

DAFTAR PUSTAKA

- Adamczak, A., Ozarowski M., Karpinski T.M., 2020, Curcumin, a Natural Antimicrobial Agent with Strain-Specific Activity, *Pharmaceuticals (Basel)*, 13(7), 153.
- Adefisoye, M.A., Olaniran A.O., 2022, Does Chlorination Promote Antimicrobial Resistance in Waterborne Pathogens? Mechanistic Insight into Co-Resistance and Its Implication for Public Health, *Antibiotics*, 11(5), 564.
- Anand, P, Sherin G.T., Ajaikumar B.K., Chitra S., Kuzhuvelil B.H., Bokyoung S., Sheeja T.T., Krishna M., Indira K.P., Kallikat N.R., Bharat B.A., 2008, Biological Activities of Curcumin and Its Analogues (Congeners) Made by Man and Mother Nature, *Biochemical Pharmacology*, 76 (11), 1590-1611.
- Anastas, P.T., Warner, J.C., 1998, *Green Chemistry: Theory and Practice*, Oxford University Press, New York.
- Anonim, 1999, *Chloramphenicol, Product Information*, Sigma-Aldrich, Inc., USA.
- Anonim, 2004, *Melting Point Determination*, http://www.chem.wisc.edu/courses/342/Fall2004/Melting_Point.pdf, diakses pada 19 Desember 2023.
- Anonim, 2018, *Melting Point*, <http://www.chem.ucalgary.ca/courses/351/laboratory/meltingpoint.pdf>, diakses pada 19 Desember 2023.
- Ashenhurst, James, 2022, *Degrees of Unsaturation (or IHD, Index of Hydrogen Deficiency)*, <https://www.masterorganicchemistry.com/2016/08/26/degrees-of-unsaturation-index-of-hydrogen-deficiency/>, diakses pada 8 Januari 2024.
- Ashenhurst, James, 2023, *Aldol Addition and Condensation Reactions*, <https://www.masterorganicchemistry.com/2022/04/14/aldol-addition-and-condensation/>, diakses pada 13 Januari 2024.
- ATCC, 2023, *Escherichia coli (Migula) Castellani and Chalmers 25922™*, <https://www.atcc.org/products/25922>, diakses pada 5 Oktober 2023.
- ATCC, 2023, *Staphylococcus aureus Subsp. Aureus Rosenbach*, <https://www.atcc.org/products/25923>, diakses pada 5 Oktober 2023.
- ATCC, 2023, *Test for Specified Microorganisms*, <https://www.atcc.org/microbe-products/applications/quality-control/pharmaceutical-testing/tests-for-specified-microorganisms>, diakses pada 15 Desember 2023.
- Bagchi, A, 2012, Extraction of Curcumin, *IOSR Journal of Environment Science, Toxicology and Technology (IOSR-JESTFT)*, 1(3), 01-16.
- Balouiri, M., Sadiki, M., & Ibsouda, S. K, 2016, Methods For in Vitro Evaluating Antimicrobial Activity: A Review, *Journal of Pharmaceutical Analysis*, 6(2).
- BPPT, 2021, *Outlook Teknologi Kesehatan 2021 Inisiatif Industrialisasi Bahan Baku Obat Amoksisilin*, ISBN 978-602-1328-19-4, Pusat Pengkajian Industri Proses dan Energi (PPIPE) BPPT, Jakarta.
- Brittain, C. Graham, 2009, *Using Melting Point to Determine Purity of Crystalline Solids*, https://www.chm.uri.edu/mmcgregor/chm228/use_of_melting_point_apparatus.pdf, diakses pada 23 September 2023.
- Brittany, H, 2002, *Microwave Synthesis: Chemistry at the Speed of Light*, Matthews: CEM Publishing, 11-27.

- Brooks, G., Carroll, K., Butel, J. & Morse, S., 2004, *Jawetz, Melnick & Adelbergs Medical Microbiology*, 23th Ed., 200-223, McGraw-Hill Education, New York.
- CLSI, 2012, *Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically: Approved Standard*, Ninth Edition, 18-20, Clinical and Laboratory Standards Institute, Wayne.
- Cos, P., Vlietinck, A.J., Berghe, D.V. & Maes, L., 2006, Anti-infective Potential of Natural Products: How to Develop a Stronger In Vitro 'Proof-of-concept', *Journal of Ethnopharmacology*, 106, 290-302.
- Dahiya, M. S., Tomer, V. K., & Duhan, S., 2018, Metal–ferrite Nanocomposites for Targeted Drug Delivery, *Applications of Nanocomposite Materials in Drug Delivery*, 737–760.
