

DAFTAR PUSTAKA

- Abdelrahman, S. M., Dosoky, N. S., Hanora, A. M., & Lopanik, N. B. (2022). Metabolomic Profiling and Molecular Networking of Nudibranch- Associated *Streptomyces* sp. SCSIO 001680. *Molecules*, 27(14). <https://doi.org/10.3390/molecules27144542>
- Abdelrahman, S. M., Patin, N. V., Hanora, A., Aboseidah, A., Desoky, S., Desoky, S. G., & Lopanik, N. B. (2021). The natural product biosynthetic potential of Red Sea nudibranch microbiomes. *PeerJ*, 9, e10525.
- Afni, F., Purwaningsih, S., Nurilmala, S., dan Peranginangin, M. (2017). Produksi alginate oligosaccharides (AOS) sebagai bahan prebiotik menggunakan enzim alginat liase. *Jurnal Pengolahan Hasil Perikanan Indonesia*. 20(1): 109-122
- Afriansyah, M. A., Kamaruddin, M., Ethica, S. N., & Aprianti, N. F. (2021). Aktivitas Anti-Biofilm Bakteri Dari Produk Alga Coklat *Dictyota* sp. *Medika Alkhairaat: Jurnal Penelitian Kedokteran dan Kesehatan*, 3(3), 89-93.
- Alkawash, M. A., Soothill, J. S., & Schiller, N. L. (2006). Alginat liase enhances antibiotic killing of mucoid *Pseudomonas aeruginosa* in biofilms. *APMIS*, 114(2). <https://doi.org/10.1111/j.1600-0463.2006.apm.356.x>
- Amelia, J. M., Prasetya, I. N. D., dan Setiabudi, G. I. (2022). "Keanekaragaman dan Kelimpahan Nudibranch di Pantai Perimbangan Buleleng Bali". *Journal of Marine Research*, vol. 11(3), hh. 399-408.
- Archer, N.K., Mazaitis, M.J., Costerton, J.W., Leid, J.G., Powers, M.E., dan Shirtliff, M.E., (2011). *Staphylococcus aureus* biofilms: properties, regulation, and roles in human disease. *Virulence*, 2: 445–459.
- Arnaouteli, S., Bamford, N. C., Stanley-Wall, N. R., & Kovács, Á. T. (2021). *Bacillus subtilis* biofilm formation and social interactions. *Nature Reviews Microbiology*, 19(9), 600-614.
- Bahar, M., Yusmaini, H., Fauziah, C., & Zulfa, F. (2020). Potential of Actinomycetes to inhibit the biofilm formation of *Escherichia coli* ATCC 25922. *Indonesian Journal of Biotechnology and Biodiversity*, 4(1), 44-51.

