

## DAFTAR PUSTAKA

- Abeysinghe, P. D. (2010). Antibacterial activity of some medicinal mangroves against antibiotic resistant pathogenic bacteria. *Indian journal of pharmaceutical sciences*, 72(2), 167.
- Abubakar, S., Kadir, M. A., Wibowo, E. S., & Akbar, N. (2019). Manfaat mangrove bagi peruntukan sediaan farmasitika di Desa Mamuya Kecamatan Galela Timur Kabupaten Halmahera Timur (tinjauan etnofarmakologis). *Jurnal Enggano*, 4(1), 12-25.
- Addisu, S. & A. Assefa. 2016. Role of plant containing saponin on livestock production; A Review *Advances in Biological Research*. 10 (5): 309-314.
- Agoes. M. J., Pipih. S dan Zahidah, 2013, Chemical Composition, Bioactive Component and Antioxidant Activity of Large-Leaved Mangrove (*Bruguiera gymnorhiza*) Fruit, *JPHPI*, Volume 16 Nomor 1
- Annam, S. C. V. A. R., Ankireddy, M., Sura, M. B., Ponnappalli, M. G., & Sarma, A. V. (2015). Epimeric excolides from the stems of *Excoecaria agallocha* and structural revision of rhizophorin A. *Organic letters*, 17(11), 2840-2843.
- Arivuselvan, N., Silambarasan, D., Govindan, T., & Kathiresan, K. (2011). Antibacterial activity of mangrove leaf and bark extracts against human pathogens. *Advances in Biological Research*, 5(5), 251-254.
- Asad, S. et al., 2013. Lupeol, oleanic acid & steroids from *sonneratia alba* j.e. Sm (sonneratiaceae) and antioxidant, antibacterial & cytotoxic activities of its extracts. *IJARPB*, 3(4), pp. 1 - 10.
- Audah, K. A., Amsyir, J., Almasyhur, F., Hapsari, A. M., & Sutanto, H. (2018, March). Development of extract library from indonesian biodiversity: exploration of antibacterial activity of mangrove *bruguiera cylindrica* leaf extracts. In *IOP Conference Series: Earth and Environmental Science* (Vol. 130, No. 1, p. 012025). IOP Publishing.
- Baba, S., Chan, E,W,C., Chan, HT., Kainuma, M., Kezuka, M. & Tangah, J. 2016. Botany, uses, chemistry and bioaktivities of mangrove plants III: *Xylocarpus granatum*, *ISME/GLOMIS Electronik Journal/14 (1)* : 1-4
- Baba, S., Chan, H. T., & Aksornkoae, S. (2013). *Useful products from mangrove and other coastal plants*. International Society for Mangrove Ecosystems.
- Babuselvam, M., Ravikumar, S., Farook, K. M., Abideen, S., Mohamed, M. P., & Uthiraselvam, M. (2012). Evaluation of anti-inflammatory and analgesic effects on the

- extracts of different parts of *Excoecaria agallocha* L. *Journal of Applied Pharmaceutical Science*, 2(9), 18.
- Bakshi M, Chaudhuri P. 2014. Antimicrobial potential of leaf extracts of ten mangrove species from Indian Sundarban. *Int J Pharm Biol Sci*;5: 294–304.
- Bakshi, Madhurima & Chaudhuri, Punarbasu. (2014). Antimicrobial potential of leaf extracts of ten mangrove species from Indian Sundarban. *International Journal of Pharma and Bio Sciences*. 5. P294-P304.
- Bandaranayake, W.M. 2002. Bioactivities, bioactive compounds and chemical constituents of mangrove plants. *Wetl. Ecol. Manag*, 10, 421–452.
- Bao S, Deng Z, Fu H, Proksch P, Lin WH. 2005 : Diterpenes and disulfides from the marine mangrove plant *Bruguiera sexangula* var. *rhynchopetala*. *Helv Chim Acta*, 88:2757-2763.
- Bao, Shu-Yun & Lin, Wen-Han. (2006). Compounds from marine mangrove plant *Bruguiera China journal sexangula* var. *rhynchopetala*. *of Chinese materia medica*. 31. 1168-71.
- Barik, Rajib & Sarkar, Ratul & Biswas, Prova & Bera, Rammohan & Sharma, Soma & Nath, Suvadeep & Karmakar, Sanmoy & Sen, Tuhinadri. (2016). 5,7-dihydroxy-2-(3-hydroxy-4, 5-dimethoxy-phenyl)-chromen-4-one-a flavone from *Bruguiera gymnorhiza* displaying anti-inflammatory properties. *Indian journal of pharmacology*. 48. 304. 10.4103/0253-7613.182890.
- Barman, A.K., Ahmed, T., Das, H., Biswas, B., Ali, M.S., Acharyya, R.N., Sarkar, K.K. and Dev, S., 2021. Evaluation of antidiabetic potential of extract of *sonneratia caseolaris* (L.) engl. leaves against alloxan-induced diabetes in mice.
- Basyuni, M., Baba, S., Oku, H., Mulia, F., & Bimantara, Y. (2019). Difference Triterpenoid and Phytosterol Profile between *Kandelia candel* and *K. obovata*.
- Beula M, Gnanadesigan JM, Banerjee PR, Ravikumar S, Anand M. 2012. Antiviral antioxidant and toxicological evaluation of mangrove plant from south east coast of India. *Asian Pac J Trop Biomed*. 1:570–573
- Biswas, B., Golder, M., Abid, M. A., Mazumder, K., & Sadhu, S. K. (2021). Terpenoids enriched ethanol extracts of aerial roots of *Ceriops decandra* (Griff.) and *Ceriops tagal* (Perr.) promote diuresis in mice. *Heliyon*, 7(7), e07580.
- Biswas, R., Rahman, S. M., Islam, K. M. D., Billah, M., Aunjum, A., Nurunnabi, T. R., ... & Islam, M. (2019). Antioxidant, Anti-inflammatory, and Anticoagulation Properties of *Aegiceras corniculatum* and *Acanthus ilicifolius*. *Pharmaceutical and Biomedical Research*, 5(3), 35-44.

- Bokshi, B., Ahmed, M.I., Anisuzzman, M., Biswas, N.N., Sadhu, S.K., Zilani, M.N.H. and Hossain, H., 2020. Bioactivities of Sonneratia Caseolaris (Linn) Leaf and Stem Using Different Solvent Systems. *Biomedical Journal of Scientific & Technical Research*, 31(5), pp.24578-24582.
- Bokshi, B., Zilani, M.N.H., Malakar, A., Roy, D.N., Shilpi, J.A. and Sadhu, S.K., 2013. STUDY OF ANALGESIC AND ANTIDIARRHOEAL ACTIVITIES OF Sonneratia caseolaris (LINN.) LEAF AND STEM USING DIFFERENT SOLVENT SYSTEM. *Indonesian Journal of Pharmacy*, pp.253-258.
- Bunyapraphatsara, Nuntavan & Jutiviboonsuk, Aranya & Sornlek, Prapinsara & Therathanathorn, Wiroj & Aksornkaew, Sanit & Fong, Harry & Pezzuto, John & Kosmeder, Jerry. (2003). Pharmacological studies of plants in the mangrove forest. *Thai J. Phytopharmacy*. 10.
- Cadamuro, R.D., Bastos, I.M.A.D.S., Silva, I.T.D., Cruz, A.C.C.D., Robl, D., Sandjo, L.P., Alves, S., Lorenzo, J.M., Rodríguez-Lázaro, D.M., Treichel, H. and Steindel, M., 2021. Bioactive Compounds from Mangrove Endophytic Fungus and Their Uses for Microorganism Control. *Journal of Fungi*, 7(6), p.455.
- Chakraborty, K., & Raola, V. K. (2017). Two rare antioxidant and anti-inflammatory oleanenes from loop root Asiatic mangrove Rhizophora mucronata. *Phytochemistry*, 135, 160-168.
- Chan, E. W. C., Oshiro, N., Kezuka, M., Kimura, N., Baba, K., & Chan, H. T. (2018). Pharmacological potentials and toxicity effects of Excoecaria agallocha. *J. App. Pharm. Sci*, 8, 166-173.
- Chan, E. W. C., Tangah, J., Kezuka, M., Hoan, H. D., & Binh, C. H. (2015). Botany, uses, chemistry and bioactivities of mangrove plants II: Ceriops tagal. *ISME/GLOMIS electronic Journal*, 13(6).
- Chaudhry, G.E.S., Sohimi, N.K.A., Mohamad, H., Zafar, M.N., Ahmed, A., Sung, Y.Y. and Muhammad, T.S.T., 2021. Xylocarpus moluccensis induces cytotoxicity in human hepatocellular carcinoma HepG2 cell line via activation of the extrinsic pathway. *Asian Pacific Journal of Cancer Prevention*, 22(S1), pp.17-24.
- Chinnaboina, G. K., Babu, A. S., Verma, R., Sharma, P., & Srivastava, B. (2018). Pharmacological evaluation of ethanolic extract of Rhizophora mucronata flower against streptozotocin-induced diabetic nephropathy in experimental animals. *Journal of Pharmacognosy and Phytochemistry*, 7(5), 381-387.

