



DAFTAR PUSTAKA

- Abdelmohsen, U.R., Bayer, K., dan Hentschel, U., 2014, Diversity, Abundance and Natural Products of Marine Sponge-Associated Actinomycetes, *Nat. Prod. Rep.*, 31, 381-399.
- Anderson, D.G., Salm, S.N., Allen, D.P., dan Nester, E.W., 2016, *Nester's Microbiology : A Human Perspective, Eighth edition*, McGraw Hill Education, New York.
- Antonov, A. S., Kalinovskii, A. I., Dmitrenok, P. S., dan Stonik, V. A., 2002, New Triterpene Glycosides from an *Ulosa* sp. Sponge, *Russ. J. Bioorg. Chem.*, 28(3), 209-214.
- Asagabaldan, M.A., Ayuningrum, D., Kristiana, R., Sabdono, A., Radjasa, O.K., dan Trianto, A., 2017, Identification and Antibacterial Activity of Bacteria Isolated from Marine Sponge *Haliclona (Reniera)* sp. against Multi-Drug Resistant Human Pathogen, *IOP Conf. Series: Earth and Environmental Science*, 55, 12-19.
- Berk, Z., 2018, *Food Process Engineering and Technology: Extraction*, Academic Press, Cambridge, 289-310.
- Calcul, L., Longeon, A., Mourabit, A.A., Guyot, M., dan Bourguet-Kondracki, M-L., 2003, Novel Alkaloids of The Aaptamine Class from an Indonesian Marine Sponge of The Genus *Xestospongia*, *Tetrahedron*, 59, 6539-6544.
- Calhoun, C., Wermuth, H.R., dan Hall, G.A., 2020, *Antibiotics*, StatPearls Publishing LLC, Treasure Island.
- Castro, A., Silva, J., dan Teixeira, P., 2018, *Foodborne Diseases: Staphylococcus aureus, a Food Pathogen, Virulence Factors and Antibiotic Resistance*, Academic Press, Cambridge, 213-238.
- Chudobova, D., Dostalova, S., Blazkova, I., Michalek, P., Ruttkay-Nedecky, B., Sklenar, M., Nejdi, L., Kudr, J., Gumulec, J., Tmejova, K., Konecna, M., Vaculovicova, M., Hynek, D., Masarik, M., Kynicky, J., Kizek R., dan Adam V., 2014, Effect of Ampicillin, Streptomycin, Penicillin and Tetracycline on Metal Resistant and Non-Resistant *Staphylococcus aureus*, *Int. J. Environ. Res. Public Health*, 11(3), 3233-3255.
- Cita, Y.P., Suhermanto, A., Radjasa, O.K., dan Sudharmono, P., 2017, Antibacterial Activity of Marine Bacteria Isolated from Sponge *Xestopongia*



testudinaria from Sorong, Papua, *Asian. Pac. J. Trop. Biomed.*, 7(5), 450-454.

Cugnata, N.M., Guaspari, E., Pellegrini, M.C., Fuselli, S.R., dan Alonso-Salces, R.M., 2017, Optimal Concentration of Organic Solvents to be Used in The Broth Microdilution Method to Determine The Antimicrobial Activity of Natural Products against *Paenibacillus larvae*, *J. Apic. Sci.*, 61 (1), 37-53.

Doi, Y., dan Chambers, H.F., 2015, *Principles in the Diagnosis and Management of Infectious Diseases: Penicillins and β -Lactamase Inhibitors Basic*, Saunders, Philadelphia, 263-277.

Doshi, G.M., Aggarwal, G.V., Martis, E.A., dan Shanbhag, P.P., 2011, Novel Antibiotics from Marine Sources, *Int. J. Pharm. Sci. Nanotech.*, 4(3), 1446-1462.

