

DAFTAR PUSTAKA

- Aboelnaga, N., Elsayed, S. W., Abdelsalam, N. A., Salem, S., Saif, N. A., Elsayed, M., Ayman, S., Nasr, M., dan Elhadidy, M. 2024. Deciphering the dynamics of *methicillin-resistant Staphylococcus aureus* biofilm formation: from molecular signaling to nanotherapeutic advances. *Cell Communication and Signaling*. **22**(1): 1–28.
- Adimpong, D. B., Sørensen, K. I., Thorsen, L., Stuer-Lauridsen, B., Abdelgadir, W. S., Nielsen, D. S., Derkx, P. M. F., dan Jespersen, L. 2012. Antimicrobial susceptibility of *Bacillus* strains isolated from primary starters for African traditional bread production and characterization of the bacitracin operon and bacitracin biosynthesis. *Applied and Environmental Microbiology*. **78**(22): 7903–7914.
- Aguilar, A. C. C., Parisi, J. R., Granito, R. N., de Sousa, L. R. F., Renno, A. C. M., dan Gazarini, M. L. 2021. Metabolites from Marine Sponges and Their Potential to Treat Malarial Protozoan Parasites Infection: A Systematic Review. *Marine Drugs*. **19**(3).
- Aguilar, G. L.-, López, A. M. S.-, Aceituno, C. B.-, Ávila, J. A. C.-, Guerrero, J. A. L.-, dan Quesada, R. A.-. 2016. DNA Source Selection for Downstream Applications Based on DNA Quality Indicators Analysis. *Biopreservation and Biobanking*. **14**(4): 264–270.
- Åhman, J., Matuschek, E., dan Kahlmeter, G. 2022. Evaluation of ten brands of pre-poured Mueller-Hinton agar plates for EUCAST disc diffusion testing. *Clinical Microbiology and Infection*. **28**(11): 1499.e1-1499.e5.
- Akihary, C. V. dan Kolondam, B. J. 2020. Pemanfaatan Gen 16S rRNA sebagai Perangkat Identifikasi Bakteri untuk Penelitian-Penelitian di Indonesia. *Pharmacon*. **9**(1): 16.
- Al-Kadmy, I. 2022. Streak Plate Method- Principle, Types, Methods, Uses. *Microbe Notes*. 1–6.
- Algammal, A. M., Hetta, H. F., Elkelish, A., Alkhalifah, D. H. H., Hozzein, W. N., Batiha, G. E. S., Nahhas, N. El, dan Mabrok, M. A. 2020. *Methicillin-resistant staphylococcus aureus* (MRSA): One health perspective approach to the bacterium epidemiology, virulence factors, antibiotic-resistance, and zoonotic impact. *Infection and Drug Resistance*. **13**: 3255–3265.
- Alobaidallah, M. S. A., García, V., Wellner, S. M., Thomsen, L. E., Herrero-Fresno, A., dan Olsen, J. E. 2024. Enhancing the Efficacy of Chloramphenicol Therapy for *Escherichia coli* by Targeting the Secondary Resistome. *Antibiotics*. **13**(1).
- Anteneh, Y. S., Yang, Q., Brown, M. H., dan Franco, C. M. M. 2021. Antimicrobial activities of marine sponge-associated bacteria. *Microorganisms*. **9**(1): 1–19.
- Ardic, E., Doğan, M., Kıraz, N., dan Erdem, İ. 2025. Retrospective Assessment of the Treatment Effectiveness of β -lactam / β -lactamase Inhibitor and Carbapenem Groups Antibiotics in Upper Urinary Tract Infections Caused by Extended Spectrum β -lactamase Producing *Escherichia coli* and *Klebsiella*. *Nam Kem Med J*. **13**(1): 54–61.
- Arie, A. K., Lintang, R. A. J., Mangindaan, R. E. P., Windarto, A. B., Losung, F.,

- dan Longdong, S. N. J. 2020. Isolasi dan Skrining Aktivitas Antibakteri dari Bakteri Simbion Nudibranchia *Phyllidiella pustulosa* dan *Thuridilla lineolata*. *Jurnal Pesisir Dan Laut Tropis*. **8**(2): 40.
- Ayuningrum, D., Kristiana, R., dan Asagabaldan, M. A. 2020. Potensi Bakteri Asosiasi Tunikata Sebagai Penghasil Senyawa Antibakteri Guna Menghambat Pertumbuhan Bakteri Multidrug Resistant. *Jurnal Pasir Laut*. **4**(2): 102–107.