- Choi, J. M., Lee, E. O., Lee, H. J., Kim, K. H., Ahn, K. S., Shim, B. S., ... & Kim, S. H. (2007). Identification of campesterol from Chrysanthemum coronarium L. and its antiangiogenic activities. *Phytotherapy Research*, 21(10), 954-959.
- Christopher, R., Nyandoro, S. S., Chacha, M., & De Koning, C. B. (2014). A new cinnamoylglycoflavonoid, antimycobacterial and antioxidant constituents from Heritiera littoralis leaf extracts. *Natural product research*, 28(6), 351-358.
- Croteau, R., Kutchan, T. M., & Lewis, N. G. (2015). Natural products (Secondary metabolites). In Biochemistry & Molecular Biology of Plants, B. Buchanan, W. Gruissem, R. Jones, Eds. 2nd Ed. London: Wiley & Blackwell.
- Daengrot, C.; Ponglimanont, C.; Karalai, C. Chemical Constituents from the Barks of Heritiera Littoralis. In *Proceedings of the 31st Annual Congress on Science and Technology of Thailand*, Suranaree, Thailand, 18–20 October 2005.
- Dahuri, R. (2003). *Keanekaragaman hayati laut: aset pembangunan berkelanjutan Indonesia*. Gramedia Pustaka Utama.
- Darwish, A. G. G., Samy, M. N., Sugimoto, S., Otsuka, H., Abdel-Salam, H., & Matsunami, K. (2016). Effects of hepatoprotective compounds from the leaves of Lumnitzera racemosa on acetaminophen-induced liver damage in vitro. *Chemical and Pharmaceutical Bulletin*, 64(4), 360-365.
- Das, G., Gouda, S., Mohanta, Y.K. and Patra, J.K., 2015. Mangrove plants: A potential source for anticancer drugs. *Indian J. Geo-Mar. Sci.*, 44 (5) (2015), pp. 666-672
- Das, S. K., Dash, S., Thatoi, H., & Patra, J. K. (2020). In vitro  $\alpha$ -amylase and  $\alpha$ -glucosidase Inhibition, Antioxidant, Anti-Inflammatory Activity and GC-MS Profiling of Avicennia alba Blume. *Combinatorial chemistry & high throughput screening*, 23(9), 945-954.
- Das, S. K., Prusty, A., Samantaray, D., Hasan, M., Jena, S., Patra, J. K., ... & Thatoi, H. (2019). Effect of Xylocarpus granatum bark extract on amelioration of hyperglycaemia and oxidative stress associated complications in STZ-induced diabetic mice. *Evidence-Based Complementary and Alternative Medicine*, 2019.
- Das, S. K., Samantaray, D., Sahoo, S. K., Patra, J. K., Samanta, L., & Thatoi, H. (2019). Bioactivity guided isolation and structural characterization of the antidiabetic and antioxidant compound from bark extract of Avicennia officinalis L. *South African Journal of Botany*, 125, 109-115.
- Das, S.K., Samantaray, D. and Thatoi, H., 2014. Ethnomedicinal, antimicrobial and antidiarrhoeal studies on the mangrove plants of the genus Xylocarpus: A mini review. *J.*

- Bioanal. Biomed.*(12), pp.1-7.
- Das, S.K., Samantaray, D., Sahoo, S.K., Pradhan, S.K., Samanta, L. and Thatoi, H., 2019. Bioactivity guided isolation of antidiabetic and antioxidant compound from *Xylocarpus granatum* J. *Koenig bark*, 3, pp.1-9.
- Das, Swagat Kumar & Samantaray, Dibyajyoti. (2018). Pharmacological activities of leaf and bark extracts of a medicinal mangrove plant *Avicennia officinalis* L.. *Clinical Phytoscience*. 4. 10.1186/s40816-018-0072-0.
- Dat, L. D., Thao, N. P., Tai, B. H., Luyen, B. T. T., Yang, S. Y., Kim, S., ... & Kim, Y. H. (2015). Anti-inflammatory Triterpenes and Glyceryl Glycosides from *Kandelia candel* (L.) Druce. *Natural Product Sciences*, 21(3), 150-154.
- Debnath, Shovan & Kundu, Pritam & Golder, Mimi & Biswas, Biswajit & Sadhu, Samir. (2020). Phytochemical Characterization and Evaluation of Pharmacological Activities of Leaves of a Mangrove Plant Species -*Aegiceras corniculatum* (L.). *Tropical Journal of Natural Product Research*. 4. 10.26538/tjnpr/v4i9.4.
- Ding, L., Maier, A., Fiebig, H. H., Lin, W. H., Peschel, G., & Hertweck, C. (2012). Kandenols A–E, eudesmenes from an endophytic *Streptomyces* sp. of the mangrove tree *Kandelia candel*. *Journal of natural products*, 75(12), 2223-2227.
- Ebana, R.; Etok, C.; Edet, U. 2015. Phytochemical screening and antimicrobial activity of *Nypa fruticans* harvested from Oporo River in the niger delta region of nigeria. *Int. J. Innov. Appl. Stud.*, 10, 1120.
- Eldeen, I.M.s & Ringe, Jochen & Ismail, Noraznawati. (2019). Inhibition of Pro-inflammatory Enzymes and Growth of an Induced Rheumatoid Arthritis Synovial Fibroblast by *Bruguiera cylindrica*. *International Journal of Pharmacology*. 15. 916-925. 10.3923/ijp.2019.916.925.
- Eldeen, I.M.S., Mohamad, H., Tan, W., Siong, J.Y.F., Andriani, Y. and Tengku-Muhammad, T.S., 2016. Cyclooxygenase, 5-lipoxygenase and acetylcholinesterase inhibitory effects of fractions containing,  $\alpha$ -guaiene and oil isolated from the root of *Xylocarpus moluccensis*. *Research Journal of Medicinal Plants*, 10(4), pp.286-295.
- Eric. W. C. C., Nozomi. O., Mio. K., Norimi. K., Karin. B., dan Hung. T. C., 2018. Pharmacological potentials and toxicity effects of *Excoecaria agallocha*, *Journal of Applied Pharmaceutical Science* Vol. 8 (05), pp 166-173; DOI: 10.7324/JAPS.2018.8523
- Ernawati, Suprayitno, Hardoko dan Yanuhar, 2019, Extraction of bioactive compounds fruit

