

DAFTAR PUSTAKA

1. Wulandari S, Sulistyani N. Pengaruh Media Terhadap Pertumbuhan Isolat *Actinomyces* Kode A135 Serta Optimasi Produksi Metabolit Antibakteri Berdasarkan Waktu Fermentasi dan Ph. *Media Farmasi*. 2016;13(2):186–98.
2. Christensen KLY, Holman RC, Steiner CA, Sejvar JJ, Stoll BJ, Schonberger LB. Infection Disease Hospitalization in the United States. *Clinical Infection Disease*. 2009;49:1025–35.
3. World Health Organization. World Health Statistics. In 2015. Available from: http://www.who.int/gho/pulications/world_health_statistics/en.
4. Elsie, Herlina N, Putri RT. Isolasi *Actinomyces* Endofit Dari Tanaman Akar Wangi (*Vetiveria Zizanioides*) dan Uji Aktivitas Senyawa Antibakteri Terhadap *Staphylococcus aureus* dan *Escherichia coli*. *Photon*. 2018;8(2):13–22.
5. Nurmala, Virgiandhy IGN, Andriani, Liana DF. Resistensi dan Sensitivitas Bakteri Terhadap Antibiotik di RSUD dr . Soedarso Pontianak Tahun 2011-2013. *eJKI*. 2015;3(1):21–8.
6. Mardiasuti, H.W. D. Emerging Resistance Pathogen: Situasi Terkini di Asia, Eropa, Amerika Serikat, Timur Tengah dan Indonesia. *Majalah Kedokteran Indonesia*. 2007;5: 76.
7. Li B, Webster TJ. Bacteria Antibiotic Resistance: New Challenges and Opportunities for Implant-Associated Orthopaedic Infections. *J Orthop Res*.

2018;36(1):22–32.

8. Ventola CL. The Antibiotic Resistance Crisis. *P&T*. 2015;40(4):277–83.
9. Luyt CE, Brechot N, Trouillet L, Chastre J. Antibiotic Stewardship in The Intensive Care Unit. *Critical Care*. 2014;18(5):480.
10. Romulo A. Antimicrobial Effect of Medicinal Plants Used in Traditional Indonesian Medicine. University of Live Sciences Prague; 2018.
11. Waluyo L. Mikrobiologi Lingkungan. Malang: UMM Press; 2009. 1-9 p.
12. Susilowati DN, Hastuti RD, Yuniarti E. Isolasi dan Karakterisasi Aktinomisetes Penghasil Enteropatogen *Escherichia coli* K1.1, *Pseudomonas pseudomallei* 02 05, dan *Listeria monocytogenes* 5407. *J AgroBiogen*. 2007;3(1):15–23.
13. Kumar CG, Mongolla P, Joseph J, Nageswar Y, Kamal A. Antimicrobial Activity From the Extracts of Fungal Isolates of Soil and dung samples From Kaziranga National Park, Assam, India. *Journal Mycology Medicale*. 2010;20(4):283–9.
14. Weber T, Charusanti P, Kroll EMM, Tong Y, Kim HU, Lee SY. Metabolic Engineering of Antibiotic Factories : New Tools for Antibiotic Production in *Actinomycetes*. *Trends in Biotechnology*. 2015;33(1):15–26.
15. Ambarwati. Streptomyces Penghasil Antibiotik yang Berasosiasi dengan Rhizosfer Rumput Teki (*Cyperus rotundus* L.). Universitas Gadjah Mada;

2008.