- Dai C., Lin J., Li H., Shen Z., Wang Y., Velkov T., Shen J., 2022, The Natural Product Curcumin as an Antibacterial Agent: Current Achievements and Problems, *Antioxidants*, 11(3), 459.
- Dinos G.P., Athanassopoulos C.M., Missiri D.A., Giannopoulou P.C., Vlachogiannis I.A., Papadopoulos G.E., Papaioannou D., Kalpaxis D.L., 2016, Chloramphenicol Derivatives as Antibacterial and Anticancer Agents: Historic Problems and Current Solutions, *Antibiotics (Basel)*, 5(2), 20.
- Doldolova, K., Mustafa B., Melisa L., Yavuz S.A., Refik A., Resat A., 2021, Optimization and Modeling of Microwave-assisted Extraction of Curcumin and Antioxidant Compounds from Turmeric by Using Natural Deep Eutectic Solvents, *Food Chemistry*, 353.
- Fessenden, R.J. & Fessenden, J.S., 1986, *Organic Chemistry*, 3rd Ed., 854-868, John Wiley & Sons, Inc., New York.
- Finney, D. J., Ed, 1952, *Probit Analysis*, Cambridge University Press, Cambridge, England.
- Frimodt-Moller N., 2002, How Predictive is PK/PD for Antibacterial Agents, *International Journal Antimicrobial Agents*, 19(4), 333-339.
- Gandjar, I.G. & Rohman, A., 2007, *Kimia Farmasi Analisis*, Pustaka Pelajar, Yogyakarta.
- Garg E, Zubair M, 2023, Mass Spectrometer, *StatPearls Publishing* <https://www.ncbi.nlm.nih.gov/books/NBK589702/>, diakses pada 24 September 2023.
- Goldman, E. & Green, L., 2008, *Practical Handbook of Microbiology*, 2nd Ed., CRC Press, New York.
- Gonzalez, C.M.O., Eder M.C.M., Ana de M.N.T., Thelma E.S.Q., Oxana V. K, Miguel A.M.R., 2021, *Chapter 18 - CO₂ capture by MOFs, Handbook of Greener Synthesis of Nanomaterials and Compounds*, 407-448.
- Gupta, S., dkk., 2011, Multitargeting by Curcumin as Revealed by Molecular Interaction Studies, *Nat. Prod. Rep.*, 28, 1937–1955.
- Gunes, H., Gulen, D., Mutlu, R., Gumus, A., Tas, T., & Topkaya, A. E, 2016, Antibacterial Effects of Curcumin: An In Vitro Minimum Inhibitory Concentration Study, *Toxicology and Industrial Health*, 32(2), 246–250.
- Hahn, E., 2007, *Applied Thin Layer Chromatography: Best Practice and Avoidance of Mistakes*, Wiley-VCH Verlag GmbH & Co. KgaA, Weinheim.

- Hamed, O.A., Mehdawi N., Abu Taha A., M. Hamed E., A. Al-Nuri M., S. Hussein A., 2013, Synthesis and Antibacterial Activity of Novel Curcumin Derivatives Containing Heterocyclic Moiety, *Iranian Journal of Pharmaceutical Research*, 12(1), 47-56.
- Hudzicki, Jan, 2009, Kirby-Bauer Disk Diffusion Susceptibility Test Protocol, *American Society for Microbiology*.
- Hussain, Y., Alam, W., Ullah, H., Dacrema, M., Daglia, M., Khan, H., Arciola, C.R., 2022. Antimicrobial Potential of Curcumin: Therapeutic Potential and Challenges to Clinical Applications, *Antibiotics*, 11, 322.
- Jenie, U.A., 2015, *Spektroskopi Massa: Prinsip – Prinsip Reaksi Fragmentasi pada Spektrometer Massa*, Bahan Ajar Kuliah, Program Pasca Sarjana, Fakultas Farmasi, Universitas Gadjah Mada.
- J.R. Alger, 2009, Magnetic Resonance Spectroscopy, *Encyclopedia of Neuroscience*, Academic Press, 601-607.
- Kenna, S.M. & Davies, K.J., 1988, The Inhibition of Bacterial Growth by Hypochlorous Acid. Possible Role in Bactericidal Activity of Phagocytes, *Biochem. J.*, 254(3), 685-692.
- Khudhayer, Oglah, M., Fakri Mustafa, Y., 2020, Curcumin Analogs: Synthesis and Biological Activities, *Medicinal Chemistry Research*, 29, 479–486.
- Koh, C.M., 2013, Storage of Bacteria and Yeast, *Laboratory Methods in Enzymology: Cell, Lipid and Carbohydrate*, 533, 15–21.