- Belik, A. A., Silchenko, A. S., Kusaykin, M. I., Zvyagintseva, T. N., & Ermakova, S. P. (2018). Alginate lyases: Substrates, structure, properties, and prospects of application. *Russian Journal of Bioorganic Chemistry*, 44, 386-396.
- Berberophonos, G., Nyerere, A., Bii, C., & Sbhatu, D. B. (2019). Challenges of intervention, treatment, and antibiotic resistance of biofilm-forming microorganisms. *Heliyon*, 5(8).
- Berdy, J. (2005). Bioactive Microbial Metabolites. *The Journal of Antibiotics*, 58(1), 1–26. <https://doi.org/10.1038/ja.2005.1>
- Chaudhari, Y., Bahuguna, Y. M., Mody, H. R., Kokardekar, R. R., & Paranjpe, P. P. (2010). Marine enzymes and their potential. *Drug Invention Today*, 2(9).
- Chen, L., Deng, H., Cui, H., Fang, J., Zuo, Z., Deng, J., Li, Y., Wang, X., & Zhao, L. (2018). Inflammatory responses and inflammation-associated diseases in organs. In *Oncotarget* (Vol. 9, Issue 6). <https://doi.org/10.18632/oncotarget.23208>
- Cheng, D., Jiang, C., Xu, J., Liu, Z., & Mao, X. (2020). Characteristics and applications of alginate lyases: A review. *International Journal of Biological Macromolecules*, 164, 1304-1320.
- Cho, H. A., Kim, H. W., & Kim, Y. M. (2021). Isolation and characterization of novel alginate-degrading *Pseudoalteromonas* sp. Y-4. *Fisheries and aquatic sciences*, 15(3), 259-263.
- Cordeiro L, Figueiredo P, Souza H, Sousa A, Andrade-Junior F, Barbosa-Filho J and Lima E. (2020). Antibacterial and Antibiofilm Activity of Myrtenol Against *Staphylococcus aureus*. *Pharmaceuticals*. 13(6):133
- Dahl JL, Gatlin W, Tran PM, Sheik CS. 2021. *Mycolicibacterium nivoides* sp. nov isolated from a peat bog. *International Journal of Systematic And Evolutionary Microbiology*. 71:1-6.
- Dapunt, U., Gaida, M. M., Meyle, E., Prior, B., & Hänsch, G. M. (2016). Activation of phagocytic cells by *Staphylococcus epidermidis* biofilms: effects of extracellular matrix proteins and the bacterial stress protein GroEL on netosis and MRP-14 release. *FEMS Pathogens and Disease*, 74(5), ftw035.
- Denissen, J., Reyneke, B., Waso-Reyneke, M., Havenga, B., Barnard, T., Khan, S., & Khan, W. (2022). Prevalence of ESKAPE pathogens in the environment: Antibiotic resistance status, community-acquired infection and risk to human health. In *International Journal of Hygiene*

and Environmental Health (Vol. 244).
<https://doi.org/10.1016/j.ijheh.2022.114006>

Dharmaraj, S. (2010). Marine Streptomyces as a novel source of bioactive substances. *World Journal of Microbiology and Biotechnology*, 26, 2123-2139.

Elfeky, H. H., Hanora, A., & Solyman, S. M. (2023). Bioactivity of bacteria associated with Red Sea nudibranchs and whole genome sequence of *Nocardiopsis dassonvillei* RACA-4. *Marine Genomics*, 67. <https://doi.org/10.1016/j.margen.2022.101004>

Faucci, A., Toonen, R. J., & Hadfield, M. G. (2007). Host shift and speciation in a coral-feeding nudibranch. *Proceedings of the Royal Society B: Biological Sciences*, 274(1606), 111-119.

Fauzia, K. A., Miftahussurur, M., Syam, A. F., Waskito, L. A., Doohan, D., Rezkitha, Y. A. A., & Yamaoka, Y. (2020). Biofilm formation and antibiotic resistance phenotype of *Helicobacter pylori* clinical isolates. *Toxins*, 12(8), 473.

Gao, X., Yao, S., Huang, P., Joachim, V., & Wang, J. (2018). Purification and identification of surfactin isoforms produced by *Bacillus subtilis* B2 strain. *Wei Sheng wu xue bao = Acta Microbiologica Sinica*, 43(5), 647-652.

Garcia, J. R., and Gerardo, N. M. (2014). "The Symbiont Side of Symbiosis: Do Microbes Really Benefit?" *Frontiers in microbiology*, vol. 5, hh.510.

Gebreyohannes, G., Nyerere, A., Bii, C., & Sbhatu, D. B. (2019). Challenges of intervention, treatment, and antibiotic resistance of biofilm-forming microorganisms. *Heliyon*, 5(8).

Gonzalez JF, Hahn MM, and Gunn JS. (2018). Chronic biofilm-based infections: skewing of the immune response. *Pathogens and disease*, 76(3).

Gozion, A., Rudyanti, S., & Suryanti, S. (2022). Hubungan Kandungan Bahan Organik Sedimen dengan Kelimpahan Nudibranchia di Perairan Panjang Kabupaten Jepara Jawa Tengah. *Jurnal Akuatiklestari*, 6(1), 33-41.