- Azzami, F. M., Trianto, A., dan Sabdono, A. 2022. Penapisan Aktivitas Antibakteri Dari Bakteri Asosiasi Spons Terhadap MRSA (*Methicillin-resistant Staphylococcus aureus*). *Journal of Marine Research*. **11**(2): 208–216.
- Barbosa, T. M., Phelan, R. W., Leong, D., Morrissey, J. P., Adams, C., Dobson, A. D. W., dan O’Gara, F. 2014. A novel erythromycin resistance plasmid from *Bacillus* sp. strain HS24, isolated from the marine sponge *Haliclona simulans*. *PLoS ONE*. **9**(12): 1–11.
- Bertolino, M., Costa, G., Bavestrello, G., Pansini, M., dan Daneri, G. 2020. New Sponge Species from Seno Magdalena, *Puyuhuapi fjord* and *Jacaf canal* (Chile). *European Journal of Taxonomy*. **2020**(715): 1–49.
- Bharadwaj, A., Rastogi, A., Pandey, S., Gupta, S., dan Sohal, J. S. 2022. Multidrug-Resistant Bacteria: Their Mechanism of Action and Prophylaxis. *BioMed Research International*. **2022**: 17.
- Borsa, B. A., Güngördü-Dalar, Z., Karakullukçu, A., Özalp, V. C., dan Aygün, G. 2020. Investigation of fosfomycin and chloramphenicol susceptibility of Carbapenemaseproducing *Klebsiella pneumoniae* strains. *Klinik Dergisi*. **33**(1): 15–18.
- Budiantoro, A. 2022. Sistematika Avertebrata. *Sustainability (Switzerland)*. **11**(1): 1–14.
- Canellas, A. L. B., de Oliveira, B. F. R., Nunes, S. de O., Malafaia, C. A., Amaral, A. C. F., Simas, D. L. R., Leal, I. C. R., dan Laport, M. S. 2023. Delving into the Mechanisms of Sponge-Associated *Enterobacter* against *Staphylococcal* Biofilms. *Molecules*. **28**(12): 1–10.
- Choi, U. dan Lee, C. R. 2019. Distinct Roles of Outer Membrane Porins in Antibiotic Resistance and Membrane Integrity in *Escherichia coli*. *Frontiers in Microbiology*. **10**(APR): 1–9.
- Christian, O. E., Perry, D. A., Telchy, A. I., Walton, P. N., dan Williams, D. 2024. Bioactive Compounds Isolated from a Marine Sponge Selectively Inhibit *Neisseria gonorrhoeae*. *Antibiotics*. **13**(12): 1–16.
- Davis, W. W. dan Stout, T. R. 1971. Disc plate method of microbiological antibiotic assay. II. Novel procedure offering improved accuracy. *Applied microbiology*. **22**(4): 666–670.
- Duin, van D. dan Paterson, D. L. 2020. Multidrug-Resistant Bacteria in the Community: An Update. *Infectious Disease Clinics of North America*. **34**(4): 709–722.
- Endarwati, D. V., Iin, A., Indra, N., Tantan, A., Abror, Y. K., Nurhayati, B., dan Merdekawati, F. 2024. Optimasi suhu amplifikasi DNA pada quantitative polymerase chain reaction untuk identifikasi *Mycobacterium tuberculosis* resistan isoniazid. *Current Biomedicine*. **2**(2): 61–70.

- Eskarous, N. N., Hassab El-Nabi, S. E. S., Abd El Salam, M. A., Geba, K., dan Gamalel Din, S. F. 2022. Detection of DNA damage by SCD and Rate of Apoptosis DNA by Gel Electrophoresis among infertile males. *Journal of Bioscience and Applied Research*. **8**(3): 181–189.
- Faisal, M. R., Kellermann, M. Y., Rohde, S., Putra, M. Y., Murniasih, T., Risdian, C., Mohr, K. I., Wink, J., Praditya, D. F., Steinmann, E., Köck, M., dan Schupp, P. J. 2021. Ecological and pharmacological activities of polybrominated diphenyl ethers (Pbdes) from the indonesian marine sponge *Lamellodysidea herbacea*. *Marine Drugs*. **19**(11): 1–18.