Dworkin, M., Falkow, S., Rosenberg, E., Schleifer, K.-H., dan Stackebrandt, E., 2006, *The Prokaryotes : Symbiotic Associations, Biotechnology, Applied Microbiology, Third Edition, Volume 1*, Springer Science, Singapore.

Engelkirk, P.G., dan Duben-Engelkirk, J., 2008, *Laboratory Diagnosis of Infectious Diseases: Essentials of Diagnostic Microbiology*, Lippincott Williams & Wilkins, Philadelphia.

Fetsch, A., 2018, *Staphylococcus aureus*, Academic Press, Cambridge, 3-10.

Handayani, D. dan Artasasta, M.A., 2017, Antibacterial and Cytotoxic Activities Screening of Symbiotic Fungi Extract Isolated from Marine Sponge *Neopetrosia chaliniformis* AR-01, *J. Appl. Pharm.*, 7 (5), 66-69.

Harmita, A.A.K., Harahap, Y., dan Supandi, S., 2019, *Liquid Chromatography-Tandem Mass Spectrometry (LC-MS/MS)*, PT. Isfi Penerbitan, Jakarta.

Hentschel, U., Piel, J., Degnan, S.M., dan Taylor, M.W., 2012, Genomic Insights into the Marine Sponge Microbiome, *Nat. Rev. Microbiol.*, 10, 641-654.

Hu, J-F., Schetz, J.A., Kelly, M., Peng, J-N., Ang, K.K.H., Flotow, H., Leong, C.Y., Ng, S.B., Buss, A.D., Wilkins, S.P., dan Hamann, M.T., 2002, New Antiinfective and Human 5-HT2 Receptor Binding Natural and Semisynthetic Compounds from the Jamaican Sponge *Smenospongia aurea*, *J. Nat. Prod.*, 65, 476-480.

Huang, R., Peng, Y., Zhou, X., Yang, X., dan Liu, Y., 2013, A New Taurine Derivative from South China Sea Marine Sponge *Axinella* sp., *Nat. Prod. Res.*, 27(17), 1537-1541.



Hutomo, M. dan Moosa, M.K., 2005, Indonesian Marine and Coastal Biodiversity: Present Status, *Ind. J. Mar. Sci.*, 34(1), 88-97.

Iengo, A., Mayol, L., dan Santacroce, C., 1977, Minor Sesquiterpenoids from The Sponge *Axinella cannabina*, *Experientia*, 33, 11-12.

Li, J., Xie, S., Ahmed, S., Wang, F., Gu, Y., Zhang, C., Chai, X., Wu, Y., Cai, J., dan Cheng, G., Antimicrobial Activity and Resistance: Influencing Factors, *Front Pharmacol.*, 8 (364), 1-11.

Kaiser, R.E., 2011, *HPTLC: High Performance Thin Layer Chromatography*, 9th edition, Elsevier, Amsterdam.

Kaushik D., Mohan M., Borade DM., dan Swami OC., 2014, Ampicillin: Rise Fall and Resurgence, *J. Clin. Diagn. Res.*, 8(5), 1-3.

Keller, B. O., Sui, J., Young, A. B., dan Whittal, R.M., 2008, Interferences and Contaminants Encountered in Modern Mass Spectrometry, *Anal. Chim. Acta*, 627(1), 71-81.

Khilnani, G. dan Khilnani, A.K., 2019, *Red Biology: Antibiotic Resistance*, Daya Publishing House, Astral International Pvt. Ltd., New Delhi, 179-200.

Kim D., Lee, I. S., Jung, J.H., dan Yang, S.-I., 1999, Psammoplhin A, a Natural Bromotyrosine Derivative from a Sponge, Possesses The Antibacterial Activity against Methicillin-resistant *Staphylococcus aureus* and the DNA Gyrase-inhibitory Activity, *Arch. Pharm. Res.*, 22(1), 25-29.

