

DAFTAR PUSTAKA

- Abdelghani, Z., Hourani, N., Zaidan, Z., Dbaibo, G., Mrad, M., and Hage-Sleiman, R. 2021. Therapeutic applications and biological activities of bacterial bioactive extracts. *Archives of Microbiology*, 203, pp.4755–4776. <https://doi.org/10.1007/s00203-021-02505-1>
- Abdel-Naime, W.A., Fahima, J.R., Fouada, M.A., Kamel, M.S. 2019. Antibacterial, antifungal, and GC-MS studies of *Melissa officinalis*. *S.Afr.J.Bot.*, 124, pp.228-234. DOI:10.1016/j.sajb. 2019.05.011.
- Abegaz, B., and Kinfe, H.H. 2019. Secondary metabolites, their structural diversity, bioactivity, and ecological functions: An overview. *Physical Sciences Reviews* 4(6). DOI:10.1515/psr-2018-0100.
- Alhadrami, H.A., Hamed, A.A., Hassan, H.M., Belbahri, L., Rateb, M.E., and Sayed, A.M. 2020. Flavonoids as Potential anti-MRSA Agents through Modulation of PBP2a: A Computational and Experimental Study. *Antibiotics*, 562(9). doi:10.3390/antibiotics9090562
- Alqadeeri, F., Rukayadi, Y., Abbas, F., and Shaari, K. 2019. Antibacterial and Antispore Activities of Isolated Compounds from *Piper cubeba* L. *Molecules*, 24(3095), pp.1-15. doi:10.3390/molecules24173095
- Akintunde, O.G., Lairbe, O.C., Abakpa, S.A.V., Thomas, F.C., Akinloye, O.A., and Ajibola, E.S. 2023. Bioactive components in ethanol extract of *Citrullus lanatus* rind using Gas Chromatography- Mass Spectroscopy. *njcr* 28(1), pp. 059 – 073. <https://dx.doi.org/10.4314/njcr.v28i1.6>
- Aribisala, J.O. and Sabiu, S. 2022. Cheminformatics Identification of Phenolics as Modulators of Penicillin-Binding Protein 2a of *Staphylococcus aureus*: A Structure–Activity-Relationship-Based Study. *Pharmaceutics* 2022, 14. <https://doi.org/10.3390/pharmaceutics14091818>
- Balouiri, M., Sadiki, M., and Ibsouda, S.K. 2016. Methods for in vitro evaluating antimicrobial activity: A review. *Journal of Pharmaceutical Analysis*, 6, pp.71–79. <http://dx.doi.org/10.1016/j.jpha.2015.11.005>
- Beale, D.J., Pinu, F.R., Kouremenos, K.A., Poojary, M.M., Narayana, V.K., Boughton, B.A., Kanojia, K., Dayalan, S., Jonnes, O.A.H., and Dias, D.A. 2018. Review of recent developments in GC–MS approaches to metabolomics-based research. *Metabolomics*, 14(152), pp. 1-31. <https://doi.org/10.1007/s11306-018-1449-2>
- Bereda, G. Clinical Pharmacology of Ampicillin. *Journal of Pharmaceutical Research & Reports*, 3(3), pp.1-3. DOI: [doi.org/10.47363/JPRSR/2022\(3\)129](https://doi.org/10.47363/JPRSR/2022(3)129)