Gunawan, C., Upa, M., Basri, E. (2011). Gugusan Perairan Kapoposan Surga Kecil Di Pusat Coral Triangle. Jakarta. ProGram Rehabilitasi dan Pengelolaan Terumbu Karang (COREMAP II) Direktorat Jenderal Kelautan, Pesisir dan Perairan-perairan Kecil Kementerian

Kelautan dan Perikanan

- Gupta, A. K., & Chow, M. (2003). Pimecrolimus: A review. In *Journal of the European Academy of Dermatology and Venereology* (Vol. 17, Issue 5). <https://doi.org/10.1046/j.1468-3083.2003.00692.x>
- Gutierrez TJ. (2019). Antibiofilm enzymes as an emerging technology for food quality and safety in *Enzymes in Food Biotechnology*. Academic Press. 321-342
- Hamzah H, Hertiani T, Pratiwi SUT, Nuryastuti T. (2019). The Inhibition Activity of Tanin on the Formation of Mono-Species and Polymicrobial Biofilm *Escherichia coli*, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Candida albicans*, *Trad MEd. J*, 24 (2): 110-118.
- Haque, N., Parveen, S., Tang, T., Wei, J., & Huang, Z. (2022). Marine Natural Products in Clinical Use. In *Marine Drugs* (Vol. 20, Issue 8). <https://doi.org/10.3390/md20080528>
- Hatch, R. A., & Schiller, N. L. (1998). Alginate lyase promotes diffusion of aminoglycosides through the extracellular polysaccharide of mucoid *Pseudomonas aeruginosa*. In *Antimicrobial Agents and Chemotherapy* (Vol. 42, Issue 4). <https://doi.org/10.1128/aac.42.4.974>
- Huang, L., Zhou, J., Li, X., Peng, Q., Lu, H., & Du, Y. (2013). Characterization of a new alginate lyase from newly isolated *Flavobacterium* sp. S20. *Journal of industrial microbiology and biotechnology*, 40(1), 113-122.
- Isnaeni, N. Fakultas Matematika Dan Ilmu Pengetahuan Alam Program Studi Magister Kimia (2020).
- Jamal, Yousif, A., M. A., & Raad, I. (2015). Biofilm-based central line associated bloodstream infections. *Biofilm-based Healthcare-associated Infections: Volume I*, 157-179.
- Ji, S., Dix, S. R., Aziz, A. A., Sedelnikova, S. E., Baker, P. J., Rafferty, J. B., & Rice, D. W. (2019). The molecular basis of endolytic activity of a multidomain alginate lyase from *Defluviitalea phaphyphila*, a representative of a new lyase family, PL39. *Journal of Biological Chemistry*, 294(48), 18077-18091.
- Kaligis, F., Eisenbarth, J. H., Schillo, D., Dialao, J., Schäberle, T. F., Böhringer, N., ... & Wägele, H. (2018). Second survey of heterobranch sea slugs (Mollusca, Gastropoda, Heterobranchia)

from Bunaken National Park, North Sulawesi, Indonesia-how much do we know after 12 years?. *Marine Biodiversity Records*, 11(1), 1-20.

Kamala, K., & Sivaperumal, P. (2017). Biomedical Applications of Enzymes From Marine Actinobacteria. In *Advances in Food and Nutrition Research* (Vol. 80). <https://doi.org/10.1016/bs.afnr.2016.11.002>

Kamaruddin M, Marzuki I, Burhan A, dan Ahmad R. (2021). Screening acetylcholinesterase inhibitors from marine-derived actinomycetes by simple chromatography. *IOP Conf Ser Earth Environ Sci*. 679(1)

Kamisyah, S., Sapar, A., Brilliantoro, R., & Sayekti, E. (2020). Isolasi dan karakterisasi alginat dari rumput laut (*Sargassum polycystum*) asal perairan Singkawang Kalimantan Barat. *Jurnal Kimia Khatulistiwa*, 8(3).