- from Rhizophora mucronata using sonication method, *IOP Conf. Series: Earth and Environmental Science* 236, 012122 doi:10.1088/1755-1315/236/1/012122
- Eswaraiah, G., Peele, K. A., Krupanidhi, S., Indira, M., Kumar, R. B., & Venkateswarulu, T. C. (2020). GC-MS analysis for compound identification in leaf extract of Lumnitzera racemosa and evaluation of its in vitro anticancer effect against MCF7 and HeLa cell lines. *Journal of King Saud University-Science*, 32(1), 780-783.
- Eswaraiah, G., Peele, K. A., Krupanidhi, S., Kumar, R. B., & Venkateswarulu, T. C. (2020). Identification of bioactive compounds in leaf extract of Avicennia alba by GC-MS analysis and evaluation of its in-vitro anticancer potential against MCF7 and HeLa cell lines. *Journal of King Saud University-Science*, 32(1), 740-744.
- Feng Y, Li XM, Wang BG. 2007. Chemical constituents in aerial parts of mangrove plant Avicennia marina. *Chin Trad Herb Drugs*. 38:1301–1303.
- Firawati, F. (2018). ISOLASI DAN IDENTIFIKASI SENYAWA SAPONIN EKSTRAK BUTANOL DAUN MAJAPAHIT (Cresentia cujete) DENGAN METODE ROMATOGRAFI LAPIS TIPIS DAN SPEKTROFOTOMETRI INFRA MERAH. *Jurnal Ilmiah Pena: Sains dan Ilmu Pendidikan*, 10(1), 12-17.
- Foukia E. Mouafi, Shadia M. Abdel Aziz, Awatif A. Bashir and Amal A. Fyiad. (2014). Phytochemical analysis and antimicrobial activity of mangrove leaves (Avicenna marina and Rhizophora stylosa) against some pathogens. *World Applied Sciences Journal*, 29(4): 547-554.
- Gabay, O., Sanchez, C., Salvat, C., Chevy, F., Breton, M., Nourissat, G., ... & Berenbaum, F. (2010). Stigmasterol: a phytosterol with potential anti-osteoarthritic properties. *Osteoarthritis and cartilage*, 18(1), 106-116.
- Ganesh S, Vennila JJ. 2011: Phytochemical analysis of Acanthus ilicifolius and Avicennia officinalis by GC-MS. *Res J Phytochem*, 5:60-65.
- Gao, M., & Xiao, H. (2012). Activity-guided isolation of antioxidant compounds from Rhizophora apiculata. *Molecules*, 17(9), 10675-10682.
- Gawali, Poonam & Jadhav, Bhaskar. (2011). Antioxidant activity and antioxidant phytochemical analysis of mangrove species Sonneratia alba and Bruguiera cylindrica. *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*. 13. 257-261.
- Ge, L., Li, Y., Yang, K., & Pan, Z. (2016). Chemical constituents of the leaves of Heritiera littoralis. *Chemistry of Natural Compounds*, 52(4), 702-703.

- Ghosh, D.; Mondal, S.; Ramakrishna, K. 2017. Pharmacobotanical, physicochemical and phytochemical characterisation of a rare salt-secreting mangrove Aegialitis rotundifolia roxb.,(plumbaginaceae) leaves: A comprehensive pharmacognostical study. *S. Afr. J. Bot.*, 113, 212–229.
- Ghosh, Debjit & Mondal, Dr Sumanta & Ramakrishna, K. (2019). Phytochemical properties of a rare mangrove Aegialitis rotundifolia Roxb. leaf extract and its influence on human dermal fibroblast cell migration using wound scratch model. *National Journal of Physiology, Pharmacy and Pharmacology*. 9. 1-8. 10.5455/njPPP.2019.9.1030716022019.
- Golder, Mimi & Sadhu, Samir & Biswas, Biswajit & Islam, Tannami. (2020). Comparative pharmacologic profiles of leaves and hypocotyls of a mangrove plant: Bruguiera gymnorhiza. *Advances in Traditional Medicine*. 20. 10.1007/s13596-019-00423-8.
- Gurib-Fakim, A.; Brendler, T. 2004. Medicinal and Aromatic Plants of Indian Ocean Islands: Madagascar, Comoros, Seychelles and Mascarenes; Medpharm GmbH Scientific Publishers: Stuttgart, Germany.
- Gurudeeban, S., Ramanathan, T., & Satyavani, K. (2015). Antimicrobial and radical scavenging effects of alkaloid extracts from Rhizophora mucronata. *Pharmaceutical Chemistry Journal*, 49(1), 34-37.
- Gutzeit, H. O., & Ludwig, M. J. (2014). Plant Natural Products: Synthesis, biological functions and practical applications, First Edition. New York: Wiley-VCH Verlag GmbH & Co.
- Habib, M. A., Khatun, F., khatun Ruma, M., Kabir, A. H., Chowdhury, A. R. S., Rahman, A., & Hossain, M. I. (2018). A Review On Phytochemical Constituents of Pharmaceutically Important Mangrove Plants, Their Medicinal Uses and Pharmacological Activities. *Vedic Research International Phytomedicine*, 6(1), 1-9.
- Hamilton, S. E., & Casey, D. (2016). Creation of a high spatio-temporal resolution global database of continuous mangrove forest cover for the 21st century (CGMFC-21). *Global Ecology and Biogeography*, 25(6), 729-738.
- Harborne, 1987, *Metode Fitokimia Penuntun Cara Modern Menganalisis Tumbuhan*, Terbitan kedua, Penerbit ITB, Bandung
- Hardoko, E. S., Puspitasari, Y. E., & Amalia, R. (2015). Study of ripe Rhizophora mucronata fruit flour as functional food for antidiabetic. *International Food Research Journal*, 22(3).

- Hariyono, Romli, L. Y. & Indrawati, U., 2020. *Buku pedoman penyusunan Literature Review*. Jombang: s.n.
- Harizon, et al., 2015. Antibacterial Triterpenoids from the Bark of Sonneratia alba (Lythraceae). *Natural Product Communications* Vol. 10 (2), pp. 278 - 280.
- Hasan, I., Hussain, M. S., Millat, M. S., Sen, N., Rahman, M. A., Rahman, M. A., ... & Moghal, M. M. R. (2018). Ascertainment of pharmacological activities of Allamanda nerifolia Hook and Aegialitis rotundifolia Roxb used in Bangladesh: An in vitro study. *Journal of traditional and complementary medicine*, 8(1), 107-112.
- Heinrich, M., Barnes, J., Gibbons, S., & Williamsoon, E. M. (2004). *Fundamental of Pharmacognosy and phytotherapy*. 77-78. Churchill Livingstone. Toronto.
- Hoffmann, D. (2003). *Medical herbalism: the science and practice of herbal medicine*. Simon and Schuster.
- Hong, L. S., Ibrahim, D., & Kassim, J. (2011). Assessment of in vivo and in vitro cytotoxic activity of hydrolysable tannin extracted from Rhizophora apiculata barks. *World Journal of Microbiology and Biotechnology*, 27(11), 2737-2740.
- Horton ES, Can Newer Therapies Delay the Progression of Type 2 Diabetes Mellitus? *Endocr. Pract.* 2008; 14(5): 625-638.
- Hossain, H., Moniruzzaman, S., Nimmi, I., Kawsar, H., Hossain, A., Islam, A., & Jahan, I. A. (2011). Anti-inflammatory and antioxidant activities of the ethanolic extract of Ceriops decandra (Griff.) Ding Hou bark. *Oriental Pharmacy and Experimental Medicine*, 11(4), 215-220.
- Hossain, M. H., Howlader, M. S. I., Dey, S. K., Hira, A., & Ahmed, A. (2012). Evaluation of diuretic and neuropharmacological properties of the methanolic extract of Avicennia officinalis L. leaves from Bangladesh. *Int J Pharm Phytopharmacol Res*, 2, 2-6.
- Hossain, M. L. (2016). Medicinal activity of Avicennia officinalis: Evaluation of phytochemical and pharmacological properties. *Saudi J. Med. Pharm. Sci*, 2, 250-255.
- Hrudayanath. T., Dibyajyoti, S., & Swagat, K. D. (2016) The genus Avicennia, a pioneer group of dominant mangrove plant species with potential medicinal values: a review, *Frontiers in Life Science*, 9:4, 267-291, DOI: 10.1080/21553769.2016.1235619
- Hu,W.-M.; Li, M.-Y.; Li, J.; Xiao, Q.; Feng, G.;Wu, J. 2010 Dolabranes from the Chinese mangrove, Ceriops tagal. *J. Nat. Prod.*, 73, 1701–1705.
- Huang J, Xu J, Wang Z, Khan D, Niaz SI, Zhu Y, Lin Y, Li J, Liu L. 2017 New lasiodiplodins from mangrove endophytic fungus Lasiodiplodia sp. 318. *Nat Prod Res*;

31:326-332.