- Fayez, D., Youssif, A., Sabry, S., Ghozlan, H., dan Eltarahony, M. 2022. Carotegenic *Virgibacillus halodenitrificans* from Wadi El-Natron Salt Lakes: Isolation, Optimization, Characterization and Biological Activities of Carotenoids. *Biology*. **11**(10).
- Frank, I. 2020. Abstracts of the International Conference and Expo on Microbiology. Barcelona, Spain November 18–19, 2019. Hotel Novotel Barcelona Sant Joan Despi. *Microorganisms*. **8**(2): 267.
- Gach, M. W., Lazarus, G., Simadibrata, D. M., Sinto, R., Saharman, Y. R., Limato, R., Nelwan, E. J., van Doorn, H. R., Karuniawati, A., dan Hamers, R. L. 2024. Antimicrobial resistance among common bacterial pathogens in Indonesia: a systematic review. *The Lancet Regional Health – Southeast Asia*. **26**: 100414.
- GBIF Secretariat. 2023. GBIF Backbone Taxonomy. Retrieved August 2, 2025, from GBIF.org: <https://doi.org/10.15468/39omei>.
- Girón, E. C., Espinosa, M. C., Zapata-Montoya, A., Méndez, M. J., Caicedo, J. P., Dávalos, A. F., Ferro, B. E., Vasco-Palacios, A. M., dan Caicedo, N. H. 2021. Evaluation of the Antibacterial Activity of Crude Extracts Obtained From Cultivation of Native Endophytic Fungi Belonging to a Tropical Montane Rainforest in Colombia. *Frontiers in Microbiology*. **12**.
- Gultom, E. S., Harahap, U., Suryanto, D., Sipahutar, H., dan Hafzari, R. 2025. Molecular Identification Using 16S rRNA Gene To Identify Bacteria Symbiont-Agelas sp. Sponge With Antibacterial Activity. *Journal of Microbiology, Biotechnology and Food Sciences*. **14**(4).
- Guo, Z., Qin, X., Yue, M., Wu, L., Li, N., Su, J., dan Jiang, M. 2025. IS26 carrying blaKPC-2 mediates carbapenem resistance heterogeneity in extensively drug-resistant *Klebsiella pneumoniae* isolated from clinical sites. *Mobile DNA*. **16**(1).
- Hadi, E. J., Agustina, H., dan Usman, H. A. 2022. Effectiveness of Xylene and Mineral Oil in DNA Extraction from Formalin-fixed Paraffin-embedded Diffuse Astrocytic Tumor. *Medical Laboratory Technology Journal*. **8**(38): 61–69.
- Hainil, S., Sammulia, S. F., dan Adella, A. 2022. Aktivitas Antibakteri *Staphylococcus aureus* dan *Salmonella thypi* Ekstrak Metanol Anggur Laut (*Caulerpa racemosa*). *Jurnal Surya Medika*. **7**(2): 86–95.
- Halabi, M. K., Lahlou, F. A., Diawara, I., El Adouzi, Y., Marnaoui, R., Benmessaoud, R., dan Smyej, I. 2021. Antibiotic Resistance Pattern of Extended Spectrum Beta Lactamase Producing *Escherichia coli* Isolated From Patients With Urinary Tract Infection in Morocco. *Frontiers in Cellular and Infection Microbiology*. **11**: 1–7.

- Halawa, E. M., Fadel, M., Al-Rabia, M. W., Behairy, A., Nouh, N. A., Abdo, M., Olga, R., Fericean, L., Atwa, A. M., El-Nablaway, M., dan Abdeen, A. 2023. Antibiotic action and resistance: updated review of mechanisms, spread, influencing factors, and alternative approaches for combating resistance. *Frontiers in Pharmacology*. **14**: 1–17.
- Halfawy, O. M. E.-. dan Valvano, M. A. 2015. Antimicrobial heteroresistance: An emerging field in need of clarity. *Clinical Microbiology Reviews*. **28**(1): 191–207.
- Han, Y. L., Wen, X. H., Zhao, W., Cao, X. S., Wen, J. X., Wang, J. R., Hu, Z. De, dan Zheng, W. Q. 2022. Epidemiological characteristics and molecular evolution mechanisms of carbapenem-resistant hypervirulent *Klebsiella pneumoniae*. *Frontiers in Microbiology*. **13**(September): 1–13.