Karuru, M. A. (2017). *Keanekaragaman Dan Kelimpahan Relatif Nudibranchia Di Pantai Krakal, Gunungkidul, Yogyakarta* (Doctoral dissertation, UAJY).

Karyani, S., Inayati, N., & Dewi, L. B. K. (2023). Pengaruh Lama Inkubasi Terhadap Produksi Biofilm Secara In Vitro oleh *Staphylococcus aureus* yang Diisolasi dari Pasien Infeksi Saluran Kencing yang Menjalani Perawatan RSUD Provinsi NTB. *Journal of Indonesia Laboratory Students (JILTS)*, 2(2), 1-5.

Kawamoto, H., Horibe, A., Miki, Y., Kimura, T., Tanaka, K., Nakagawa, T., Kawamukai, M., & Matsuda, H. (2016). Cloning and sequencing analysis of alginate lyase genes from the marine bacterium *Vibrio* sp. O2. *Marine Biotechnology*, 8, 481–490.

Kim, D.E., Lee, E.Y., & Kim, H.S. (2009). Cloning and characterization of alginate lyase from a marine bacterium *Streptomyces* sp. ALG-5. *Marine Biotechnology*. 11, 10–16.

Kim, H. S., Lee, C. G., & Lee, E. Y. (2018). Alginate lyase: Structure, property, and application. *Biotechnology and bioprocess engineering*, 16, 843-851.

Krisandi, G., & Parawangsa, A. (2021). Potensi Senyawa Derivat 2-Aminoimidazole Sebagai Agen Ajuvan Terhadap Infeksi Multidrug-Resistant *Acinetobacter Baumannii* Melalui Sifat Antibiofilm Dan Resensitisasi Antibiotik. *JIMKI: Jurnal Ilmiah Mahasiswa Kedokteran Indonesia*, 8(3), 146-157.

- Kristiana, R., Sibero, M. T., Yohannafarisa, M., Ayuningrum, D., Dirgantara, D., Hanafi, M., Radjasa, O. K., Agussabdono, and Trianto, A. (2019). "Antibacterial Potential of Nudibranch-Associated Bacteria from 60 Saparua and Nusa Laut Islands, Indonesia". *BIODIVERSITAS*, vol. 20(7), hh. 1811-1819.
- Krsmanovic, M., Biswas, D., Ali, H., Kumar, A., Ghosh, R., & Dickerson, A.K. (2021). Hydrodynamics and surface properties influence biofilm proliferation. *Advances in Colloid and Interface Science*, 288, 102336.
- Lampp, J. W., & Griswold, K. E. (2013). Alginat liase exhibits catalysis-independent biofilm dispersion and antibiotic synergy. *Antimicrobial Agents and Chemotherapy*, 57(1).
<https://doi.org/10.1128/AAC.01789-12>
- Lehninger, AL. (2019). *Dasar-dasar Biokimia* Jilid 1. Alih bahasa Thenawidjaja, Maggy. Jakarta: Erlangga.
- Li, J. W., Dong, S., Song, J., Li, C. B., Chen, X. L., Xie, B. B., & Zhang, Y.Z. (2011). Purification and characterization of a bifunctional alginat liase from *Pseudoalteromonas* sp. SM0524. *Marine drugs*, 9(1), 109-123.
- Madigan, M.T., Martinko, J.M., Stahl, D.A., Clark, D.P., (2020). *Brock Biology of Microorganisms*, 13th Edition, Benjamin Cummings, San Francisco 134-139.
- Maiorana, A., Bugli, F., Papi, M., Torelli, R., Clasca, G., Maulucci, G., Palmieri, V., Cacaci, M., Paroni Sterbini, F., Posteraro, B.,
- Manivasagan, P., Kang, K. H., Sivakumar, K., Li-Chan, E. C. Y., Oh, H. M., & Kim, S. K. (2014). Marine actinobacteria: An important source of bioactive natural products. In *Environmental Toxicology and Pharmacology* (Vol. 38, Issue 1).
<https://doi.org/10.1016/j.etap.2014.05.014>
- Mantiri, I. K., Lintang, R. A., Boneka, F. B., Wagey, B. T., Wantasen, A., & Ompi, M. (2021). Keragaman kelinci laut (Nudibranchia) di Perairan Laut Sulawesi Utara. *Jurnal Pesisir Dan Laut Tropis*, 9(2), 86-94.
- Marpaung, Y. S. P. H., Ompi, M., Manembu, I., Roeroe, K. A., Mamangkey, N. G. F., & Lumingas, L. (2019). Keragaman Substrat Bagi Nudibranch Di Selat Lembeh. *Program Studi Ilmu Kelautan, Fakultas Perikanan dan Ilmu Kelautan, Universitas Sam Ratulangi, Manado, Sulawesi Utara*.