- Huang Z, Cai X, Shao C, She Z, Xia X, Chen Y, Yang J, Zhou S, Lin Y (2008): Chemistry and weak antimicrobial activities of phomopsins produced by mangrove endophytic fungus Phomopsis sp. ZSU-H76. *Phytochem*, 69:1604-1608.
- Huong, P.T.T., Diep, C.N., Van Thanh, N., Tu, V.A., Hanh, T.H., Cuong, N.T., Thao, N.P., Cuong, N.X., Thao, D.T., Thai, T.H. and Nam, N.H., 2014. A new cycloartane glucoside from Rhizophora stylosa. *Natural product communications*, 9(9), p.1934578X1400900909.
- Illian, D. N., Basyuni, M., Wati, R., & Hasibuan, P. A. Z. (2018). Polyisoprenoids from Avicennia marina and Avicennia lanata inhibit WiDr cells proliferation. *Pharmacognosy Magazine*, 14(58), 513.
- Illian, D. N., Hasibuan, P. A. Z., Sumardi, S., Nuryawan, A., Wati, R., & Basyuni, M. (2019). Anticancer activity of polyisoprenoids from avicennia alba blume. in widr cells. *Iranian Journal of Pharmaceutical Research: IJPR*, 18(3), 1477.
- Imran. M., Khirul. I., Sanjib. S., Apurba. K. B., dan Mohammed. R., 2014, Pharmacological and Ethnomedicinal Overview of Heritiera fomes: Future Prospects, Int Sch Res Notices, Volume 2014, 938543, <http://dx.doi.org/10.1155/2014/938543>
- Islam, M. T., Sharifi-Rad, J., Martorell, M., Ali, E. S., Asghar, M. N., Deeba, F., ... & Mubarak, M. S. (2020). Chemical profile and therapeutic potentials of Xylocarpus moluccensis (Lam.) M. Roem.: A literature-based review. *Journal of Ethnopharmacology*, 259, 112958.
- Janmanchi, H., Raju, A., Degani, M. S., Ray, M. K., & Rajan, M. G. R. (2017). Antituberculosis, antibacterial and antioxidant activities of Aegiceras corniculatum, a mangrove plant and effect of various extraction processes on its phytoconstituents and bioactivity. *South African Journal of Botany*, 113, 421-427.
- Jasna, T.; Chandra, P.R.; Khaleel, K. Preliminary phytochemical screening and gc ms analysis of chloroform extract of Kandelia candel (l.) druce. *Int. J. Pharm. Sci. Res.* 2017, 8, 3530–3533.
- Kaliampurthi, S., & Selvaraj, G. (2016). Insight on Excoecaria agallocha: an overview. *Nat Prod Chem Res*, 4(2), 1-6.
- Kar, D. R., Ghosh, G., Kumar, P. S., & Sahu, P. K. (2014). Analgesic and antipyretic activities of the methanolic extract of aerial parts of Avicennia alba Blume. *Int J Pharmtech Res*, 6, 874-9.

- Kar, Durgesh & Farhad, Md & Sahu, Pratap. (2015). A review on pharmacological profiles of ethno-medicinal plant: Avicennia alba Blume. *International J of Pharm Tech Research* 0974-4304. 7. 974-4304.
- Karami, L., Majd, A., Mehrabian, S., Nabiuni, M., Salehi, M., & Irian, S. (2012). Antimutagenic and anticancer effects of Avicennia marina leaf extract on Salmonella typhimurium TA100 bacterium and human promyelocytic leukaemia HL-60 cells. *Sci Asia*, 38(3), 349-55.
- Karim, M. A., Islam, M. A., Islam, M. M., Rahman, M. S., Sultana, S., Biswas, S., ... & Hasan, M. N. (2020). Evaluation of antioxidant, anti-hemolytic, cytotoxic effects and anti-bacterial activity of selected mangrove plants (*Bruguiera gymnorhiza* and *Heritiera littoralis*) in Bangladesh. *Clinical Phytoscience*, 6(1), 1-12.
- Karimulla, S. K., & Kumar, B. P. (2011). Antidiabetic and antihyperlipidemic activity of bark of *Bruguiera gymnorhiza* on streptozotocin induced diabetic rats. *Asian J Pharm Sci Technol*, 1, 4-7.
- Khairun. N. B dan Desty. M., 2018, Efektivitas Kulit Batang Bakau Minyak (*Rhizophora apiculata*) sebagai Antioksidan, *J Agromedicine*, Volume 5, Nomor 1
- Khushi S, Hasan Md M, Al-Hossain ASMM, Hossain Md L, Sadhu SK. 2016. Medicinal activity of *Avicennia officinalis*: evaluation of phytochemical and pharmacological properties. *Saudi J Med Pharm Sci.*;2:250–5.
- Kokpol, Udom & Chavasiri, Warinthorn & Chittawong, Vallapa & Miles, D.. (2004). Taraxeryl cis-p-Hydroxycinnamate, a Novel Taraxeryl from *Rhizophora apiculata*. *Journal of Natural Products - J NAT PROD.* 53. 10.1021/np50070a026.
- Kolinug, K. H., Langi, M. A., Ratag, S. P., & Nurmawan, W. (2014, December). Zonasi tumbuhan utama penyusun mangrove berdasarkan tingkat salinitas air laut di desa Teling Kecamatan Tombariri. In *Cocos* (Vol. 5, No. 4).
- Krishnamoorthy, M., Sasikumar, J. M., Shamna, R., Pandiarajan, C., Sofia, P., & Nagarajan, B. (2011). Antioxidant activities of bark extract from mangroves, *Bruguiera cylindrica* (L.) Blume and *Ceriops decandra* Perr. *Indian journal of pharmacology*, 43(5), 557.
- Kumari, P. R., Kumari, Y. A. S. J., & Kumari, C. V. (2020). In-vitro Pharmacological Evaluation of leaf extracts of a Medicinal Mangrove plant *Bruguiera gymnorhiza* L. *Research Journal of Pharmacy and Technology*, 13(4), 1867-1872.
- Kusmana, C. (2014). Distribution and current status of mangrove forests in Indonesia. In *Mangrove ecosystems of Asia* (pp. 37-60). Springer, New York, NY.

- Laith AA, Najiah M. 2014. Antimicrobial activities of blinding tree, Excoecaria agallocha against selected bacterial pathogens. *J Microbiol Antimicrob.*; 6:29-36.
- Laith, A. A. (2021, March). Phytochemical analysis and antimicrobial activities of mangrove plant (*Rhizophora apiculata*) against selected fish pathogenic bacteria. In *IOP Conference Series: Earth and Environmental Science* (Vol. 718, No. 1, p. 012076). IOP Publishing.
- Lakshmi, V., Singh, N., Shrivastva, S., Mishra, S. K., Dharmani, P., Mishra, V., & Palit, G. (2010). Gedunin and photogedunin of *Xylocarpus granatum* show significant anti-secretory effects and protect the gastric mucosa of peptic ulcer in rats. *Phytomedicine*, 17(8-9), 569-574.
- Lakshmi, V., Srivastava, S., Mishra, S.K., Srivastava, M.N., Srivastava, K. and Puri, S.K., 2012. Antimalarial activity in *Xylocarpus granatum* (Koen). *Natural product research*, 26(11), pp.1012-1015.
- Lalitha, Perumal & V., Sachithanandam & Swarnakumar, N & Rengarajan, Sridhar. (2019). Asian Journal of Pharmaceutical Research (AJPRes.) Review on Anti-inflammatory Properties of Mangrove plants. *Asian Journal of Pharmaceutical Research*. 9. 10.5958/2231-5691.2019.00045.5.
- Lam. P. K., Huynh. K. T., Nguyen. T. T. K., Nguyen. K. P. P., & Nguyen. T. H. T., 2013, Chemical constituents from leaves of *Avicennia lanata* ridley, Phamhoang (Avicenniaceae), *Science & Technology Development*, Vol 16, No.T2
- Latief, M. (2019). The Characterization of Active Compound of Pedada Magrove Plants (*Sonneratia caseolaris*) Which HaveThePotential as Natural Antioxidants. *Journal of Chemical Natural Resources*, 1(1), 1-11.
- Li, Y., Yu, S., Liu, D., Proksch, P., & Lin, W. (2012). Inhibitory effects of polyphenols toward HCV from the mangrove plant Excoecaria agallocha L. *Bioorganic & medicinal chemistry letters*, 22(2), 1099-1102.
- Liebezeit, G.; Rau, M.T. New Guinean mangroves—Traditional usage and chemistry of natural products. *Senck. Marit.* 2006, 36, 1–10.
- Lin, G., Li, M., Xu, N., Wu, X., Liu, J., Wu, Y., ... & Su, Z. (2020). Anti-Inflammatory Effects of *Heritiera littoralis* Fruits on Dextran Sulfate Sodium-(DSS-) Induced Ulcerative Colitis in Mice by Regulating Gut Microbiota and Suppressing NF-κB Pathway. *BioMed Research International*, 2020.
- Lisette D'Souza, & Wahidullah, Solimabi & Devi, Prabha. (2010). Antibacterial phenolics