- Kolarević, S., Milovanović, D., Avdović, M., Oalđe, M., Kostić, J., Sunjog, K., Nikolić, B., Knežević-Vukčević, J., Vuković-Gačić, B., 2016, Optimisation of the Microdilution Method for Detection of Minimum Inhibitory Concentration Values in Selected Bacteria, *Botanica Serbica*, 40(1): 29-36.
- Kowalska-Krochmal B., Dudek-Wicher R., 2021, The Minimum Inhibitory Concentration of Antibiotics: Methods, Interpretation, Clinical Relevance, *Pathogens*, 10(2), 165.
- Lewandowski, T.A., 2014, Green Chemistry, *Elsevier*, 798-799.
- MacWilliams, M.P., Min-Ken L., 2006, Luria Broth (LB) and Luria Agar (LA) Media and Their Uses Protocol, *American Society for Microbiology*.
- Malahayati, N., Tri, W.W., Anita F., 2021, Karakterisasi Ekstrak Kurkumin dari Kunyit Putih (*Kaemferia rotunda* L.) dan Kunyit Kuning (*Curcuma domestica* Val.), *Agritech: Jurnal Fakultas Teknologi Pertanian UGM*, 41, 2.
- Manohar, S., Thakur, A., Bhatia, R., Walia, S., Ponnann, P., dan Rawat, D.S., 2015, Antibacterial and Antioxidant Activity Evaluation of Novel Symmetrical and Unsymmetrical C5-Curcuminoids, *Indian Journal of Chemistry*, 54B: 1235-1246.
- McDermott, P.F., Robert, D.W, and David, D.W., 2003, Antimicrobials: Modes of Action and Mechanisms of Resistance, *International Journal of Toxicology*, 22: 135–143.
- McDonnell, G. & Russell, A.D., 1999, Antiseptics and Disinfectants: Activity, Action, and Resistance, *Clin. Microbiol. Rev.*, 12(1), 147-179.
- McMurry, J., 2012, *Organic Chemistry*, 8 th Ed., Brooks/Cole-Cengage Learning Inc, United States of America.

- Minogue T.D., Daligault H.A., Davenport K.W., Bishop-Lilly K.A., Broomall S.M., Bruce D.C., Chain P.S., Chertkov O., Coyne S.R., Freitas T., Frey K.G., Gibbons H.S., Jaissle J., Redden C.L., Rosenzweig C.N., Xu Y., Johnson S.L., 2014, Complete Genome Assembly of *Escherichia coli* ATCC 25922, a Serotype O6 Reference Strain, *Genome Announcements*, 2(5), e00969-14.
- Mizozoe, M., Otaki M., Aikawa K., 2019, The Mechanism of Chlorine Damage Using Enhanced Green Fluorescent Protein-Expressing *Escherichia coli*. *Water*, 11(10), 2156.
- Mueller M, Tainter CR., 2023, *Escherichia coli* Infection, *StatPearls Publishing*, <https://www.ncbi.nlm.nih.gov/books/NBK564298/>, diakses pada 30 September 2023.
- Nafisi, S., Adelzadeh, M., Norouzi, Z. & Sarbolouki, M., 2009, Curcumin Binding to DNA and RNA, *DNA Cell Biol.*, 28, 201–208.
- National Center for Biotechnology Information, 2023, *PubChem Compound Summary for CID 67847, 2-Chloro-6-fluorobenzaldehyde*, <https://pubchem.ncbi.nlm.nih.gov/compound/2-Chloro-6-fluorobenzaldehyde>, diakses pada 20 September 2023.
- National Center for Biotechnology Information, 2023, *PubChem Compound Summary for CID 8452, Cyclopentanone*, <https://pubchem.ncbi.nlm.nih.gov/compound/Cyclopentanone>, diakses pada 20 September 2023.
- National Human Genome Research Institute (NIH), 2023, *Bacteria*, <https://www.genome.gov/genetics-glossary/Bacteria>, diakses pada 22 September 2023.
- Nicols, C.E., Dani Y., Robert G.H., and Amitabh J., 2006, Microwave-assisted Synthesis of Curcumin Analogs, *Archieve for Organic Chemistry*, 13, 64-72.
- Núñez N, Vidal-Casanella O, Sentellas S, Saurina J, Núñez O., 2020, Characterization, Classification and Authentication of Turmeric and Curry Samples by Targeted LC-HRMS Polyphenolic and Curcuminoid Profiling and Chemometrics, *Molecules*, 25(12), 2942.
- Oetari, R.A., Sardjiman, Yuwono, T., dan Hakim, L., 2001, Upaya Peningkatan Absorpsi Senyawa Baru Antiinflamasi PGV-0, *Laporan Penelitian Hibah Bersaing IX/1 Perguruan Tinggi, Lembaga Penelitian Universitas Gadjah Mada*, 17.