- Marzuki, I., Kamaruddin, M., dan Ahmad, R. (2021). Identification of marine sponges-symbiotic bacteria and their application in degrading polycyclic aromatic hydrocarbons. *Biodiversitas*. 22(3): 1481-1488
- Moteeb, S. H. (2018). Quantitative and qualitative assays of bacterial biofilm produced by *Pseudomonas aeruginosa* and *Klebsiella* spp. *J. Al-anbar Univ. pure sci*, 2(3), 6-13.
- Muhammad MH, Idris AL, Fan X, Guo Y, Yu Y, Jin X, and Huang T. (2020). Beyond risk: Bacterial biofilms and their regulating approaches. *Frontiers in microbiology*. 11, 928
- Mukhtar, S., Zaheer, A., Alysha, D., Abdulla Malik, K., & Mehnaz, S. (2017). Actinomycetes: A Source of Industrially Important Enzymes. *Journal of Proteomics & Bioinformatics*, 10(12). <https://doi.org/10.4172/jpb.1000456>
- Murtiyaningsih, H., & Hazmi, M. (2017). Isolasi dan uji aktivitas enzim selulase pada bakteri selulolitik asal tanah sampah. *Agritrop: Jurnal Ilmu-Ilmu Pertanian (Journal of Agricultural Science)*, 15(2).
- Nadhirah, A. P. (2019). Uji Potensi Ekstrak Etanol Daun Kelor (*Moringa oleifera*) Sebagai Penghambat Pembentukan Biofilm *Pseudomonas aeruginosa* Secara In Vitro (Doctoral dissertation, Universitas Brawijaya).
- National Institutes of Health. (2015). Minutes of the National Advisory Dental and Craniofacial Research Council–153rd Meeting. Available at: www.nidcr.nih.gov/AboutNIDCR/CouncilAndCommittees/NADCRC/Minutes/Minutes53.html. (Diakses 24 September 2023)
- Nguyen, T. H., & Nguyen, V. D. (2017). Characterization and applications of marine microbial enzymes in biotechnology and probiotics for animal health. In *Advances in food and nutrition research* (Vol. 80, pp. 37-74). Academic Press.
- Nikolic, M., Vasic S., Durdevic J., Stefanovic O., Comic L. (2014). Antibacterial and Anti-Biofilm Activity of Ginger (*Zingiber officinale* (Roscoe)) Ethanolic Extract, Kragujevac. *Journal Sciences*, 36: 129-136
- Ompi, M., Lumoindong, F., Undap, N., Papu, A., & Wägele, H. (2019). Monitoring marine heterobranchia in lembah strait, north sulawesi (Indonesia), in a changing environment. *Aquaculture, Aquarium, Conservation & Legislation*, 12(2), 664-677.