- Haris, A., Nurafni, N., Lestari, D. N., dan Hasania, M. 2020. Diversity and Species Composition of Sponges (Porifera: Demospongiae) in Reef Flat of Barranglombo Island. *TORANI: Journal of Fisheries and Marine Science*. **3**(1): 26–36.
- Hassuna, N. A., Khairalla, A. S., Farahat, E. M., Hammad, A. M., dan Abdel-Fattah, M. 2020. Molecular characterization of Extended-spectrum β lactamase-producing *E. coli* recovered from community-acquired urinary tract infections in Upper Egypt. *Scientific Reports*. **10**(1): 1–8.
- Hentschel, U., Schmid, M., Wagner, M., Fieseler, L., Gernert, C., dan Hacker, J. 2001. Isolation and phylogenetic analysis of bacteria with antimicrobial activities from the Mediterranean sponges *Aplysina aerophoba* and *Aplysina cavernicola*. *FEMS Microbiology Ecology*. **35**(3): 305–312.
- Hussaini, I. M., Suleiman, A. B., Olonitola, O. S., dan Oyi, R. A. 2024. Antibiotic susceptibility pattern of carbapenem resistant *Escherichia coli* and *Klebsiella pneumoniae*. *Microbe*. **5**.
- Idrees, E. K., Aldriwesh, M. G., Alkhulaifi, M. M., dan Alghoribi, M. F. 2025. Systematic review of multidrug-resistant *Klebsiella pneumoniae* in the Arabian Peninsula: molecular epidemiology and resistance patterns. *Frontiers in Microbiology*. **16**: 1–15.
- Idris, F. N. dan Nadzir, M. M. 2021. Comparative studies on different extraction methods of *Centella asiatica* and extracts bioactive compounds effects on antimicrobial activities. *Antibiotics*. **10**(4).
- Izzati, F., Warsito, M. F., Bayu, A., Prasetyoputri, A., Atikana, A., Sukmarini, L., Rahmawati, S. I., dan Putra, M. Y. 2021. Chemical diversity and biological activity of secondary metabolites isolated from indonesian marine invertebrates. *Molecules*. **26**(7).
- Jiménez, A. L. V., R. Vázquez-Olmos, A., Acosta-Gío, E., dan Antonio Álvarez-Pérez, M. 2019. In vitro Antimicrobial Activity Evaluation of Metal Oxide Nanoparticles. *Nanoemulsions - Properties, Fabrications and Applications*. Advance Access published 2019: doi:10.5772/intechopen.84369.
- Jin, Y., Zhang, T., Liu, B., Zheng, C., Huo, H., dan Zhang, J. 2022. Comparative and phylogenetic analysis of the complete chloroplast genome sequences of *Allium mongolicum*. *Scientific Reports*. **12**(1): 1–16.
- Johan, C. W., Dwi Putra, S. E., dan Suryadjaja, E. 2020. Deteksi *Vibrio harveyi* dengan Metode Amplifikasi DNA pada Gen toxR. *KELUWIH: Jurnal Sains*

- dan Teknologi. **1**(1): 29–37.
- Kanzil, T., . F., dan Manampiring, A. 2015. Uji Resistensi Bakteri *Bacillus* Sp Yang Diisolasi Dari Plak Gigi Terhadap Merkuri Dan Eritromisin. *Jurnal e-Biomedik*. **3**(1): 1–4.
- Kolawole, O. M. dan Idris, O. O. 2020. Erythromycin Resistance in Bacterial Isolates from Patients with Respiratory Tract Infections in Ikere-Ekiti, Nigeria. *Annals of Science and Technology*. **5**(2): 49–57.
- Konate, S., Camara, A., Lo, C. I., Tidjani, M, A., Hamidou, T, A., Niare, S., Armstrong, N., Djimdé, A., Thera, M. A., Fenollar, F., Raoult, D., dan Million, M. 2021. *Virgibacillus doumboii* sp. nov., a halophilic bacterium isolated from the stool of a healthy child in Mali. *New Microbes and New Infections*. **42**: 1–6.
- Krishnamoorthy, G., Wolloscheck, D., Weeks, J. W., Croft, C., Rybenkov, V. V., dan Zgurskaya, H. I. 2016. Breaking the permeability barrier of *Escherichia coli* by controlled Hyperporination of the outer membrane. *Antimicrobial Agents and Chemotherapy*. **60**(12): 7372–7381.