- from the mangrove *Lumnitzera racemosa*. Indian Journal of Marine Sciences. 39. 294-298.
- LPP (Lembaga Pengkajian dan Pengembangan) Mangrove Indonesia, 2008, *Ekosistem Mangrove Indonesia*
- Mahera, & Saifullah, Syed & Ahmad, Viqar & Mohammad, F.V.. (2013). Phytochemical studies on mangrove *Avicennia marina*. *Pakistan Journal of Botany*. 45. 2093-2094.
- Mahera, S. & Ahmad, Viqar & Saifullah, Syed & Mohammad, F.V. & Ambreen, K.. (2011). Steroids and triterpenoids from grey mangrove *Avicennia marina*. *Pakistan Journal of Botany*. 43. 1417-1422.
- Makkar, H. P., Siddhuraju, P., & Becker, K. (2007). *Plant secondary metabolites* (pp. 101-106). Totowa, NJ, USA:: Humana Press.
- Mao L, Foong SY. 2013. Tracing ancestral biogeography of Sonneratia based on fossil pollen and their probable modern analogues, *Palaeoworld*. 22: 133-143.
- Markham, K. R. (1988). Cara Mengidentifikasi Flavonoid, *diterjemahkan oleh Kosasih Padmawinata*, 15, Penerbit ITB, Bandung.
- Mastaller, M. (1997). Mangrove: The forgotten Forest between Land & Sea. Kuala Lumpur, Malaysia. Hal. 5.
- Mazlan, N.W., Clements, C. and Edrada-Ebel, R., 2020. Targeted isolation of anti-trypanosomal naphthofuran-quinone compounds from the mangrove plant *Avicennia lanata*. *Marine Drugs*, 18(12), p.661.
- Mehera SA, Ahmad VU, Saifullah SM, Mohammad FV, Ambreen K (2011): Steroids and triterpenoids from gray mangrove *Avicennia marina*. Pak J Bot, 43(2): 1417-1422.
- Mierziak, J., Kostyn, K., & Kulma, A. (2014). Flavonoids as important molecules of plant interactions with the environment. *Molecules*, 19(10), 16240-16265.
- Milon, M.A., Muhit, M.A., Goshwami, D., Masud, M.M. and Begum, B., 2012. Antioxidant, cytotoxic and antimicrobial activity of *Sonneratia alba* bark. *International Journal of Pharmaceutical Sciences and Research*, 3(7), p.2233.
- Miranti, D.I., Ichiura, H. and Ohtani, Y., 2018. The Bioactive Compounds and Antioxidant Activity of Food Products of *Rhizophora stylosa* Fruit (Coffee and Tea Mangrove). *International Journal of Forestry Research*, 2018.
- Misra, S., Verma, M., Mishra, S.K., Srivastava, S., Lakshmi, V. and Misra-Bhattacharya, S., 2011. Gedunin and photogedunin of *Xylocarpus granatum* possess antifilarial activity against human lymphatic filarial parasite *Brugia malayi* in experimental rodent

- host. *Parasitology research*, 109(5), pp.1351-1360.
- Mondal, S., Ghosh, D., & Ramakrishna, K. (2016). A complete profile on blind-your-eye mangrove Excoecaria agallocha L.(Euphorbiaceae): Ethnobotany, phytochemistry, and pharmacological aspects. *Pharmacognosy reviews*, 10(20), 123.
- Morada, N.J., Metillo, E.B., Uy, M.M. and Oclarit, J.M., 2011, July. Anti-diabetic polysaccharide from mangrove plant, Sonneratia alba Sm. In *Proceedings of the International Conference on Asia Agriculture and Animal, International Proceedings of Chemical, Biological and Environmental Engineering* (Vol. 13, pp. 197-200).
- Mudyiwa, Silas & Musara, Collen. (2020). Review of Botany, Nutritional, Medicinal, Pharmacological Properties and Phytochemical Constituents of Bruguiera gymnorhiza (L.) Lam, (Rhizophoraceae). *Journal of Pharmacy and Nutrition Sciences*. 10. 10.29169/1927-5951.2020.10.04.1.
- Munira, M. S., Islam, M. A., Islam, M. S., Koly, S. F., Nesa, M. L., & Muhit, M. A. (2019). Phytochemical Screening and Comparative Antioxidant Activities of Fractions Isolated from Sonneratia caseolaris (Linn.) Bark Extracts. *European Journal of Medicinal Plants*, 1-9.
- Munira, M., Islam, S. and Akther, N., 2019. Estimation of anti-inflammatory, analgesic and thrombolytic activities of Sonneratiacaseolaris Linn.(Family: Sonneratiaceae). *J Anal Pharm Res*, 8(1), pp.20-23.
- Muthulingam, M., & Chaithanya, K. K. (2018). Qualitative and quantitative phytochemical analysis and in vitro antioxidant activities of methanolic leaf extract of Rhizophora apiculata Blume. *Drug Invent. Today*, 10(3), 3335-3343.
- Nabeelah Bibi, S., Fawzi, M. M., Gokhan, Z., Rajesh, J., Nadeem, N., RR, R. K., ... & Pandian, S. K. (2019). Ethnopharmacology, phytochemistry, and global distribution of mangroves—A comprehensive review. *Marine drugs*, 17(4), 231.
- Nguyen-Thi-Hoai, Thu & Lam, Khanh & Nguyen, Duy & Huynh, Chanh & Nguyen, Phung & Hansen, Poul. (2011). CHEMICAL CONSTITUENTS FROM LEAVES OF SONNERATIA ALBA J.E. SMITH (SONNERATIACEAE). *Science and Technology Development Journal*. 14. 11-17. 10.32508/stdj.v14i4.2043.
- Noor, Y.R., Khazali, M., Suryadiputra, I.N.N., 2006. *Panduan Pengenalan Mangrove di Indonesia*. PHKA/WI-IP, Bogor.
- Panche, A. N., Diwan, A. D., & Chandra, S. R. (2016). Flavonoids: an overview. *Journal of nutritional science*, 5.