- Cappuccino, J.G., and Welsh, C. 2018. *Microbiology a Laboratory Manual* 11 th Edition. London: Pearson.
- Chaudhary, M. and Tyagi, K. 2024. A Rivew on Molecular Docking and Its's Application. *Int. J. Adv. Res.* 12(03), pp:1141-1153. Article DOI: 10.21474/IJAR01/18505
- CLSI. 2020. *Performance Standards for Antimicrobial Susceptibility Testing* 30th ed. CLSI supplement M100. Wayne, PA: Clinical Laboratory Standards Institute.
- Danquah, C.A., Minkah, P.A.B., Junior, I.O.D., Amankwah, K.B., and Somuah, S.O. 2022. Antimicrobial Compounds from Microorganisms. *Antibiotics*, 285(11). <https://doi.org/10.3390/antibiotics11030285>
- Darabpour, E., Ardakani, M.R., Motamedi, H., and Ronagh, M.T. 2012. Isolation of a potent antibiotic producer bacterium, especially against MRSA, from northern region of the Persian Gulf. *Bosn J Basic Med Sci.*, 12(2), pp.109-121.
- David, M.Z. and Daum, R.S. 2010. Community-Associated Methicillin-Resistant *Staphylococcus aureus*: Epidemiology and Clinical Consequences of an Emerging Epidemic. *Clinical Microbiology Reviews*, 23, pp.616–687. doi:10.1128/CMR.00081-09
- Debbab, A., Aly, A.H., Lin, W.H., and Proksch, P. 2010. Bioactive Compounds from Marine Bacteria and Fungi. *Microb. Biotechnol.*,3(5):544–563.
- Dewanjee, S., Gangopadhyay, M., Bhattacharya, N., Khanra, R., and Dua, T.K. 2015. Bioautographyanditsscopeinthe field of natural productchemistry. *Journal of Pharmaceutical Analysis*, 5(2), pp.75–84. <http://dx.doi.org/10.1016/j.jpha.2014.06.002>
- Ferreira, L.G., dos Santos, R.N., Oliva, G., and Andricopulo, A.D. 2015. Molecular Docking and Structure-Based Drug Design Strategies. *Molecules*, 20, pp. 13384-13421; doi:10.3390/molecules200713384
- Fishovitz, J., Hermoso, J.A., Chang, M., and Mobashery, S. 2014. Penicillin-Binding Protein 2a of Methicillin-Resistant *Staphylococcus aureus*. *IUBMB Life*, 66(8),pp.572–577. doi:10.1002/iub.1289.
- Garg, S., Mahajan, R.K., Chhakchhuak, Z., and Tluanpuui, V. 2022. Clindamycin: An adjunct option in drug-resistant staphylococcal infections. *CHRISMED J Health Res.*, 9:242-5. DOI: 10.4103/cjhr.cjhr_75_22
- Gokulan, K., Khare, S., Cerniglia, C., 2014. Metabolic Pathways: Production of Secondary Metabolites of Bacteria. In: Batt, C.A., Tortorello, M.L. (Eds.), *Encyclopedia of Food Microbiology*, vol 2. Elsevier Ltd, Academic Press, pp.

561–569. ISBN: 9780123847300 . DOI: [10.1016/B978-0-12-384730-0.00203-2](https://doi.org/10.1016/B978-0-12-384730-0.00203-2)