- Kumar, S., Stecher, G., Suleski, M., Sanderford, M., Sharma, S., dan Tamura, K. 2024. MEGA12: Molecular Evolutionary Genetic Analysis version 12 for adaptive and green computing. *Molecular biology and evolution*. **41**(12): 1–9.
- Kusuma, A. B. 2022. Optimalisasi Ekstraksi DNA Dan PCR Untuk Identifikasi Molekuler Pada 4 Jenis Karang Lunak Berbeda Aradea Bujana Kusuma. *Jurnal Erlanggo*. **7**(2): 175–182.
- Li, M., Ye, L., Yu, Z., Yao, H., Liu, Y., Wang, G., dan Du, M. 2024. Epidemiology and outcomes of carbapenem-resistant *Klebsiella pneumoniae* infections in patients with hematological malignancies from 2014 to 2022. *Frontiers in Microbiology*. **15**: 1–9.
- Loeb, S., Dynarski, S., Mcfarland, D., Morris, P., Reardon, S., dan Reber, S. 2017. Descriptive analysis in education: A guide for researchers The National Center for Education Evaluation and Regional Assistance (NCEE) conducts unbiased large-scale evaluations of education programs and practices. *National Center for Education Evaluation and Regional Assistance*. 1–53.
- Maisaroh, D. S., Sa’adah, N., dan Al Hanif, Y. A. 2024. Potensi Antibakteri Ekstrak Spons Laut Koleksi Perairan Grand Watu Dodol Banyuwangi. *Jurnal Perikanan dan Kelautan*. **13**(2): 129.
- Makky, E. A., Almatar, M., Mahmood, M. H., Wei Ting, O., dan Zi Qi, W. 2021. Evaluation of the antioxidant and antimicrobial activities of ethyl acetate extract of *Saccharomyces cerevisiae*. *Food Technology and Biotechnology*. **59**(2): 127–136.
- Mayefis, D., Hainil, S., dan Suhaera, N. A. 2020. Antibacterial And Antifungal Activity Of Sponge Extract From Natuna Water, Riau Islands. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. **11**(1): 1–8.
- 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. *Marine Drugs*. **12**(8): 4539–4577.
- Mehbub, M. F., Yang, Q., Cheng, Y., Franco, C. M. M., dan Zhang, W. 2024. Marine sponge-derived natural products: trends and opportunities for the decade of 2011-2020. *Frontiers in Marine Science*. **11**: 20.

- Messer, S. L., Chepkirui, C., Mabesoone, M. F. J., Meyer, J., Paoli, L., Sunagawa, S., Uria, A. R., Wakimoto, T., dan Piel, J. 2023. Animal-associated marine Acidobacteria with a rich natural-product repertoire. *Chem.* **9**(12): 3696–3713.
- Mohammed, R., Nader, S. M., Hamza, D. A., dan Sabry, M. A. 2025. Public health implications of multidrugresistant and methicillinresistant *Staphylococcus aureus* in retail oysters. *Scientific Reports.* **15**(1): 1–9.
- Moss, D., Picton, B. E., Stone, S. M. K., dan Morrow, C. C. 2007. Sponges of the British Isles ("Sponge V") A Colour Guide and Working Document. *Marine Conservation Society.* 1–206.
- Nandhagopal, M., Chandrasekaran, R., dan Narayanasamy, M. 2023. Antimicrobial potential of secondary metabolites and DNA gyrase B blocking molecules produced by a halophilic bacterium *Virgibacillus salarius* (MML1918). *Journal of Applied Microbiology.* **134**(12).
- Nishimaki, T. dan Sato, K. 2019. An Extension of the Kimura Two-Parameter Model to the Natural Evolutionary Process. *Journal of Molecular Evolution.* **87**(1): 60–67.
- Noer, S. 2021. Identifikasi Bakteri secara Molekular Menggunakan 16S rRNA. *EduBiologia: Biological Science and Education Journal.* **1**(1): 1.
- Nurfitriani, A., Mahendradatta, M., Laga, A., dan Zainal. 2021. Antibacterial Effectiveness of Purple Yam (*Dioscorea alata* L) Sap Extract in Inhibiting the Growth of *Staphylococcus aureus* & *Escherichia coli* . *Proceedings of the 10th International Seminar and 12th Congress of Indonesian Society for Microbiology (ISISM 2019).* **15**(Isism 2019): 5–11.