- Paputungan, M. S., Koropitan, A. F., Prartono, T., & Lubis, A. A. (2017). Sediment Accumulation Profile in Mangrove Restoration Area of Lembar Bay-lombok Island. *Jurnal Ilmu dan Teknologi Kelautan Tropis*, 9(1), 301-313.
- Patil, R. C., Manohar, S. M., Upadhye, M. V., Katchi, V. I., Rao, A. J., Mule, A., & Moghe, A. S. (2011). Anti reverse transcriptase and anticancer activity of stem ethanol extracts of Excoecaria agallocha (Euphorbiaceae). *Ceylon Journal of Science (Bio. Sci.)*, 40(2), 147-155.
- Patra, J.K., Dhal, N.K. and Thatoi, H.N., 2011. In vitro bioactivity and phytochemical screening of Suaeda maritima (Dumort): A mangrove associate from Bhitarkanika, India. *Asian Pacific Journal of Tropical Medicine*, 4(9), pp.727-734.
- Paul, T., & Ramasubbu, S. (2017). The antioxidant, anticancer and anticoagulant activities of Acanthus ilicifolius L. roots and Lumnitzera racemosa Willd. leaves, from southeast coast of India. *J. Appl. Pharm. Sci*, 7(3), 81-87.
- Pitchaipillai, R., & Ponniah, T. (2016). In vitro antidiabetic activity of ethanolic leaf extract of bruguiera Cylindrica L.–glucose uptake by yeast cells method. *International Biological and Biomedical Journal*, 2(4), 171-175.
- Poompozhil S, Kumarasamy D. 2014. Studies on some phytochemical constituents of some selected mangroves. JAIR. 2:590–592.
- Poorna, C. A., Resmi, M. S., & Soniya, E. V. (2013). In vitro antioxidant analysis and the DNA damage protective activity of Leaf extract of the Excoecaria agallocha Linn Mangrove plant. *Agricultural Chemistry*. New York: InTech, 155-166.
- Prabhakar, P. K., & Doble, M. (2008). A target based therapeutic approach towards diabetes mellitus using medicinal plants. *Current Diabetes Reviews*, 4(4), 291-308.
- Prabhu, V. V., & Guruvayoorappan, C. (2012). Anti-inflammatory and anti-tumor activity of the marine mangrove Rhizophora apiculata. *Journal of immunotoxicology*, 9(4), 341-352.
- Prasad, N., Yang, B., Kong, K. W., Khoo, H. E., Sun, J., Azlan, A., ... & Romli, Z. B. (2013). Phytochemicals and antioxidant capacity from Nypa fruticans Wurmb. fruit. *Evidence-Based Complementary and Alternative Medicine*, 2013.
- Prihanto, A.A., 2011, February. Cytotoxic, antioxidant and antibacterial activity of methanol extract of Xylocarpus moluccensis fruit husk. In *Proceeding of The International Conference on Basic Science held at Malang, Indonesia: Galaxy Science publisher* (pp. 2-5).

- Pronin, A. V., Danilov, L. L., Narovlyansky, A. N., & Sanin, A. V. (2014). Plant polyisoprenoids and control of cholesterol level. *Archivum immunologiae et therapiae experimentalis*, 62(1), 31–39. <https://doi.org/10.1007/s00005-013-0253-y>
- Purnobasuki H. 2004. Potensi Mangrove sebagai Tanaman Obat. Surabaya: UNAIR <http://www.uajy.ac.Id/biota/abstrak%5c2004-2-10.doc>.
- Ragasa, C. Y., Ebajo Jr, V. D., Mariquit, M., Emelina, H., Mandia, R. B., & Urban, S. (2015). Triterpenes and Sterols from Sonneratia alba. *Int J Curr Pharm Res*, 6(6), 256-261.
- Rahardi, W., & Suhardi, R. M. (2016). Keanekaragaman Hayati dan Jasa Ekosistem Mangrove di Indonesia. In *Prosiding Symbion (Symposium On Biology Education). Prodi Pendidikan Biologi, FKIP, Universitas Ahmad Dahlan*.
- Rahardian, A., Prasetyo, L. B., Setiawan, Y. U. D. I., & Wikantika, K. E. T. U. T. (2019). Tinjauan historis data dan informasi luas mangrove Indonesia. *Media Konservasi*, 24(2), 163-178.
- Rahman, M. A., Biswas, S., Bala, V., Shill, A. K., & Bose, U. (2011). Antidiarrhoeal and antinociceptive activities of leafs Avicennia alba. *Pharmacologyonline*, 1, 492-500.
- Rahman, Md. Ashikur & Arif, Ahmed & Shahid, Iz. (2011). Phytochemical and Pharmacological Properties of Bruguiera gymnorhiza Roots Extract. *International Journal of Pharmaceutical Research*. 3. 63-67.
- Rahman, S.M.; Kabir, M.Z.; Paul, P.K.; Islam, M.R.; Rahman, S.; Jahan, R.; Rahmatullah, M. A review on a mangrove species from the sunderbans, bangladesh: Bruguiera gymnorhiza (L.) lam. Rhizophoraceae).
- Rahmatullah, M., Azam, M. N. K., Pramanik, S., Sania, S. R., & Jahan, R. (2012). Antihyperglycemic activity evaluation of rhizomes of Curcuma zedoaria Christm. roscoe and fruits of Sonneratia caseolaris. L. Engl. *International Journal of PharmTech Research*, 4(1), 125-129.
- Raja, S., & Ravindranadh, K., (2014). A complete profile on Xylocarpus moluccensis: traditional uses, pharmacological activities and phytoconstituents. *World J Pharm Sci*; 2(12): 1770-1777
- Raju, G. S., RahmanMoghal, M. M., Hossain, M. S., Hassan, M. M., Billah, M. M., Ahamed, S. K., & Rana, S. M. (2014). Assessment of pharmacological activities of two medicinal plant of Bangladesh: Launaea sarmentosa and Aegialitis rotundifolia roxb in the management of pain, pyrexia and inflammation. *Biological research*, 47(1), 1-11.
- Rangasamy, V., Kumaravel, S & Ranganathan, R. (2019). Therapeutic and Traditional Uses

- of Mangrove Plants. *Journal of Drug Delivery and Therapeutics*. 9. 849-854. 10.22270/jddt.v9i4-s.3457.
- Ranjana, B & Jadhav, Bhaskar & Dhavan, Pratik & Patel, Preeti. (2019). IN VITRO ANTIDIABETIC ACTIVITY AND PHYTOCHEMICAL ANALYSIS OF LUMNITZERA RACEMOSA LEAVES. *International Research Journal of Pharmacy*. 10. 1-8.
- Rao VU, Nagababu P: Pharmacological evaluation of Ceriops decandra (Griff.) Ding Hou stem extracts. *Int J Recent Sci Res* 2015, 6(2):2783-2789.
- Ravikumar, S., & Gnanadesigan, M. (2011). Hepatoprotective and antioxidant activity of a mangrove plant Lumnitzera racemosa. *Asian Pacific Journal of Tropical Biomedicine*, 1(5), 348-352.
- Ravikumar, S., & Gnanadesigan, M. (2012). Hepatoprotective and antioxidant properties of rhizophora mucronata mangrove plant in CCl<sub>4</sub> intoxicated rats. *Journal of Experimental & Clinical Medicine*, 4(1), 66-72.
- Reddy, A.R.K.; Grace, J.R. 2016. Anticancer activity of methanolic extracts of selected mangrove plants. *Int. J.Pharm. Sci. Res*, 38, 3852–3856.
- Ren, J.L., Zou, X.P., Li, W.S., Shen, L. and Wu, J., 2018. Limonoids Containing a C1-O-C29 Moiety: Isolation, Structural Modification, and Antiviral Activity. *Marine drugs*, 16(11), p.434.
- Revathi, P., Senthinath, T. J., & Prabhu, N. (2014). An overview of antidiabetic profile of mangrove plants. *Int. J. Pharm. Pharm. Sci.*
- Robinson, T. (1995). *Kandungan Organik Tumbuhan Tinggi*, Edisi VI. Diterjemahkan oleh Kosasih Padmawinata, ITB, Bandung.
- Rohini RM, Das AK (2009) : A comparative evaluation of analgesic and anti-inflammatory activities of Rhizophora mucronata bark extracts. *Pharmacologyonline*, 1:780-791
- Romimohtarto, K., & Juwana, S. (2001). *Biologi Laut : Ilmu Pengetahuan Tentang Biota Laut*. Jakarta: Djambatan.
- Roome T, Dar A, Naqvi S, Choudhary MI. 2011. Evaluation of antinociceptive effect of Aegiceras corniculatum stems extracts and its possible mechanism of action in rodents. *J Ethnopharmacol*; 135(2):351-358.
- Saad, S., Taher, M., Susanti, D., Qaralleh, H. and Awang, A.F.I.B., 2012. In vitro antimicrobial activity of mangrove plant Sonneratia alba. *Asian Pacific journal of tropical biomedicine*, 2(6), pp.427-429.