16. Lannuci A, Fragasso M, Platani C, Papa R. Plant Growth and Phenolic Compounds in the Rhizosphere Soil of Wild Oat (*Avena fatua* L.). *Frontiers in Plants Science*. 2013;4:509.
17. Rante H, Yulianty R, Usmar, Djide N, Subehan, Burhamzah R, et al. *Actinomycetes of Orthosipon Stamineus Rhizosphere as Producer of Antibacterial Compound Against Multidrug Resistant Bacteria*. *Materials Sciences and Engineering*. 2017;259:1–6.
18. Krismawati H, Sembiring L, Wahyuono S. *Streptomyces Penghasil Antibiotik yang Berasosiasi dengan Rhizosfer Beberapa Spesies Mangrove*. *Plasma*. 2015;1(2):59–70.
19. Bailey B, Bae H, Strem M, Roberts D, Thomas S. *Fungal and Plant Gene Expression During the Colonization of Cacao Seedlings by Endophytic Isolates of Four Trichoderma Species*. *Planta*. 2006;224(6):1449–64.
20. Novitasiah HR, Yuniati E, Ramadhani. *Studi Etnobotani Komparatif Tumbuhan Rempah yang Bernilai Sebagai Obat di Desa Tombi Kecamatan Ampibabo Kabupaten Parigi Moutong Sulawesi Tengah*. *Jurnal Biocelebes*. 2012;6(2):66–77.
21. Kiem P V, Thuy NT, Anh HT, Nhiem NX, Minh C V, Yen PH, et al. *Chemical Constituents of the Rhizomes of Hedychium coronarium and Their Inhibitory Effect on the Pro-Inflammatory Cytokines Production LPS-Stimulated in Bone Marrow- Derived Dendritic Cells*. *Bioorg Med Chem*. 2011;21(24):7460–5.

22. Lu Y, Zhong CX, Wang L, Lu C, Li XL, Wang PJ. Anti Inflammation Activity and Chemical Composition of Flower Essential Oil from *Hedychium coronarium*. African Journal Biotechnology. 2009;8(20):5373–7.
23. Astriani AD, Djide MN, Naid T. Uji Aktivitas Antimikroba Actinomycetes dari Tanah Perakaran Kunyit Putih (*Curcuma zedoaria*). JF FIK UINAM. 2018;6(2):97–102.
24. Radji M. Buku Ajar Mikrobiologi Panduan Mahasiswa Farmasi dan Kedokteran. Jakarta: EGC; 2010.
25. Yuan K, Yu K, Yang R, Zhang Q, Yang Y, Chen E, et al. Metagenomic Characterization of Antibiotic Resistance Genes in Antarctic Soils. Journal Ecotoxicology and Environmental Safety. 2019;176:300–8.
26. Caceres WC, Ye M, Balcazar JL. Bacteriophages as Environmental Reservoirs of Antibiotic Resistance. Journal Trends in Microbiology. 2019;27(7):570–7.
27. O'Neill J. Tackling Drug-Resistant Infections Globally: Final Report and Recommendations. The Review on Antimicrobial Resistance. 2016;
28. Alam MZ, Alam Q, Fatani AAJ, Shukri HA, Haque A. A Surveillance Study on The Prevalence and Antimicrobial Resistance Pattern Among Different Groups of Bacteria Isolated from Western Province of Saudi Arabia. Biomedical Research. 2017;28:898–906.

29. Raffatelu M. Learning from Bacterial Competition in the Host Develop Antimicrobials. *Nat Med.* 2018;24:1097–103.
30. Nursanty R, Yunita. The Potent of Methanol Extracts of Cashew (*Anacardium occidentale* L.) Againts Methicillin- Resistant *Staphylococcus aureus* (MRSA). *Journal Natural Unsyiah.* 2012;12(2):1–7.
31. Bartlett JG, Gilbert DN, Spellberg B. Seven Ways to Preserve the Miracle of Antibiotics. *Clin Infect Dis.* 2013;56(10):1445–50.
32. Chamikara P. Advanced Study on Selected Taxonomic Groups of Bacteria and Archaea (*Actinomycetes*). *Microbiology Special.* 2016;1–9.
33. Naikpatil S V, Rathod JL. Selective Isolation and Antimicrobial Activity of Rare *Actinomycetes* from Mangrove Sediment of Karwar. *Journal Ecobiotechnology.* 2011;3(10):48–53.
34. Rante H. Isolasi dan Karakterisasi *Actinomycetes* Asosiasi Spons Penghasil Antibiotik Koleksi Pulau Barrang Lompo Makassar. Universitas Gajah Mada; 2012.
35. Pepper IL, Gentry TJ. Earth Enviroments. In: *Enviromental Microbiology.* 3rd ed. 2015. p. 59–88.
36. Ambarwati, Sujono TA, Sembiring L, Wahyuno S. Aktivitas Antifungi Isolat *Streptomyces* yang Diisolasi dari Rizosfer Rumput Belulang (*Eleusine indica*). *Jurnal Ilmu Kefarmasian Indonesia.* 2016;13(2):221–8.