- Guaadaoui, A., Benaicha, S., Elmajdoub, N., Bellaoui, M., and Hamal, A. 2014. What is Bioactive compound? A combined definition for a preliminary consensus. *Int. J. food Sci. Nutr.*, 3(3):174-179.
- Handayani, D., Aminah, I., Putra, P.P., Putra, E.A., Arbain, D., Satriawan, H., Efdi, M., Celik, I., and Tallei, T.E. 2023. The depsidones from marine sponge-derived fungus *Aspergillus unguis* IB151 as an anti-MRSA agent: Molecular docking, pharmacokinetics analysis, and molecular dynamic simulation study *Saudi Pharmaceutical Journal*, 23. doi: <https://doi.org/10.1016/j.jsps.2023.101744>
- Hauser, R.A. 2013. *Antibiotic basics for clinicians : the ABCs of choosing the right antibacterial agent* 2nd edition. Philadelphia: Lippincott Williams & Wilkins.
- Heidary, M. and Habibi, Z. 2016. Microbial transformation of androst-4-ene-3,17-dione by three fungal species *Absidia griseolla* var. *igachii*, *Circinella muscae* and *Trichoderma virens*. *Journal of Molecular Catalysis B: Enzymatic*, 126, pp.32-36. <https://doi.org/10.1016/j.molcatb.2016.01.007>
- Hong, S.B., Rhee, M.H., Yun, B., Lim, Y.H., Song, H.G., and Shin, K.S. 2016. Synergistic Anti-bacterial Effects of *Phellinus baumii* Ethyl Acetate Extracts and β -Lactam Antimicrobial Agents Against Methicillin-Resistant *Staphylococcus aureus*. *Annals of Laboratory Medicine*, 36(1), pp. 111-116. <http://dx.doi.org/10.3343/alm.2016.36.2.111>
- Horak, I., Engelbrecht, G., van Rensburg, P.J.J., and Claassens, S. 2019. Microbial metabolomics: essential definitions and the importance of cultivation conditions for utilizing *Bacillus* species as bionematicides. *Journal of Applied Microbiology*, 127, pp.326-343. doi:10.1111/jam.14218
- Hutchings, M.I., Truman, A.W., and Wilkinson, B. 2019. Antibiotics: past, present and future. *Current Opinion in Microbiology*, 51, pp.72-80. <https://doi.org/10.1016/j.mib.2019.10.008>
- Iyanyi, N. G., Ataga, A. E., & Nwachukwu, E. O., 2019. Biochemical and Molecular Characterization of Bacteria Associated with *Cnidocolus aconitifolius* (Mill.) IM Johnston. *IOSR J Pharm*, 14(4), pp. 78-85.
- Janda, J.M. and Abbott, S.L. 2007. 16S rRNA Gene Sequencing for Bacterial Identification in the Diagnostic Laboratory: Pluses, Perils, and Pitfalls. *JOURNAL OF CLINICAL MICROBIOLOGY*, 45(9), pp. 2761–2764. doi:10.1128/JCM.01228-07

- Kumar, S., Jyotirmayee, K., and Sarangi, M. 2013. Thin Layer Chromatography: A Tool of Biotechnology for Isolation of Bioactive Compounds from Medicinal Plants. *Int. J. Pharm. Sci. Rev. Res.*, 18(1), pp.126-132.
- Lade, H. and Kim, J. 2023. Molecular Determinants of β -Lactam Resistance in Methicillin-Resistant *Staphylococcus aureus* (MRSA): An Updated Review. *Antibiotics*, 12(1362). <https://doi.org/10.3390/antibiotics12091362>
- Lakhundi, S. and Zhang, K. 2018. Methicillin-Resistant *Staphylococcus aureus*: Molecular Characterization, Evolution, and Epidemiology. *Clinical Microbiology Reviews*, 31(4). <https://doi.org/10.1128/CMR.00020-18>.
- Lee, A.S., de Lencastre, H., Garau, J., Kluytman, J., Malhotra-Kumar, S., Pesche, A., and Harbarth, S. 2018. Methicillin-resistant *Staphylococcus aureus*. *Nature Review Disease Primers*, 18(33), pp. 1-23. doi:10.1038/nrdp.2018.33
- Li, K., Chen, S., Pang, X., Cai, J., Zhang, X., Liu, Y., Zhu, Y., and Zhou, X. 2022. Natural products from mangrove sediments-derived microbes: Structural diversity, bioactivities, biosynthesis, and total synthesis. *European Journal of Medicinal Chemistry*, 230. <https://doi.org/10.1016/j.ejmech.2022.114117>
- Liao, S., Wang, Y., Liu, H., Fan, G., Sahu, S.K., Jin, T., Chen, J., Zhang, P., Gram, L., Strube, M.L., Shi, Q., Lee, S.M.Y., and Liu, X. 2020. Deciphering the Microbial Taxonomy and Functionality of Two Diverse Mangrove Ecosystems and Their Potential Abilities To Produce Bioactive Compounds. *mSystems*, 5(5). <https://doi.org/10.1128/mSystems.00851-19>.
- Lin, X., Hetharua, B., Lin, L., Xu, H., Zheng, T., He, Z., and Tian, Y. 2019. Mangrove Sediment Microbiome: Adaptive Microbial Assemblages and Their Routed Biogeochemical Processes in Yunxiao Mangrove National Nature Reserve, China. *Microbial Ecology*, 78, pp.:57–69. <https://doi.org/10.1007/s00248-018-1261-6>
- Lv, N., Kong, Q., Zhang, H., and Li, J. 2021. Discovery of novel *Staphylococcus aureus* penicillin binding protein 2a inhibitors by multistep virtual screening and biological evaluation. *Bioorganic & Medicinal Chemistry Letters*, 41:1-8. <https://doi.org/10.1016/j.bmcl.2021.128001>
- Mathias, E.V., and Halkar, U.P. 2004. Separation and characterization of lignin compounds from the walnut (*Juglans regia*) shell oil using preparative TLC, GC-MS and ¹HNMR. *Journal of Analytical and Applied Pyrolysis*, 71(2), pp.515-524. <https://doi.org/10.1016/j.jaap.2003.08.005>
- Miragaia, M. 2018. Factors Contributing to the Evolution of mecA-Mediated β -lactam Resistance in *Staphylococci*: Update and New Insights From Whole