Kyeremeh, K., Acquah, K.S., Appiah-Opong, R., Deng, H., dan Jaspars, M., 2014, Effective Detection, Isolation and Characterization of Dakaramine from Ghanaian Axinella sp and Bioactivity, *J. Chem. Applications*, 1(1), 4.

Kyle, P. B., 2017, *Toxicology: GCMS. Mass Spectrometry for The Clinical Laboratory*, Academic Press, Cambridge, 131-163.

Maier, R.M. dan Pepper,I.L., 2015, Bacterial Growth, *Review of Basic Microbiological Concepts*, 37-56.

Mehbub, M.F., Lei, J., Franco, C., dan Zhang, W., 2014, Marine Sponge Derived Natural Products between 2001 and 2010: Trends and Opportunities for Discovery of Bioactives, *Mar. Drugs*, 12, 4539-4577.

Melander, R.J., Liu, H-B., Stephens, M.D., Bewley, C.A., dan Melander, C., 2016, Marine Sponge Alkaloids as a Source of Anti-Bacterial adjuvants, *Bioorg. Med. Chem. Lett.*, 26, 5863-5866.



- Moffa,M., dan Brook,I., 2015, *Tetracyclines, Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases : Glycylcyclines and Chloramphenicoles, Eighth edition*, Saunders, Philadelphia, 322-338.
- Niessen, W.M.A., 2006, *Liquid Chromatography – Mass Spectrometry, Third Edition*, CRC Press, Boca Raton.
- Owuama, C.I., 2018, Determination of Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) using a Novel Dilution Tube Method, *Afr. J. Microbiol. Res.*, 11(23), 977-980.
- Parasuraman, S., Rao, A., Balamurugan, S., Muralidharan, S., Kumar, K.J., dan Vijayan, V., 2014, An Overview of Liquid Chromatography-Mass Spectroscopy Instrumentation, *Pharm. Methods*, 5(2), 47-55.
- Pitt, J.J., 2009, Principles and Applications of Liquid Chromatography-Mass Spectrometry in Clinical Biochemistry, *Clin. Biochem. Rev.*, 30(1), 19-34.
- Robertson, B.D., 2008, Kanamycin, *Tuberculosis*, 88(2), 117-118.
- Rodriguez, A.D., Akee, R. K., dan Scheuer, P.J., 1987, Two Bromotyrosine-Cysteine Derived Metabolites from a Sponge, *Tet. Let.*, 28 (42), 4989-4992.
- Samanta, I., dan Bandyopadhyay, S., 2020, *Antimicrobial Resistance in Agriculture : Perspective, Policy and Mitigation*, Academic Press, Cambridge.
- Sandler, J.S., Colin, P.L., Hooper, J.N.A., dan Faulkner, D.J., 2002, Cytotoxic β -Carbolines and Cyclic Peroxides from the Palauan Sponge Plakortis nigra, *J. Nat. Prod.*, 65, 1258-1261.
- Sayed, M.A-E., El-Rahman, T.M.A. Abd., El-Diwany, A.I., Sayed, S.M., 2016, Biodiversity and Bioactivity of Red Sea Sponge Associated Endophytic Fungi, *Int. j. adv. res. eng. appl. sci.*, 5(7), 1-15.
- Shin, J.,Lee, H.-S., Seo, Y., Rho, J.-R., Cho, K. W., dan Paul, V.J., 2000, New Bromotyrosine Metabolites from the Sponge *Aplysinella rhax*, *Tetrahedron*, 56, 9071-9077.
- Singh, R., Sahore, S., Kaur, P., Rani, A., dan Ray, P., 2016, Penetration Barrier Contributes to Bacterial Biofilm-Associated Resistance against only Select Antibiotics, and Exhibits Genus-, Strain- and Antibiotic-Specific Differences, *Pathog. Dis.*, 74, 1-6.



Sitjà, C. dan Maldonado, M., 2014, New and Rare Sponges from The Deep Shelf of The Alboran Island (Alboran Sea, Western Mediterranean), *Zootaxa*, 3760(2), 141-179.