- Sachithanandam, V., Parthiban, A., Lalitha, P., Muthukumaran, J., Jain, M., Elumalai, D., ... & Ramachandran, R. (2020). Biological evaluation of gallic acid and quercetin derived from Ceriops tagal: insights from extensive in vitro and in silico studies. *Journal of Biomolecular Structure and Dynamics*, 1-13.
- Sadhu, S. K., Firoj, A., Takashi, O., & Masami, I. (2006). Flavonoids from Sonneratia caseolaris. *Natural Medicine Note*, 60(April 2015), 5–7. <https://doi.org/10.1007/s11418-006-0029-3>
- Saifudin, A. (2014). *Senyawa Alam Metabolit Sekunder Teori, Konsep dan Teknik Pemurnian* (1st ed.). yogyakarta: Deepublish.
- Salini. G., (2014). Pharmacological Profile Of Mangrove Endophytes - A Review. *Int J Pharm Pharm Sci*, Vol 7, Issue 1, 6-15
- Samejo, M. Q., Memon, S., Bhanger, M. I., & Khan, K. M. (2013). Isolation and characterization of steroids from Calligonum polygonoides. *journal of pharmacy research*, 6(3), 346-349.
- Sandip, B., Anirban, D., & Raja, C. (2012). phytochemical characterisation and pharmacological evaluation of methanolic extract of *Avicennia alba*. *International Journal Of Pharmaceutical Sciences And Research*, Sr No: 66, Page No: 3988-3992. [http://dx.doi.org/10.13040/IJPSR.0975-8232.3\(10\).3988-92](http://dx.doi.org/10.13040/IJPSR.0975-8232.3(10).3988-92)
- Saravanan, D., & Radhakrishnan, M. (2016). Antimicrobial activity of mangrove leaves against drug resistant pathogens. *International Journal of PharmTech Research*, 9(1), 141-146.
- Satyavani, K., Gurudeeban, S., Manigandan, V., Rajamanickam, E., & Ramanathan, T. (2015). Chemical compositions of medicinal mangrove species *Acanthus ilicifolius*, *Excoecaria agallocha*, *Rhizophora apiculata* and *Rhizophora mucronata*. *Current Research in Chemistry*, 7(1), 1-8.
- Seepana, R., Perumal, K., Kada, N. M., Chatragadda, R., Raju, M., & Annamalai, V. (2016). Evaluation of antimicrobial properties from the mangrove *Rhizophora apiculata* and *Bruguiera gymnorhiza* of Burmanallah coast, South Andaman, India. *J. Coast. Life Med*, 4, 475-478.
- Selvaraj, G., Kaliamurthi, S., & Thirugnasambandan, R. (2016). Effect of glycosin alkaloid from *Rhizophora apiculata* in non-insulin dependent diabetic rats and its mechanism of action: in vivo and in silico studies. *Phytomedicine*, 23(6), 632-640.
- Shafie M, Forghani A, Moshtaghiyan J. 2013. Mangrove (*Avicennia marina*) and vitamin C

- on arthritic rats. *Bul Environ Pharmacol Life Sci.* 2:32–37.
- Sharief MN, Srinivasulu A, Chittibabu B, Umamaheswararao V. 2015. Identification of bioactive principles of Avicennia officinalis fruit extract in methanol and screening for antibacterial activity. *Int J Pharm Sci Drug Res*;7:73–7.
- Shelar, M. K., Patil, M. J., & Bhujbal, S. S. (2019). Phytochemical and Pharmacognostical Evaluation of Milky Mangrove Excoecaria agallocha Linn. *Research Journal of Pharmacy and Technology*, 12(3), 1289-1293.
- Shettar, A. K., & Vedamurthy, A. B. (2017). An in-vitro approach for evaluating anthelmintic activity of Kandelia candel and Rhizophora apiculata. *J Pharmacogn Phytochem*, 6(1), 05-09.
- Shettar, A. K., Madagi, S. B., Hoskeri, J. H., & Vedamurthy, A. B. (2018). Phytochemical profiling, in-vitro antioxidant and anti-inflammatory activities of Hopea ponga, Kandelia candel, Vitex leucoxylon and Rhizophora apiculata. *Journal of Pharmacognosy and Phytochemistry*, 7(6), 1425-1440.
- Shettar, A.K., & Vedamurthy, A.B. (2017). EVALUATION OF ANTIDIABETIC POTENTIAL OF KANDELIA CANDEL AND RHIZOPHORA APICULATA- AN IN VITRO APPROACH Arun Kashivishwanath Shettar and Ankala.
- Simlai, A., & Roy, A. (2013). Biological activities and chemical constituents of some mangrove species from Sundarban estuary: An overview. *Pharmacognosy reviews*, 7(14), 170.
- Simlai, A., Rai, A., Mishra, S., Mukherjee, K. and Roy, A., 2014. Antimicrobial and antioxidative activities in the bark extracts of Sonneratia caseolaris, a mangrove plant. *Excli Journal*, 13, p.997.
- Sofia S, Teresa MVM: Investigation of bioactive compounds and antioxidant activity of Excoecaria agallocha, L. *Int J Pharm Sci Res* 2016, 7(12):5062-5066.
- Spalding, M., Kainuma, M., & Collins, L. (2010). *World Atlas of Mangroves*. A collaborative project of ITTO, ISME, FAO, UNEP-WCMC, UNESCO-MAB, UNU-INWEH and TNC. London (UK)
- Srikanth, Muppaneni & Rao, Battu & Talluri, Mallikarjuna Rao & Swamy, T.. (2015). Abortifacient and Antioxidant Activities of Avicennia marina*</i>*. International Letters of *Natural Sciences*. 33. 12-26. 10.18052/www.scipress.com/ILNS.33.12.
- Srivastava AK, Srivastava S, Srivastava SP, Raina D, Ahmad R, et al., (2011) Antihyperglycemic and antidiabetic activity in ethanolic extract of marine

- mangrove *Xylocarpus granatum*. *J Pharma Biomed Sci* 9: 22.
- Srivastava, A.K., Tiwari, P.R.I.T.I., Srivastava, S.P., Srivastava, R.O.H.I.T., Mishra, A.K.A.N.S.H.A., Rahuja, N.E.H.A., PANDETI, S., TAMRAKAR, A.K., NARENDER, T., SRIVASTAVA, M.N. and LAKSHMI, V., 2014. Antihyperglycaemic and antidiyslipidemic activities in ethyl acetate fraction of fruits of marine mangrove *Xylocarpus moluccensis*. *International Journal of Pharmacy and Pharmaceutical Sciences*, 6(1), pp.809-826.
- Suganthy, N., & Pandima Devi, K. (2016). In vitro antioxidant and anti-cholinesterase activities of *Rhizophora mucronata*. *Pharmaceutical biology*, 54(1), 118-129.
- Suganthy, N., Pandian, S. K., & Devi, K. P. (2009). Cholinesterase inhibitory effects of *Rhizophora lamarckii*, *Avicennia officinalis*, *Sesuvium portulacastrum* and *Suaeda monica*: mangroves inhabiting an Indian coastal area (Vellar Estuary). *Journal of Enzyme Inhibition and Medicinal Chemistry*, 24(3), 702-707.
- Sukairi, A.H., Sabri, W.M., Yusop, S.A., & Asaruddin, M.R. (2019). Phytochemical Screening, Antidiabetic and Antioxidant Properties of *Nypa frutican* Sap. *Materials Today: Proceedings*, 19, 1738-1744.
- Sulaiman, S., Ibrahim, D., Kassim, J., & Sheh-Hong, L. (2011). Antimicrobial and antioxidant activities of condensed tannin from *Rhizophora apiculata* barks. *J Chem Pharm Res*, 3(4), 436-444.
- Sumardjo, D. (2009). *Pengantar Kimia Buku Panduan Kuliah Mahasiswa Kedokteran*. EGC.
- Sur, T. K., Hazra, A. K., Bhattacharyya, D., & Hazra, A. (2015). Antiradical and antidiabetic properties of standardized extract of Sunderban mangrove *Rhizophora mucronata*. *Pharmacognosy magazine*, 11(42), 389.
- Sur, T. K., Hazra, A., Hazra, A. K., & Bhattacharyya, D. (2016). Antioxidant and hepatoprotective properties of Indian Sunderban mangrove *Bruguiera gymnorhiza* L. leave. *Journal of basic and clinical pharmacy*, 7(3), 75.
- Sura S, Anbu J, Sultan MAD, Uma BM. 2011. Antiulcer effect of ethanolic leaf extract of *Avicennia officinalis*. *Pharmacologyonline*. 3:12–19.
- Surya. D dan Hari. N., 2017, Studies on preliminary phytochemical analysis of some true mangrove species in Kerala, *IJRPPS*, Volume 2; Issue 3 page 15 – 17
- Takeda, Y.; Miyazaki, K.; Shimizu, H.; Masuda, T.; Hirata, E.; Takushi, A.; Shinzato, T.; Otsuka, H. 2000. A new phenylpropanoid-glycerol conjugate from *Heritiera littoralis* Dryand. *Nat. Med.*, 54, 22–25.