37. Zin N., Baba M., Zainal-Abidin A., Latip J, Mazlan N., Edrada-Ebel R. Gancidin W, A Potential Low Toxicity Antimalarial Agents Isolated from an Endophytic Streptomyces SUK10. Drug Desain Development and Theraphy. 2017;11:351.
38. Cao L, Qiu Z, You J, Tan H, Zhou S. Isolation and Characterization of Endophytic Streptomyces Strains from Surface-sterilized Tomato (*Lycopersicon esculentum*) Roots. Letters in Applied Microbiology. 2004;39:425–30.
39. Nurkanto A, Agusta A. Identifikasi Molekular dan Karakterisasi Morfo - Fisiologi *Actinomycetes* Penghasil Senyawa Antimikroba. Jurnal Biologi Indonesia. 2015;11(2):195–203.
40. Saifudin A. Senyawa Alam Metabolit Sekunder Teori Konsep, dan Teknik Pemurnian. Deepublish; 2012.
41. Golinska P, Wypij M, Agarkar G, Rathod D, Dahm H, Rai M. Endophytic *Actinomycetes* Actinobacteria of Medicinal Plants: Diversity and Bioactivity. Antonie Van Leeuwenhoek. 2015;108:267–89.
42. Tanvir R, Sajid I, Hasnain S, Kulik A, Grond S. Rare *Actinomycetes* *Nocardia caishijiens* and *Pseudonocardia carboxydivorans* as Endophytes, their Bioactivity and Metabolites Evaluation. Microbiology Research. 2016;185:22–35.
43. Mendes RE, Mendoza M, Singh KKB, Castanheira M, Bell JM, Turnidge JD. Regional Resistance Surveillance Program Result for 12 Asia-Pacific

Nations (2011). Antimicrobial Agents and Chemotherapy. 2013;57(11):5721–6.

44. Juan L, Lijun Z, Weifu L. Calla alilly Intercropping in Rubber Tree Plantations Changes the Nutrient Content, Microbial Abudance, and Enzym Activity of Both Rhizosphere and Non-Rhizosphere Soil and Calla Lilly Growth. *Industrials Crop Prod.* 2019;132:344–51.

45. Sastrahidayat R. Peranan Mikroba Bagi Kesehatan Tanaman dan Kelestarian Lingkungan. Malang: Tim UB Press; 2014.

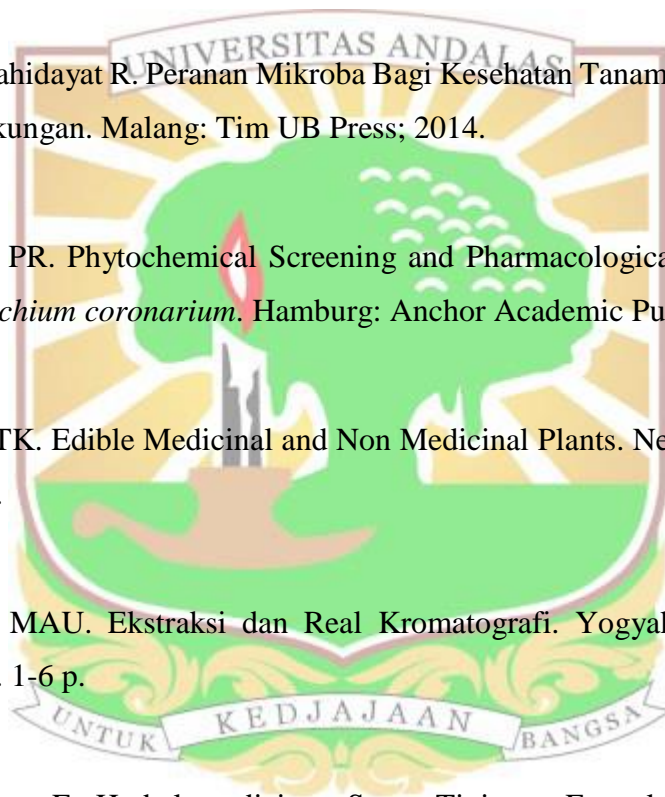
46. Dash PR. Phytochemical Screening and Pharmacological Investigation on *Hedychium coronarium*. Hamburg: Anchor Academic Publishing; 2016.

