & Ardiningsih, P. (2020). Isolasi dan identifikasi serta uji aktivitas antibakteri fungi endofit gaharu dari *Aquilaria* sp. *Jurnal Kimia Khatulistiwa*, 8(4), 13-18.

- Suryana, S., & Prasetiawati, R. (2019). Aktivitas antimikroba dan antioksidan ekstrak etanol akar dan ranting gaharu (*Aquilaria moluccensis* Oken.). *Jurnal Ilmiah Farmako Bahari*, 8(1), 1-20.
- Taechowisan, T., Lu, C., Shen, Y., & Lumyong, S. (2005). Secondary metabolites from endophytic *Streptomyces aureofaciens* CMUAc130 and their antifungal activity. *Microbiology*, 151(5), 1691-1695.
- Taiz, L & Zeiger, E. 2006. Secondary metabolites and plants defence. *Plant Physiology*, 4, 316–344.
- Thapa, P., Mandal, R. A., Mathema, A. B & Dinesh, P. (2020). Annual growth and benefit cost analysis of *Aquilaria malaccensis*. *Asian Journal of Biological Sciences*, 13(4), 346-352.
- Tiwari, P., B. Kumar., M, Kaur., & H, Kaur. (2011). Phytochemical screening and extraction: A review. *International pharmaceutical science*, 1(1), 98- 106.
- Tyagi, T., & Agarwal, M. (2017). Phytochemical screening and GC-MS analysis of bioactive constituents in the ethanolic extract of *Pistia stratiotes* L. and *Eichhornia crassipes* (Mart.) solms. *Journal of Pharmacognosy and phytochemistry*, 6(1), 195-206.
- Vandenkoornhuyse, P., Quaiser, A., Duhamel, M., Le Van, A., & Dufresne, A. (2015). The importance of the microbiome of the plant holobiont. *New Phytologist*, 206(4), 1196-1206.
- Vanitha, V., Vijayakumar, S., Nilavukkarasi, M., Punitha, V. N., Vidhya, E., & Praseetha, P. K. (2020). Heneicosane—A novel microbicidal bioactive alkane identified from *Plumbago zeylanica* L. *Industrial Crops and Products*, 154, 112748.
- Villas-Bôas, S. G., Mas, S., Åkesson, M., Smedsgaard, J., & Nielsen, J. (2005). Mass spectrometry in metabolome analysis. *Mass Spectrometry Reviews*, 24(5), 613-646.
- Violle, C., Reich, P. B., Pacala, S. W., Enquist, B. J., and Kattge, J. (2014). The emergence and promise of functional biogeography. *Proceedings of the National Academy of Sciences of the United States of America*, 111, 13690–13696.

- Wahid, Abdul Rahman & Safwan. (2018). Efek antioksidan ekstrak etanol daun gaharu (*Aquilaria malaccensis* L.) pada tikus jantan galur sprague dawley yang diinduksi paracetamol (Kajian aktivitas enzim katalase, SGOT dan SGPT). *Jurnal Farmasi, Sains, dan Kesehatan*, 4 (2), 22-26.
- Wang, S., Yu, Z., Wang, C., Wu, C., Guo, P., & Wei, J. (2018). Chemical constituents and pharmacological activity of agarwood and *Aquilaria* plants. *Molecules*, 23(2), 342.
- Warner, J. B., & Lolkema, J. S. (2002). Growth of *Bacillus subtilis* on citrate and isocitrate is supported by The Mg²⁺–Citrate transporter CitM. *Microbiology*, 148(11), 3405-3412.
- Wei, X., Koo, I., Kim, S., & Zhang, X. (2014). Compound identification in GC-MS by simultaneously evaluating the mass spectrum and retention index. *Analyst*, 139(10), 2507-2514.
- Wijayanti, D. R., & Dewi, A. P. (2022). Extraction and identification potent antibacterial bioactive compound of *Streptomyces* sp. MB 106 from *Euphorbia* sp. rhizosphere. *Bioeduscience*, 6(1), 84-88.
- Wolfender, J.-L., Marti, G., Thomas, A., & Bertrand, S. (2015). Current approaches and challenges for the metabolite profiling of complex natural extracts. *Journal of Chromatography A*, 1382, 136–164.
- Yusuf, E. S., & Nuryani, W. (2016). Isolasi dan identifikasi mikoparasit utama pada karat krisan (Isolation and identification of major mycoparasite on *Chrysanthemum Rust*). *Jurnal Hortikultura*, 26(2), 217-222.
- Zhan, G., Tian, Y., Wang, F., Chen, X., Guo, J., Jiao, M., & Kang, Z. (2014). A novel fungal hyperparasite of *Puccinia Striiformis* sp. Tritici, the causal agent of wheat stripe rust. *PLoS One*, 9(11), 111484.
- Zhang, Q. W., Lin, L. G., & Ye, W. C. (2018). Techniques for extraction and isolation of natural products: A comprehensive review. *Chinese medicine*, 13(1), 1-26.
- Zhang, Y., Wan, Y., Tie, Y., Zhang, B., Wang, R., & Wang, G. (2019). Isolation and characterization of endophytic fungi from purslane and the effects of isolats on the growth of the host. *Advances in Microbiology*, 9(5), 438-453.

- Zhao, J., Zhou, L., Wang, J., Shan, T., Zhong, L., Liu, X., & Gao, X. (2010). Endophytic fungi for producing bioactive compounds originally from their host plants. *Microbiol Biotechnol*, 1, 567-576.
- Zhu, Y.-J., Zhou, H.-T., Hu, Y.-H., Tang, J.-Y., Su, M.-X., Guo, Y.-J & Liu, B. (2011). Antityrosinase and antimicrobial activities of 2-phenylethanol, 2-phenylacetaldehyde and 2-phenylacetic acid. *Food Chemistry*, 124(1), 298–302.