- Paleczny, Justyna et al. "The High Impact of *Staphylococcus aureus* Biofilm Culture Medium on In Vitro Outcomes of Antimicrobial Activity of Wound Antiseptics and Antibiotic." *Pathogens* (Basel, Switzerland) vol. 10,11 1385. 26 Oct. 2021, doi:10.3390/pathogens1011138
- Park, S. R., Tripathi, A., Wu, J., Schultz, P. J., Yim, I., McQuade, T. J., Yu, F., Arevang, C. J., Mensah, A. Y., Tamayo-Castillo, G., Xi, C., & Sherman, D. H. (2016). Discovery of cahuitamycins as biofilm inhibitors derived from a convergent biosynthetic pathway. *Nature Communications*, 7. <https://doi.org/10.1038/ncomms10710>
- Penesyan, A., Paulsen, I. T., Kjelleberg, S., & Gillings, M. R. (2021). Three faces of biofilms: a microbial lifestyle, a nascent multicellular organism, and an incubator for diversity. *npj Biofilms and Microbiomes*, 7(1), 80.
- Permenkes, R. I. (2011). Peraturan Menteri Kesehatan Republik Indonesia Nomor 1691/Menkes/Per/VII/2011 Tentang Keselamatan Pasien Rumah Sakit. Jakarta: Menteri Kesehatan RI.
- Pratama, H. S., Lokapirnasari, W. P., Soeharsono, S., Al-Arif, M. A., Harijani, N., & Hidanah, S. (2021). Effect of Probiotics *Bacillus Subtilis* on Feed Efficiency and Egg Mass of Laying Hens. *Jurnal Medik Veteriner*, 4(1), 37-41.
- Pritchard, M. F., Powell, L. C., Jack, A. A., Powell, K., Beck, K., Florance, H., Forton, J., Rye, P. D., Dessen, A., Hill, K. E., & Thomas, D. W. (2017). A low-molecular-weight algal oligosaccharide disrupts pseudomonal microcolony formation and enhances antibiotic effectiveness. *Antimicrobial Agents and Chemotherapy*, 61(9). <https://doi.org/10.1128/AAC.00762-17>
- Putra, D. P., & Kusmiati, T. (2015). Manajemen Pemberian Antibiotik dengan Hasil Uji Kepekaan Resisten. *J Respirasi*, 1(1), 7-14.
- Raja, A., & Prabakaran, P. (2011). Actinomycetes and Drug-An Overview. *American Journal of Drug Discovery and Development*, 1(2), 75–84. <https://doi.org/10.3923/ajdd.2011.75.84>
- Ramadhan, E. M., Abou-taleb, K.A., Galal, G.F., & Abdel-Hamid, N.S. (2017). Antibacterial, Antibiofilm and Antitumor Activities of Grape and Mulberry Leaves Ethanolic Extracts towards bacterial Clinical Strain. *Annals of Agricultural Science*, 151-159
- Rice, S. A., Tan, C. H., Mikkelsen, P. J., Kung, V., Woo, J., Tay, M., & Kjelleberg, S. (2019). The biofilm life cycle and virulence of