47. Lim TK. Edible Medicinal and Non Medicinal Plants. New York: Springer; 2014.

48. Leba MAU. Ekstraksi dan Real Kromatografi. Yogyakarta: Deepublish; 2017. 1-6 p.

49. Sutrisna E. Herbal medicine : Suatu Tinjauan Farmakognosi. Surakarta: Muhammadiyah University Press; 2016. 15-17 p.

50. Kumar S, Jyotirmayee K, Sarangi M. Thin Layer Chromatography : A Tool of Biotechnology for Isolation of Bioactive Compounds from Medicinal Plants. *International Journal of Pharmaceutical Sciences.* 2013;18(1):126–32.



51. Mukhriani. Ekstraksi, Pemisahan Senyawa, dan Identifikasi Senyawa Akif. *Jurnal Kesehatan*. 2014;7(2):361–7.
52. Cai L. Chromatography : Tin Layer Chromatography. In: Wiley J, Sons, editors. *Current Protocols Essential Techniques*. New York; 2018.
53. Rubiyanto D. Metode Kromatografi Prinsip Dasar, Pratikum dan Pendekatan Pembelajaran Kromatografi. Yogyakarta: Deepublish; 2017. 22-25 p.
54. Kusnadi J. Pengawet Alami Untuk Makanan. Malang: UB Press; 2018. 124 p.
55. Talaro KP. *Foundation in Microbiology*. New York: Mc Graw Hill; 2008.
56. Subandi. *MikroBiologi : Perkembangan, Kajian, dan Pengamatan dalam Perspektif Islam*. Bandung: PT Remaja Rosdakarya; 2010. 74-85 p.
57. Harti AS. *Mikrobiologi Kesehatan*. Yogyakarta: CV. Andi Offset; 2015. 14-16 p.
58. Pratiwi S. *Mikrobiologi Farmasi*. Jakarta: Erlangga; 2008.
59. Dewi AK. Isolasi, Identifikasi dan Uji Sensitivitas *Staphylococcus aureus* terhadap Amoxicillin dari Sampel Susu Kambing Peranakan Ettawa (PE) Penderita Mastitis di Wilayah Girimulyo , Kulonprogo, Yogyakarta. *Jurnal Sain Veteriner*. 2013;31(2):138–50.
60. Tong SYC, Davis JS, Eichenberger E, Holland TL, Fowler VG. *Staphylococcus aureus* Infection : Epidemiology, Pathophysiology, Clinical



Manifestations, and Management. *Journal American Society for Microbiology*. 2015;28(3):603–61.

61. Karimela EJ, Ijong FG, Dien HA. Karakteristik *Staphylococcus aureus* yang Diisolasi dari Ikan Asap Pinekehu Hasil Olahan Tradisional Kabupaten Sangihe. *JPHPI*. 2017;20(1):188–98.
62. Novard MFA, Suharti N, Rasyid R. Gambaran Bakteri Penyebab Infeksi Pada Anak Berdasarkan Jenis Spesimen dan Pola Resistensinya di Laboratorium RSUP Dr . M . Djamil Padang Tahun 2014-2016. *Jurnal Kesehatan Andalas*. 2019;8(Supplement 2):26–32.
63. Sutiknowati LI. Bioindikator Pencemar, Bakteri *Escherichia coli*. *Jurnal Osceana*. 2016;XLI(4):63–71.
64. Raz NE, Lador A, Weissman YL, Elbaz M, Paul M, Leibovici L. Efficacy and Safety of Chloramphenicol : Joining the Revival of Old Antibiotics? Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Journal of Antimicrobial Chemotherapy*. 2015;70:979–96.
65. IKAPI. *Kimia Medisinal 2*. 2nd ed. Surabaya: Airlangga University Press; 2016.
66. Hammad OM, Hifnawy T, Omran D, Tantawi MA El, Girgis NI. Ceftriaxone Versus Cloramphenicol for Treatment of Acute Typhoid Fever. *Life Science Journal*. 2011;8(2):100–5.
67. Mohamed H, Miloud B, Zohra F, Veloso A, Rodr S, Bella A Ben, et al. Isolation and Characterization of Actinobacteria from Algerian Sahara Soils

with Antimicrobial Activities. *Int J Mol Cell Med Spring*. 2017;6(2):109–20.