- Thao, N. P., Luyen, B. T. T., Diep, C. N., Tai, B. H., Kim, E. J., Kang, H. K., ... & Kim, Y. H. (2015). In vitro evaluation of the antioxidant and cytotoxic activities of constituents of the mangrove *Lumnitzera racemosa* Willd. *Archives of pharmacal research*, 38(4), 446-455.
- Thatoi, H., Samantaray, D. and Das, S.K., 2016. The genus Avicennia, a pioneer group of dominant mangrove plant species with potential medicinal values: a review. *Frontiers in Life Science*, 9(4), pp.267-291.
- Thirunavukkarasu, P., Ramanathan, T., Ramkumar, L., Shanmugapriya, R., & Renugadevi, G. (2011). The antioxidant and free radical scavenging effect of Avicennia officinalis. *Journal of Medicinal Plants Research*, 5(19), 4754-4758.
- Thirunavukkarasu, S. Asha, R.Reddy, D. Priya, Rajeshwari dan Sudhakar, 2015, Phytochemical Analysis of Medicinal Mangrove Plant Species Ceriops decandra, *Global Journal of Pharmacology* 12 (1): 24-30
- Thirunavukkarasu, S. Asha, T. Ramanathan, D.Kannan dan N.Sudhakar, 2017, Phytochemical Analysis Of Mangrove Derived Crude Plant Extract- Rhizophora Mucronata, J. Global Trends Pharm Sci, 2017; 8(2): 3813 – 3820
- Thota, S.P.R., Sarma, N.S. and Murthy, Y.L.N., 2016. A new embelin from the mangrove *Aegiceras corniculatum*. *Indian Journal of Chemistry Section B*. 55. 123-127.
- Tian, Y.; Wu, J.; Zhang, S. 2004. Flavonoids from leaves of *Heritiera littoralis* D. J. Chin. *Pharm. Sci.*, 13, 214–216.
- Tomlinson (1986) dan Field (1995 ) dalam Onrizal (1980). *The Botany of Mangrove*. Cambridge University Press. UK
- Uddin, S.J., Grice, I.D. and Tiralongo, E., 2011. Cytotoxic effects of Bangladeshi medicinal plant extracts. *Evidence-Based Complementary and Alternative Medicine*.
- Varghese, J., Belzik, N., Nisha, A. R., Resiya, S., Resmi, S., & Silvipriya, K. (2010). Pharmacognostical and phytochemical studies of a Mangrove ( Sonneratia caseolaris ) from Kochi of Kerala state in India. *Journal of Pharmacy Research*, 3(11), 2625–2627.
- Wahyuni, W.T., Darusman, L.K. and Surya, N.K., 2015. Potency of rhizopora Spp. extracts as antioxidant and inhibitor of acetylcholinesterase. *Procedia Chemistry*, 16, pp.681-686.
- Wang, L.; Mu, M.; Li, X.; Lin, P.; Wang, W. 2010. Di\_erentiation between true mangroves and mangrove associates based on leaf traits and salt contents. *J. Plant. Ecol.*, 4, 292–301.
- Wangensteen H, Alamgir M, Duong GM, Gronhaug TE, Samuelson AB, et al. (2009)

- Chemical and biological studies of medicinal plants from the Sundarbans mangrove forest. *Adv Phytother Res* 1: 59-78.
- Wetwitayaklung, P., Limmatvapirat, C. and Phaechamud, T., 2013. Antioxidant and anticholinesterase activities in various parts of *Sonneratia caseolaris* (L.). *Indian journal of pharmaceutical sciences*, 75(6), p.649.
- Wick, P. D. (2009). *Medicinal Natural Products: A biosynthetic approach, 3rd Edition*. West Sussex: John Wiley & Sons, Ltd.
- Wu J, Zhang S, Xiao Q, Quingxin L, Xiao L, et al., (2014) Xyloccensins Q-V, six new 8,9,30-phragmalin ortho ester antifeedants from Chinese mangrove *Xylocarpus granatum*. *Tetrahedron* 61: 8382-8389.
- Wu, J., Xiao, Q., Xu, J., Li, M. Y., Pan, J. Y., Yang, M. H., 2008. Natural products from true mangrove flora: source, chemistry and bioactivities. *Nat. Prod. Rep.* 25(5), 955-981.
- Wu, S., Zhang, Z., Yun, Z., Ying, W., & Wen, L. (2009). Chemical constituents from the fruits of *Sonneratia caseolaris* and *Sonneratia ovata* (Sonneratiaceae). *Biochemical Systematic and Ecology* 37(1):1-5.
- Xu M, Deng Z, Li M, Li J, Fu H, Proksch P, Lin W (2004) : Chemical constituents from the mangrove plant, *Aegiceras corniculatum*. *J Nat Prod* 2004, 67:762–766.
- Xu, J. & Deng, Z.-W & Lin, W.-H & Li, Q.-S. (2009). Chemical constituents of mangrove plant *Excoecaria agallocha* in Hainan Province. *Chinese Traditional and Herbal Drugs*. 40. 1704-1707.
- Yin B, Shen L, Zhang M, Zhao L, Wang Y, Huo C, Shi Q. 2008. Chemical constituents of plants from the genus *Excoecaria*. *Chem Biodiver*; 5:2356-2371.
- Yu, S. Y., Wang, S. W., Hwang, T. L., Wei, B. L., Su, C. J., Chang, F. R., & Cheng, Y. B. (2018). Components from the leaves and twigs of mangrove *Lumnitzera racemosa* with anti-angiogenic and anti-inflammatory effects. *Marine drugs*, 16(11), 404.
- Yusoff, N. A., Yam, M. F., Beh, H. K., Razak, K. N. A., Widyawati, T., Mahmud, R., ... & Asmawi, M. Z. (2015). Antidiabetic and antioxidant activities of *Nypa fruticans* Wurmb. vinegar sample from Malaysia. *Asian Pacific journal of tropical medicine*, 8(8), 595-605.
- Z.-F. Zhou, L.-Y. Kong, T. Kurtán et al., 2014. “Four phragmalin orthoesters from the Chinese mangrove *Xylocarpus granatum*,” *Planta Medica*, vol. 80, no. 11, pp. 949–954, 2014.
- Zhang D, Wu J, Zhang S, Huang J. 2005 : Oleanane triterpenes from *Aegiceras corniculatum*.

*Fitoterapia*, 76:131–133

- Zhou, H. C., Tam, N. F. Y., Lin, Y. M., Ding, Z. H., Chai, W. M., & Wei, S. D. (2014). Relationships between degree of polymerization and antioxidant activities: A study on proanthocyanidins from the leaves of a medicinal mangrove plant Ceriops tagal. *PLoS One*, 9(10), e107606.
- Zhou, Z.F., Taglialatela-Scafati, O., Liu, H.L., Gu, Y.C., Kong, L.Y. and Guo, Y.W., 2014. Apotirucallane protolimonoids from the Chinese mangrove *Xylocarpus granatum* Koenig. *Fitoterapia*, 97, pp.192-197.