- Genome Sequencing (WGS). *Front. Microbiol*, 9. doi: 10.3389/fmicb.2018.02723
- Mlynarczyk-Bonikowska, B., Kowalewski, C., Krolak-Ulinska, A., and Marusza, W. 2022. Molecular Mechanisms of Drug Resistance in *Staphylococcus aureus*. *Int. J. Mol. Sci*, 23, pp. 80-88. <https://doi.org/10.3390/ijms23158088>
- Mohamed, S.B., Adlan, T.A., Khalafalla, N.A., Abdalla, N.I., Ali, Z.S.A., Munir, A., Hassan, M.M., and Elnour, M.B. 2019. Proteomics and Docking Study Targeting Penicillin-Binding Protein and Penicillin-Binding Protein2a of Methicillin-Resistant *Staphylococcus aureus* Strain SO-1977 Isolated from Sudan. *Evolutionary Bioinformatics*, 15:1–13. DOI: 10.1177/1176934319864945
- Morris, G.M. and Lim-Wilby, M. 2008. *Molecular Docking. Methods in Molecular Biology, Molecular Modeling of Protein*. Totowa:Humana Press.
- Murtey, D.M., and Ramasamy, P. 2016. *Sample Preparations for Scanning Electron Microscopy – Life Sciences*. Intech open,2:64. DOI:10.5772/32009.
- Newman, D.J.; Cragg, G.M. 2016. Natural Products as Sources of New Drugs from 1981 to 2014. *J. Nat. Prod*, 79, pp. 629–661.
- Norouzi, H., Khorasgani, M.R., and Danesh, A. 2019. Anti-MRSA activity of a bioactive compound produced by a marine *Streptomyces* and its optimization using statistical experimental design. *Iran J. Basic Med. Sci.*, 22, pp.1073-1084. doi: 10.22038/ijbms.2019.33880.8058
- Ntie-Kang, F. and Svozil, D. 2020. An enumeration of natural products from microbial, marine and terrestrial sources. *Physical Sciences Reviews*. doi/10.1515/psr-2018-0121
- Ouchari, L., Boukeskase, A., Bouizgarne, B., and Ouhdouch, Y. 2019. Antimicrobial potential of actinomycetes isolated from the unexplored hot Merzouga desert and their taxonomic diversity. *Biology Open*, 8. doi:10.1242/bio.035410
- Pasquina-Lemonche, L., Burns, J., Turner, R.D., Kumar, S., Tank, R., Mullin, N., Wilson, J.S., Chakrabarti, B., Bullough, P.A., and Foster, S.J. 2020. The architecture of the Gram-positive bacterial cell wall. *Nature*, 582, pp.294–297.
- Paulton, R.J.L. 1991. The bacterial growth curve. *Journal of Biological Education*, 25(2), pp.92-94. <https://doi.org/10.1080/00219266.1991.9655183>
- Peacock, S.J. and Paterson, G.K. 2015. Mechanisms of Methicillin Resistance in *Staphylococcus aureus*. *Annu. Rev. Biochem.*, 84, pp.577–601. 10.1146/annurev-biochem-060614-034516
- Pramono, H., Mariana, A., Ryandini, D., and Sudiana, E. 2021. Short Communication: Diversity of cellulolytic bacteria isolated from coastal