- Nurjadi, D., Chanthalangsy, Q., Zizmann, E., Stuermer, V., Moll, M., Klein, S., Boutin, S., Heeg, K., dan Zanger, P. 2021. Phenotypic Detection of Hemin-Inducible Trimethoprim-Sulfamethoxazole Heteroresistance in *Staphylococcus aureus*. *Microbiology Spectrum.* **9**(2): 1–10.
- Olbrich, J., Buchler, T., dan Ohlebusch, E. 2025. Generating multiple alignments on a pangenomic scale. *Bioinformatics.* **41**(3): 1–9.
- Panggabean, J. A., Adiguna, S. P., Murniasih, T., Rahmawati, S. I., Bayu, A., dan Putra, M. Y. 2022. Structure–Activity Relationship of Cytotoxic Natural Products from Indonesian Marine Sponges. *Revista Brasileira de Farmacognosia.* **32**(1): 12–38.
- Park, H. J., Jin, G., dan Nakhleh, L. 2010. Bootstrap-based support of HGT inferred by maximum parsimony. *BMC Evolutionary Biology.* **10**(1).
- Pertiwi, I. dan Hadisaputri, Y. E. 2020. Potensi Aktivitas Farmakologis Spons Laut Genus *Neopetrosia*. *Farmaka.* **18**(1): 102–109.
- Piron, J., Pastour, J., Tysklind, N., Smith-Ravin, J., dan Priam, F. 2021. Screening of the antimicrobial activity of marine sponge extracts from Martinique. *bioRxiv.* 1–11.
- Prastiyanto, M. E., Kartika, A. I., Darmawati, S., dan Radjasa, O. K. 2022. Bioprospecting of bacterial symbionts of sponge *Spongia officinalis* from Savu Sea, Indonesia for antibacterial potential against multidrug-resistant bacteria. *Biodiversitas.* **23**(2): 1118–1124.
- Prastiyanto, M. E., Setyowati, W., dan Retnowati, D. 2022. Antibacterial activities of bacteria associated with marine sponges of *Axinella* sp. on Carbapenem-

- Resistant Acinetobacter Baumannii* (CRAB). *Jurnal Teknologi Laboratorium*. **11**(1): 43–51.
- Pratama, G. I. P., Hendrawan, I. G., Gede Astawa Karang, I. W., dan Chappuis, A. 2020. Karakteristik Vertikal Salinitas dan TDS di Perairan Amed dan Tulamben, Karangasem, Bali. *Journal of Marine Research and Technology*. **3**(1): 47.
- Purwaningsih, D. dan Wulandari, D. 2020. Uji Aktivitas Antibakteri Ekstrak Etanol Daun Suruhan (*Peperomia pellucida* L. Kunth) Terhadap Bakteri *Pseudomonas aeruginosa* ATCC 27853. *Biota : Jurnal Ilmiah Ilmu-Ilmu Hayati*. **5**(1): 1–7.
- Putra, L. A. G., Yonathan, C. J., Niedhatrata, N. I., Rizka Firdaus, M. H., dan Yoewono, J. R. 2020. A review of the development of Polymerase Chain Reaction technique and its uses in Scientific field. *Stannum : Jurnal Sains dan Terapan Kimia*. **2**(1): 14–30.
- Ramaiyulis, D. S., Nilawati, E. Y., dan Budaraga, I. K. 2021. Potential and development of incubation technology to improve the quality of “dadih” as a specific food of minangkabau. *Livestock Research for Rural Development*. **33**(7): 1–5.
- Ransom, E. M., Alipour, Z., Wallace, M. A., dan Burnham, C. A. D. 2021. Evaluation of optimal blood culture incubation time to maximize clinically relevant results from a contemporary blood culture instrument and media system. *Journal of Clinical Microbiology*. **59**(3).
- Riyanti, Balansa, W., Liu, Y., Sharma, A., Mihajlovic, S., Hartwig, C., Leis, B., Rieuwpassa, F. J., Ijong, F. G., Wägele, H., König, G. M., dan Schäberle, T. F. 2020. Selection of sponge-associated bacteria with high potential for the production of antibacterial compounds. *Scientific Reports*. **10**(1): 1–14.
- Rizki, F. S. dan Ade, F. 2020. Uji Daya Hambat Antibakteri Salep Ekstrak Etanol Daun Pandan Hutan (*Freycinetia sessiliflora* Rizki.) terhadap Perumbuhan Bakteri *Staphylococcus epidermidis* . **5**(2): 298–308.