- Pseudomonas aeruginosa* are dependent on a filamentous prophage. *The ISME journal*, 3(3), 271-282.
- Rola, M., Frankenbach, S., Bleidissel, S., Sickinger, C., Donath, A., Frommlet, J. C., & Christa, G. (2022). *Cladobranchia* (Gastropoda, Nudibranchia) as a promising model to understand the molecular evolution of photosymbiosis in animals. *Frontiers in Marine Science*, 8, 745644.
- Rosyid, A., Krisanti, M., & Yulianto, G. (2022). Kelimpahan dan Keanekaragaman Siput Laut Opisthobranch di Bangsring Underwater dan Perairan Tabuhan, Banyuwangi. *JST (Jurnal Sains dan Teknologi)*, 11(1), 213-222.
- Rumbaugh, K. P., & Sauer, K. (2020). Biofilm dispersion. *Nature Reviews Microbiology*, 18(10), 571-586.
- Sabdono, A., Radjasa, O. K., Trianto, A., Sibero, M. T., Martynov, A., & Kristiana, R. (2021). An Ecological Assessment of Nudibranch Diversity Among Habitats Receiving Different Degrees of Sedimentation in Jepara Coastal Waters, Indonesia. *International Journal of Conservation Science*, 12(1).
- Safitri, Y. B. (2023). Studi Bakteri Simbion *Sargassum Polycystum* Penghasil Enzim Alginat Lyase Dari Perairan Lampung: Penapisan, Karakterisasi Dan Identifikasi (Doctoral dissertation, UNIVERSITAS LAMPUNG).
- Safitri, Y. B., Setiawan, A., Juliasih, N. L. G. R., Widasuti, E. L., & Susanto, G. N. (2023). Isolasi, Karakterisasi, dan Identifikasi Bakteri Endofit *Sargassum polycystum* Penghasil Enzim Alginat Lyase. *Journal of Tropical Marine Science*, 6(1), 38-44.
- Sanguinetti, M., & De Spirito, M. (2015). Effect of Alginat liase on Biofilm-Grown *Helicobacter pylori* Probed by Atomic Force Microscopy. *International Journal of Polymer Science*, 2015. <https://doi.org/10.1155/2015/989516>
- Sastrohamidjojo H. 2021. *Kimia Organik*. Yogyakarta: Gajah Mada University Press.
- Sauer, K., Stoodley, P., Goeres, D. M., Hall-Stoodley, L., Burmølle, M., Stewart, P. S., & Bjarnsholt, T. (2022). The biofilm life cycle: Expanding the conceptual model of biofilm formation. *Nature Reviews Microbiology*, 20(10), 608-620.
- Silva, A. S., Camargo, F. A. D. O., Andreazza, R., Jacques, R. J. S.,

- Baldoni, D. B., & Bento, F. M. (2012). Enzymatic activity of catechol 1, 2- dioxygenase and catechol 2, 3-dioxygenase produced by *Gordonia polyisoprenivorans*. *Quimica Nova*, 35, 1587-1592.
- Subaryono, S., Peranginangin, R., Suhartono, M. T., & Zakaria, F. R. (2015). Isolasi dan Identifikasi Bakteri Penghasil Alginat Lyase dari Rumput Laut *Sargassum crassifolium*. *Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan*, 10(1), 1-9.
- Sudiana, Rahayu, Imaduddin, dan Rahmansyah. 2001. Cellulolytic Bacteria of Soil of Gunung Halimun Nasional Park. *Berita Biologi*. 5(6):703-710.
- Sumbono, A. (2021). *Enzim Seri Biokimia Pangan Dasar*. Deepublish.
- Swinnen, I. A. M., K. Bernaerts, E. J. J. Dens, A. H. Geeraerd, and J. F. V. Impe. 2004. Predictive modelling of the microbial lag phase: a review. *Int. J. Food Microbiol.* 94:137–159. <https://doi.org/10.1016/j.ijfoodmicro.2004.01.006>
- Tavafi, H., Abdi Ali, A., Ghadam, P., dan Gharavi S. (2017). Screening of alginate Lyase-Producing Bacteria and optimization of media compositions for extracellular alginate Lyase production. *Iran Biomed Journal*. 21(1): 48-56.
- Vera, J., Castro, J., Gonzalez, A., & Moenne, A. (2011). Seaweed polysaccharides and derived oligosaccharides stimulate defense responses and protection against pathogens in plants. *Marine drugs*, 9(12), 2514-2525.
- Verawati, I. (2015). "Identifikasi Molekuler, Keragaman Genetik Dan Karakteristik Habitat Siput Laut (Nudibranchia) Dari Beberapa Populasi Di Indonesia (Skripsi Sarjana). Departemen Ilmu dan Teknologi Kelautan, Fakultas Perikanan dan Ilmu Kelautan, Institut Pertanian Bogor
- Wang, M., Chen, L., & Zhang, Z. (2021). Potential applications of alginate oligosaccharides for biomedicine—A mini review. *Carbohydrate Polymers*, 271, 118408.
- Wang, R., Li, H., Qin, Z., Wang, Y., Yang, Q., Zhang, H., & Li, M. (2023). Antifungal activity and application of *Bacillus tequilensis* A13 in biocontrol of *Rehmannia glutinosa* root-rot disease. *Chemical and Biological Technologies in Agriculture*, 10(1), 1-12.
- Wolter LA, Suenami S, Miyazaki R. 2021. *Frischella japonica* sp. nov., an anaerobic member of the Orbales in the Gammaproteobacteria,