- mangrove sediment in Logending Beach, Kebumen, Indonesia. *Biodiversitas*, 22(4), pp.1869-1878. DOI: 10.13057/biodiv/d220433.
- Pringgenies, D., and Setyati, W.A. 2023. Metabolites of Mangrove Sediment Bacteria from Semarang and Karimunjawa as Anti-Fungal and Antibacterial. *Trends in Sciences*, 20(5), pp.:64-74. <https://doi.org/10.48048/tis.2023.6474>
- Ripari, N., Pereira, A.F.M., Júnior, A.F., Mores, V.L., Aldana-Mejía, J.A., Bastos, J.K., and Sforcin, J.M. 2023. Brazilian red propolis in combination with β -lactams exerts an efficient antibacterial action over methicillin-resistant *Staphylococcus aureus* (MRSA) strains. *Journal of Applied Microbiology*, 134, pp.1–12. <https://doi.org/10.1093/jambio/lxac080>
- Roche, D. B. and McGuffin, L. J. (2016) In silico identification and characterization of protein-ligand binding sites. In: *Computational design of ligand binding proteins*. Methods in Molecular Biology, 1414. Springer, pp. 1-21. ISBN 9781493935673 doi: https://doi.org/10.1007/9781493935673_1 Available at <http://centaur.reading.ac.uk/64582/>
- Rodloff, A., Bauer, T., Ewig, S., Kujath, P., and Müller, E. 2008. Susceptible, Intermediate, and Resistant –The Intensity of Antibiotic Action. *Deutsches Ärzteblatt International*, 105(39), pp.657–663.
- Romano, J.B., and Tatonetti, N.P. 2019. Informatics and Computational Methods in Natural Product Drug Discovery: A Review and Perspectives. *Frontiers in Genetics*, 10(368). doi: 10.3389/fgene.2019.00368
- de Souza, M.Q., Bierhals, D.V., Reis, A.J., Chimara, E., Vianna, J.S., von Groll, A., da Silva, P.A., and Ramis, I.B. 2024. 2,3,5-triphenyl tetrazolium chloride as colorimetric indicator for drug susceptibility testing against nontuberculous mycobacteria. *Diagnostic Microbiology and Infectious Disease*, 108(1). <https://doi.org/10.1016/j.diagmicrobio.2023.116096>
- Sengupta, S., Pramanik, A., Ghosh, A., and Bhattacharyya, M. 2015. Antimicrobial activities of actinomycetes isolated from unexplored regions of Sundarbans mangrove ecosystem. *BMC Microbiology*, 15(170). DOI 10.1186/s12866-015-0495-4
- Silvestri, S., Rampacci, E., Stefanetti, V., Trotta, M., Fani, C., Levorato, L., Brachelente, C., and Passamonti, F. 2021. Immunofluorescence Targeting PBP2a Protein: A New Potential Methicillin Resistance Screening Test. *Front.Vet.Sci.*, 8:740934. doi: 10.3389/fvets.2021.740934
- Singh, M., Kumar, A., Singh, R., and Pandey, K.D. 2017. Endophytic bacteria: a new source of bioactive compounds. *Biotech*, 7:314-328. DOI 10.1007/s13205-017-0942-z
- Songnaka, N., Lertcanawanichakul, M., and Atipairin, A. 2020. Promising Anti-MRSA Activity of *Brevibacillus* sp. Isolated from Soil and Strain