- Roy, P., Ramanjooloo, A., Singh Doorga, J. R., Beedessee, G., Cresteil, T., Van Soest, R. W., dan EP Marie, D. 2020. Cytotoxic potential of sponge extracts from Mauritius Waters on human cancer cell lines. *Hematology and Medical Oncology*. **5**(3): 1–10.
- Rozwandowicz, M., Brouwer, M. S. M., Fischer, J., Wagenaar, J. A., Gonzalez-Zorn, B., Guerra, B., Mevius, D. J., dan Hordijk, J. 2018. Plasmids carrying antimicrobial resistance genes in *Enterobacteriaceae*. *Journal of Antimicrobial Chemotherapy*. **73**(5): 1121–1137.
- Rumbiwati, R. dan Trimuratno, J. 2021. Daur Ulang Limbah Gel Agarose untuk Efisiensi Reagen Elektroforesis. *Indonesian Journal of Laboratory*. **4**(3): 101.
- Salsabila, N., Fadilah, F., Pramana, R. C., Mutiatul K.A., S., Romzalis, A. A., Ramadhani, D. N., Rachmawati, Y., dan Arianti, O. F. 2021. Penentuan Sekuens Terbaik untuk Gen COI pada *Crocodylus rhombifer* Menggunakan SoftWare Perlprimer dan Primer Blast Sebagai Bentuk Praktikum Saat Pandemi Covid-19. *Indonesian Journal of Science Learning (IJS�)*. **2**(1): 15–21.
- Sania, N., Saharman, Y. R., Lestari, D. C., Aditiansih, D., dan Yasmon, A. 2024. Risk Factors Associated with the Colonization of Multidrug-Resistant Gram-

- Negative Bacteria Upon Admission to the Intensive Care Unit: A Cross-sectional Study. *Acta Med Indonesia*. **56**(3): 330–340.
- Sanikhani, R., Akbari, M., Hosseinzadeh, M., Siavash, M., Badmasti, F., dan Solgi, H. 2024. Outbreak of colistin and *carbapenem-resistant Klebsiella pneumoniae* ST16 co-producing NDM-1 and OXA-48 isolates in an Iranian hospital. *BMC Microbiology*. **24**(1): 1–9.
- Sari, F., Widyorini, N., dan Sabdaningsih, A. 2021a. Isolasi Dan Identifikasi Dengan Gen 16S Rrna Dari Bakteri Asosiasi Spons Kelas Demospongiae Di Perairan Tulamben Bali. *Jurnal Pasir Laut*. **5**(2): 110–118.
- Sari, F., Widyorini, N., dan Sabdaningsih, A. 2021b. Isolation and Identification with 16S rRNA Gene from Bacteria Associations of Sponges Class Demospongiae in the Waters of Tulamben Bali. *Jurnal Pasir Laut*. **5**(2): 110–118.
- Sayakti, P. I., Anisa, N., dan Ramadhan, H. 2022. Antioxidant activity of methanol extract of cassava leaves (*Manihot esculenta Crantz*) using CUPRAC method. *Jurnal Ilmiah Farmasi*. 97–106.
- Sayori, N., Tururaja, T. S., dan Kolibongso, D. 2022. Komunitas Spons (Porifera) pada Ekosistem Terumbu Karang di Manokwari, Indonesia. *Jurnal Kelautan Tropis*. **25**(3): 400–410.
- Sheren, J. B., Wilmar, M., Joke, L. T., dan Ferdy, A. K. 2022. Uji Aktivitas Antimikroba Ekstrak Etanol Daun Leilem *Clerodendrum minahassae* L. Terhadap *Escherichia coli*, *Staphylococcus aureus*, dan *Candida albicans*. *Majalah InfoSains*,. **3**(2): 51–58.
- Silva, K. P. T. dan Khare, A. 2024. Antibiotic resistance mediated by gene amplifications. *Npj Antimicrobials and Resistance*. **2**(1): 35.
- Simone, D. G., Pasquadibisceglie, A., Proietto, R., Polticelli, F., Aime, S., J.M. Op den Camp, H., dan Ascenzi, P. 2020. Contaminations in (meta)genome data: An open issue for the scientific community. *IUBMB Life*. **72**(4): 698–705.