68. Pujiati. Isolasi *Actinomycetes* dari Tanah Kebun Sebagai Bahan Petunjuk Praktikum Mikrobiologi. *Jurnal Florea*. 2014;1(2):42–6.

69. Himedia Laboratory. *Actinomycetes* Isolation Agar. 2015.

70. Ahmad MS, El-gendy AO, Ahmed RR, Hassan HM, El-kabbany HM, Merdash AG, et al. Exploring the Antimicrobial and Antitumor Potentials of *Streptomyces* sp . AGM12-1 Isolated from Egyptian Soil. *Frontiers in Microbiology*. 2017;8(March):1–11.

71. Himedia Laboratory. *Actinomycetes* Broth. 2015.

72. Sharma D, Kaur T, Chadha BS, Manhas RK. Antimicrobial Activity of *Actinomycetes* Against Multidrug Resistant *Staphylococcus aureus* , *E . coli* and Various Other Pathogens. *Tropical Journal in Pharmaceutical Research*. 2011;10(March):801–8.

73. Lestari S, Mukarlina, Kurniatuhadi R. Identifikasi dan Deteksi Aktivitas Daya Hambat Bakteri *Actinomycetes* yang diisolasi dari Tanah Gambut di Desa Tajok Kayong Kalimantan Barat. *Jurnal Protobiont*. 2019;8:13–9.

74. Sulistyani N, Akbar AN. Aktivasi Isolat *Actinomycetes* dari Rumput Laut (*Eucheuma cottonii*) sebagai Penghasil Antibiotik terhadap *Staphylococcus aureus* dan *Escherichia coli*. *Jurnal Ilmu Kefarmasian Indonesia*. 2014;12(1):1–9.



75. Ng ZY, Palanisamy M, Mickymaray S. Isolation of *Actinomycetes* with Antibacterial Activity Against Multi-drug Malaysian Journal of Microbiology. Malaysia Journal Microbiology. 2018;(December).
76. Suhardiman A, Juanda D, Alanti MD. Uji Antibakteri Rimpang Gandasuli (*Hedychium coronarium*) Terhadap Bakteri *Staphylococcus aureus* dan *Escherichia coli* dengan Perbandingan Metode Ekstraksi. Jurnal Pharmacopolium. 2018;1(2):62–8.
77. Ergina, Nuryanti S, Pursitasari D. Uji Kualitatif Senyawa Metabolit Sekunder pada Daun Palado (*Agave angustifolia*) yang Diekstraksi dengan Pelarut Air dan Etanol. Jurnal Akademika Kimia. 2014;3(August):165–72.
78. Tiwari P, Kumar B, Mandeep K, Kaur G, Kaur H. Phytochemical screening and Extraction: A Review. Internationale Pharmaceutica Scientia. 2011;1(1):98–106.
79. Elita A, Saryono S, Christine J. Penentuan Waktu Optimasi Produksi Antimikroba dan Uji Fitokimia Ekstrak Kasar Fermentasi Bakteri Endofit *Pseudomonas* sp. dari Umbi Tanaman Dahlia (*Dahlia variabilis*). J ICA. 2013;3(2):56–62.
80. Rijayanti RP. In vitro Antibacterial Activity Test of Ethanol Extract Bacang Mango (*Mangifera foetida* L.) Leaves Against *Staphylococcus aureus*. Naskah Publikasi Universitas Tanjungpura. 2014;1(7–8).
81. Rusli J, Hafsan. Potensi Cendawan Rhizosfer dalam Menginduksi Ketahanan Tanaman. Jurnal Biotek. 2015;3(1):91–5.