Suerbaum, S., Burchard, G-D., Kaufmann, S.H.E., dan Shulz, T.F., 2016, *Medizinische Mikrobiologie und Infektiologie, 8. Ausgabe*, Springer Verlag, Berlin.

Trianto, A., Widyaningsih, S., Radjasa, O.K., dan Pribadi, R., 2017, Symbiotic Fungus of Marine Sponge Axinella sp. Producing Antibacterial Agent, *IOP Conf. Series: Earth and Environmental Science*, 55, 1-7.

Van Bambeke, F., Mingeot-Leclercq, M-P., Glupczynski, Y., dan Tulkens, P.M., 2017, *Infectious Diseases: Mechanisms of Action*, Elsevier, Amsterdam, 1162-1180.

Wang, L., Fan, D., Chen, W., dan Terentjev, E.M., 2015, Bacterial Growth, Detachment and Cell Size Control on Polyethylene Terephthalate Surfaces, *Scientific Report*, 5(15159), 1-11.

World Health Organization, 2018, High Levels of Antibiotic Resistance Found Worldwide, <https://www.who.int/news-room/detail/29-01-2018-high-levels-of-antibiotic-resistance-found-worldwide-new-data-shows>. Diakses 12 Januari 2020 pukul 15:48.

Wright, G.D., 2014, Something Old, Something New: Revisiting Natural Products in Antibiotic Drug Discovery, *Can. J. Microbiol.*, 60, 147-154.

Xie, L.W., Jiang, S.M., Zhu, H.H., Sun, W., Ouyang, Y.C., Dai, S.K., dan Li, X., 2008, Potential Inhibitors against *Sclerotinia sclerotiorum*, Produced by The Fungus *Myrothecium* sp. Associated with The Marine Sponge *Axinella* sp., *Eur. J. Plant. Pathol.*, 122, 571-578.

Yasman, Y., 2006, Structure Elucidation, Biological Activity, and Ecology of Terpene Isocyanides from Phyllidiid species (Nudibranchia) and Their Sponge Preys from The Thousand Islands National Park, Indonesia, *Disertasi*, Heinrich-Heine Universität, Düsseldorf.

Yuan, H., Ma, Q., Cui, H., Liu, G., Zhao, X., Li, W., dan Piao, G., 2017, How Can Synergism of Traditional Medicines Benefit from Network Pharmacology?, *Molecules*, 22(7), 1-19.

Yulianty R., Rante, H., Alam, G., dan Tahir, A., 2011, Skrining dan Analisis KLT-Autobiografi Senyawa Antimikroba Beberapa Spons Asal Perairan Laut Pulau Barrang Lombo, Sulawesi Selatan, *Trad. Med. J.*, 16(2), 88-94.



UNIVERSITAS
GADJAH MADA

ISOLASI DAN IDENTIFIKASI AGEN ANTIBAKTERI DARI EKSTRAK MIKROORGANISME YANG
BERASOSIASI DENGAN SPONS

LAUT Axinella sp. ASAL PERAIRAN KUPANG, NUSA TENGGARA TIMUR

ANGGIA RIANISARI S, Respati Tri Swasono, M.Phil., Ph.D.;Tri Joko Raharjo, M.Si., Ph.D.

Universitas Gadjah Mada, 2021 | Diunduh dari <http://etd.repository.ugm.ac.id/>

Zhang, H., Zhao, Z., dan Wang, H., 2017, Cytotoxic Natural Products from Marine
Sponge-Derived Microorganisms, *Mar. Drugs*, 15, 3-10.

Zubair, M.S., Lallo, S., Putra, M.Y., Hadi, T.A., dan Jantan, I., 2018, Antibacterial
and Cytotoxic Activities of Sponges Collected off the Coast of Togean
Islands, Indonesia, *Pharmacogn. J.*, 10(4), 988-992.