- Sipriyadi, Nurfahmi, R. I., Cahlia, U., Wibowo, R. H., Darwis, W., dan Nugraheni, E. 2022. Potential of marine sponge *Jaspis* sp.-associated bacteria as an antimicrobial producer in Enggano Island. *Indonesian Journal of Biotechnology*. **27**(3): 163–170.
- Sjafaraenan, S., Lolodatu, H., Johannes, E., Agus, R., dan Sabran, A. 2018. Profil Dna Gen Follicle Stimulating Hormone Reseptor (Fshr) Pada Wanita Akne Dengan Teknik PCR dan Sekuensing Dna. *Bioma : Jurnal Biologi Makassar*. **3**(1): 1–11.
- Skuza, L., Androsiuk, P., Gastineau, R., Pauksztó, Ł., Jastrzębski, J. P., dan Cembrowska-Lech, D. 2023. Molecular structure, comparative and phylogenetic analysis of the complete chloroplast genome sequences of weedy rye *Secale cereale* ssp. segetale. *Scientific Reports*. **13**(1): 1–11.
- Suet, T., Amelia, M., Angelus, F., Johanne, C. S., Afik, V., Mohd, D., Saludes, J. P., dan Bhubalan, K. 2022. Recent Advances of Marine Sponge - Associated Microorganisms as a Source of Commercially Viable Natural Products. *Marine Biotechnology*. 21.
- Terreni, M., Taccani, M., dan Pregnolato, M. 2021. New antibiotics for multidrug-resistant bacterial strains: Latest research developments and future

- perspectives. *Molecules*. **26**(9).
- Tojo, S., Kim, J. Y., Tanaka, Y., Inaoka, T., Hiraga, Y., dan Ochi, K. 2014. The mthA mutation conferring low-level resistance to streptomycin enhances antibiotic production in *Bacillus subtilis* by increasing the S-adenosylmethionine pool size. *Journal of Bacteriology*. **196**(8): 1514–1524.
- Wayan, N., Wijaya, P., Hasbi, N., dan Ayunda, R. D. 2024. Jurnal Biologi Tropis Antibiotics Susceptibility Testing Against *Staphylococcus Aureus* from Nasal Isolates in Food Handlers in Canteen of Mataram University. Advance Access published 2024.
- Wibowo, M., Kongko, W., Hendriyono, W., dan Karima, S. 2021. Tsunami Hazard Potential Modeling as Tourism Development Considerations in the North of Lombok Strait. *IOP Conference Series: Earth and Environmental Science*. **832**(1).
- Wibowo, R. H., Sipriyadi, Darwis, W., Putri, D. A., Yudha, S., Mashudi, Ilsa, N. A., Renta, P. P., dan Masrukhin. 2023. Isolation, characterization and identification of sponge-associated bacteria producing antimicrobial compounds. *Biodiversitas*. **24**(6): 3616–3623.
- Wulandari, D., Dewantoro, G., Lunggani, A. T., Supriyadi, A., Riani, C., Setiawan, E., Farikha, S. L., dan Budiharjo, A. 2023. Antibacterial Activity of Freshwater Sponge *Oncosclera asiatica* Against *Escherichia coli* and *Staphylococcus aureus*. *Bioma : Berkala Ilmiah Biologi*. **24**(2): 120–129.
- Yang, J., Barra, J. T., Fung, D. K., dan Wang, J. D. 2022. *Bacillus subtilis* produces (p)ppGpp in response to the bacteriostatic antibiotic chloramphenicol to prevent its potential bactericidal effect. *mLife*. **1**(2): 101–113.
- Yuanda, M. A., Yamindag, A., dan Kristiana, R. 2022. *Aktivitas Antibakteri Dari Bakteri Asosiasi Spons Laut (Amphimedon sp.) Di Pantai Tulamben, Bali*.
- Yulianti, S., Islami, R. Z., Mansyur, dan Pramudyawardani, E. F. 2024. Concentration and Purity Analysis of Deoxyribo Nucleic Acid (DNA) from Forage Grasses. *Jurnal Ilmu Pertanian dan Peternakan*. **12**: 167–179.
- Zhao, M., Zhang, Y., Li, Y., dan Li, G. 2025. Developing Gut-Healthy Strains for Pets: Probiotic Potential and Genomic Insights of Canine-Derived *Lactobacillus acidophilus* GLA09. *Microorganisms*. **13**(2).