isolated from the gut of the eastern honey bee, *Apis cerana japonica* Fabricius. *International Journal of Systematic and Evolutionary Microbiology* 1-6.

World Health Organization (WHO). (2012). Global strategy for resistance prevention and control 2012-2020.

World Health Organization (WHO). (2019) New report calls for urgent action to avert antimicrobial resistance crisis, World Health Organization. World Health Organization. Available at: <http://www.who.int/news/item/29-04-2019-new-report-calls-for-urgent-action-to-avert-antimicrobial-resistance-crisis> (Diakses pada 24 september 2023).

Xiang, Y., Shao, Z., Chai, H., Ji, F., & He, Q. (2020). Functional microorganisms and enzymes related nitrogen cycle in the biofilm performing simultaneous nitrification and denitrification. *Bioresource Technology*, 314, 123697.

Yan L, She Y, Elzo MA, Zhang C, Fang X, Chen H. 2019. Exploring genetic diversity and phylogenetic relationships of Chinese cattle using gene mtDNA 16S rRNA. *Archives Animal Breeding* 62:325-333. <https://doi.org/10.5194/aab62-325-2019>

Yiu, S. K. F., Chung, S. S. W., & Qiu, J. W. (2021). New observations on the corallivorous nudibranch *Phestilla melanobranchia*: Morphology, dietary spectrum and early development. *Journal of Molluscan Studies*, 87(4), eyab034.

Yonow, N. (2020). Red Sea Opisthobranchia 6: Phyllidiidae and their paradorid mimic: new species and new records (Heterobranchia, Nudibranchia, Doridina). *ZooKeys* 1006: 1–34.

Yulianti, E., Rakhmawati, A., & Pertiwi, K. R. Optimasi Produksi Senyawa Antimikrobia Pada Cell Free Extract Hasil Fermentasi Bakteri Termofilik Pasca Erupsi Merapi Optimization Of Antimicrobial Substance Production In Cell Free Extract From Thermophylic Bacteria Fermentation After Merapi.

Zhang, F., Fu, Z., Tang, L., Zhang, Z., Han, F., & Yu, W. (2021). Biochemical characterization of a novel exo-type PL7 alginat liase VsAly7D from marine *Vibrio* sp. QY108. *International Journal of Molecular Sciences*, 22(16), 8402.

Zhou, H. X., Xu, S. S., Yin, X. J., Wang, F. L., & Li, Y. (2020). Characterization of a new bifunctional and cold-adapted polysaccharide lyase (PL) family 7 alginat liase from *Flavobacterium*

sp. *Marine drugs*, 18(8), 388.

Zhu, B., & Yin, H. (2015). Alginat liase: Review of major sources and classification, properties, structure-function analysis and applications. *Bioengineered*, 6(3), 125-131.

Zhu, X., Li, X., Shi, H., Zhou, J., Tan, Z., Yuan, M., & Liu, X. (2018). Characterization of a novel alginat liase from marine bacterium *Vibrio furnissii* H1. *Marine drugs*, 16(1), 30

Zilda, D. S., Yulianti, Y., Sholihah, R. F., Subaryono, S., Fawzya, Y. N., & Irianto, H. E. (2019). A novel *Bacillus* sp. isolated from rotten seaweed: Identification and characterization alginat lyase its produced. *Biodiversitas Journal of Biological Diversity*, 20(4), 1166-1172.