- Improvement by UV Mutagenesis. *Sci.Pharm.*, 89(1).
<https://dx.doi.org/10.3390/scipharm89010001>
- Stapleton, P.D. and Taylor, P.W. 2002. Methicillin resistance in *Staphylococcus aureus*: mechanisms and modulation. *Science Progress*, 85 (1), pp. 57–72.
- Sudarmadji, S., Haryono, B., dan Suhardi. 1997. *Prosedur Analisa Bahan Makanan Dan Pertanian*. Yogyakarta: Liberty.
- Thatoi, H., Behera, B.C., Mishra, R.R., and Dutta, S.K. 2013. Biodiversity and biotechnological potential of microorganisms from mangrove ecosystems: A review. *Ann.Microbiol.*, 63,pp.1–19.
- Turner, N.A., Sharma-Kuinkel, B.K., Maskarinec, S.A., Eichenberger, E.M., Shah, P.P., Carugati, M., Holland, T.L., and Fowler Jr., V.G. 2019. Methicillin-resistant *Staphylococcus aureus*: an overview of basic and clinical research. *Nature Reviews*, 17, pp.203-219. <https://doi.org/10.1038/s41579-018-0147-4>
- Ughy, B., Nagyapati, S., Lajko, D.B., Letoha, T., Prohaszka, A., Deeb, D., Der, A., Pettko-Szandtner, A., and Szilak, L. 2023. Reconsidering Dogmas about the Growth of Bacterial Populations. *Cells*, 12(1430), pp.1-15. <https://doi.org/10.3390/cells12101430>
- Veiga, A., Toledo, M.G.T., Rossa, L.S., Mengarda, M., Stofella, N.C.F., Oliveira, L.J., Goncalves, A.G., and Murakami, F.S. 2019. Colorimetric microdilution assay: Validation of a standard method for determination of MIC, IC50%, and IC90% of antimicrobial compounds. *Journal of Microbiological Methods*, 162, pp.50–61. <https://doi.org/10.1016/j.mimet.2019.05.003>
- Wang, C., Liu, J., Luo, F., Deng, Z., and Hu Q. 2015. Predicting target-ligand interactions using protein ligand-binding site and ligand substructures. *BMC Systems Biology*, 9(1):1-10. <http://www.biomedcentral.com/qc/1752-0509/9/S1/S2>
- Wang M, Li X, Wang X, Guo R, Sun X, Sun R, Li Z, Wang L, Yue C, and Lü Y. 2021. Heterologous expression of abx gene cluster in *E. coli* gives production of 2-heptyl-4 (1H)-quinolone. *J Biol Res*. 12.
- Wangila, T.P. 2017. Phytochemical Analysis and Antimicrobial Activities of *Cyperus rotundus* and *Typha latifolia* Reeds Plants from Lugari Region of Western Kenya. *Pharm Anal Chem*, 3(3), pp.1-4. DOI: [10.4172/2471-2698.1000128](https://doi.org/10.4172/2471-2698.1000128)
- Xue, Q., Liu, X., Russell, P., Li, J., Pan, W., Fu, J., & Zhang, A. 2022. Evaluation of the binding performance of flavonoids to estrogen receptor alpha by Autodock, Autodock Vina and Surflex-Dock. *Ecotoxicology and Environmental Safety*, 233. <https://doi.org/10.1016/j.ecoenv.2022.113323>

Yuwatingsih, S., Margino, S., & Wahyuono, S., 2015. Identification of Antibiotic Producing Endophytic Microbe Isolates from a National Park in Java island. *Indonesian Journal of Biotechnology*, 20(2), pp. 137-173.

Zhang, S., Qu, X., Tang, H., Wang, Y., Yang, H., Yuan, W., and Yue, B. 2021. Diclofenac Resensitizes Methicillin-Resistant *Staphylococcus aureus* to β -Lactams and Prevents Implant Infections. *Adv. Sci.*, 2100681. <https://doi.org/10.1002/advs.202100681>