82. Sunaryanto R. Isolasi, Purifikasi, Identifikasi, dan Optimasi Medium Fermentasi Antibiotik yang dihasilkan oleh Aktinomisetes Laut. Institut Pertanian Bogor; 2011.
83. David A Ben, Davidson CE. Estimation Method for Serial Dilution Experiments. *Journal Microbiology Methods*. 2014;107:214–21.
84. Araujo JM, da Silva AC, Azevedo JL. Isolation of Endophytic *Actinomycetes* from Roots and Leaves of Maize (*Zea mays* L.). *Brazil Electron Journal*. 2008;
85. Ambarwati. Studi *Actinomycetes* yang Berpotensi Menghasilkan Antibiotik dari Rhizosfer Tumbuhan Putri Malu (*Mimosa pudica* L.) dan Kucing-kucingan (*Acalypha indica* L.). *J Penelitian Sains Teknologi*. 2007;8(1):1–14.
86. Ed-har AA, Widyastuti R, Djajakirana G. Isolasi dan Identifikasi Mikroba Tanah Pendegradasi Selulosa dan Pektin dari Rhizosfer *Aquilaria malaccensis*. *Buletin Tanah dan Lahan*. 2017;1:58–64.
87. Sanders ER. Aseptic Laboratory Techniques : Plating Methods. *Journal of Visualized Experiments*. 2012;63:1–2.
88. Thairu Y, Nasir IA, Usman Y. Laboratory Perspective of Gram Staining and its Significance Investigation of Infectious Disease. *Sub-Saharan African Journal Medicine*. 2014;1(4):170–1.
89. Smith AC, Hussey MA. Gram Stain Protocols. *American Society for*

Microbiology. 2005;1–9.

90. Murwani S. Dasar-Dasar Mikrobiologi Veteriner. Malang: Universitas Brawijaya Press; 2015. 66-67 p.
91. Pratiwi S. Mikrobiologi farmasi. Jakarta: Erlangga Medical series; 2008. 119-192 p.
92. Yunus R, Alimuddin AH, Ardiningsih P. Uji Aktivitas Antibakteri Kulit Buah Tampoi (*Baccaurea macrocarpa*) Terhadap Bakteri *Escherichia coli* dan *Staphylococcus aureus*. Jurnal Kedokteran dan Kesehatan. 2014;3(3):19–24.
93. Tambun R, Limbong HP, Pinem C, Manurung E. Pengaruh Ukuran Partikel, Waktu dan Suhu pada Ekstraksi Fenol dari Lengkuas Merah. Jurnal Teknik Kimia USU. 2016;5(4):53–6.
94. Kristian J, Zain S, Nurjanah S, Widyasanti A, Putri SH. Pengaruh Lama Ekstraksi Terhadap Rendemen dan Mutu Minyak Bunga Melati Putih Menggunakan Metode Ekstraksi pelarut Menguap (Solvent Extraction). Jurnal Teknotan. 2016;10(2):34–43.
95. Silhavy TJ, Kahne D, Walker S. The Bacterial Cell Envelope. Cold Spring Harbor Perspectives in Biology. 2010;1–5.
96. Karou D, Savadogo A, Canini A, Yameogo S, Montesano C, Simpore J, et al. Antibacterial Activity of Alkaloid from *Sida Acuta*. African Journal Biotechnology. 2005;4(12):1452–7.

97. Leon L de, Lopez MR, Moujir L. Antibacterial Properties of Zeylasterone, a triterpenoid Isolated from *Maytenus blepharodes*, Against *Staphylococcus aureus*. *Microbiological Research*. 2010;165:617–26.
98. Madduluri S, Rao KB, Sitaram B. In Vitro evaluation of Antibacterial Activity of Five Indigenous Plants Extract Against Five Bacterial Pathogens of Human. *International Journal of Pharmacy and Pharmaceutical Sciences*. 2013;5(4):679–84.
99. Dzoyem JP, Hamamoto H, Ngameni B, Ngadjul BT. Antimicrobial Action Mechanism of Flavonoids from *Dorstenia* Species. *Drug Discoveries Therapeutics*. 2013;7(2):66–72.
100. Pridham TG, Hesseltine CW, Benedict RG. A Guide for the Classification of Streptomycetes According to Selected Groups. *Agriculture Research Service*. 1958;6(52–55).
101. Labeda DP, Goodfellow M, Brown R, Ward AC, Lanoot B, Vanncanneyt M, et al. Phylogenetic Study of the Species within the Family Streptomycetaceae. *Antonie Van Leeuwenhoek*. 2012;101:73–104.
102. Zhong J, Lu Z, Dai J, He W. Identification of Two Regulatory Genes Involved in Carbomycin Biosynthesis in *Streptomyces thermotolerans*. *Arch Microbiol*. 2017;1–11.
103. Solecka J, Zajko J, Postek M, Rajnisz A. Biologically Active Secondary Metabolites from Actinomycetes. *Central European Journal of Biology*. 2012;7(3):373–90.