- Paglia, S.R.L. and B.C. Roquette, 1962, Fluorescence Efficiency of Cyclopentanone Vapor and Its Relation to Photolysis, *Canadian Journal of Chemistry*, 41, 287-292.
- Pavia, D.L., Lampman, G.M., and Jr. George, S.K., 2001, *Introduction to Spectroscopy: A Guide for Students of Organic Chemistry*, 3rd edition, US, America, ISBN: 0-03-031961-7.
- Pratiwi, S.T.U., 2008, *Mikrobiologi Farmasi*, 16-192, Erlangga, Jakarta.
- Pudjono, Sisindari, & Widada, H., 2008, Sintesis 2,5-bis-(4'-hidroksibenziliden)-siklopentanon dan 2,5-bis-(4'-klorobenziliden)-siklopetanon serta Uji Antiproliferasinya terhadap Sel HeLa, *Majalah Farmasi Indonesia*, 19(1), 48-55.

- Pudjono, Supardjan, dan Tri Irawati., 2006, Sintesis 2,5-dibenzilidinsiklopentanon dari Benzaldehid dan Siklopentanon dengan Variasi Pelarut, *Majalah Farmasi Indonesia*, 17 (1), 45-29.
- Ritmaleni, 2016, Synthesis of Curcumin Analogs, *International Journal of Pharmaceutical Sciences Review and Research*, 42: 236-241.
- Ritmaleni, A.N.A. Hastutitama, I. Persitamaia, T. Restiwardani, A. Eksakta, R.F. Munandar, M.S. Abdullah, A.E. Purwanto, P. Astuti, and Sardjiman, 2021, Syntesis and Antibacterial Activity of Dibenzylidene-Cyclohexanone, *Rasayan J. Chem*, 14(3): 2090-2096.
- Robinson, T. P., Ehlers, T., Hubbard IV, R. B., Bai, X., Arbiser, J.L., Goldsmith, D.J. & Bowen, J.P., 2003, Design, Synthesis, and Biological Evaluation of Angiogenesis Inhibitors: Aromatic Enone and Dienone Analogues of curcumin, *Bioorg. Med. Chem. Lett.*, 13 (1), 115-117.
- Sambrook, J. and D.W. Russell, 2001, *Molecular Cloning, a Laboratory Manual*, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York.
- Sardjiman, 2000, Synthesis of Some New Series of Curcumin Analogues, Anti Oxidative, Anti-Inflammatory, Anti-Bacterial Activities and Qualitative Structure-Activity Relationship, *Disertation*, Gadjah Mada University.
- Sardjiman, Reksohadiprodjo, M.S., dan Timmerman, H., 2003, Derivatives of Benzylidene Cyclohexanone, Benzylidene Cyclopentanone, Benzylidene Acetone and Their Synthesis, *European Patent Application*, EP 0 860 422 A1.
- Sardjiman, S. S., Reksohadiprodjo, M. S., Hakim, L., van der Goot, H., & Timmerman, H., 1997, 1,5-Diphenyl-1,4-pentadiene-3-ones and Cyclic Analogues as Antioxidative Agents. Synthesis and Structure-activity Relationship, *European Journal of Medicinal Chemistry*, 32(7-8), 625–630.
- Schon, T., Jim W., Diana M., Emanuele B., Maria W., Gerard L., Johan M., Erika M., Gunnar K., Christian G., Miguel S., Daniela M. C., Miguel V., Emmanuelle C., 2020, Antimicrobial Susceptibility Testing of *Mycobacterium tuberculosis* Complex Isolates – The EUCAST Broth Microdilution Reference Method for MIC Determination, *Clinical Microbiology and Infection*, 26(11): 1488-1492.
- Schwalbe, R., Lynn S.M., Avery C.G., 2007, *Antimicrobial Susceptibility Testing Protocols*, CRC Press, New York.
- Silhavy, T.J., Kahne D.W.S., 2010, The Bacterial Cell Envelope, *Cold Spring Harbor Perspective in Biology*, 2(5).
- Silverstein, R. M., Webster, F.X. & Kiemle, D.J., 2005, *Spectrometric Identification of Organic Compounds*, 7 th Ed., John Wiley & Sons, Inc., New York.
- Sinko, P.J. & Singh, Y., 2011, *Martin's Physical Pharmacy and Pharmaceutical Sciences*, 6th Ed., 22, Lippincott Williams & Wilkins, Philadelphia.
- Smith, A.C., Marris A.H., 2016, Gram Strain Protocols, *American Society for Microbiology*, 1-9.
- Smith K.P., Kirby J.E., 2018, The Inoculum Effect in the Era of Multidrug Resistance: Minor Differences in Inoculum Have Dramatic Effect on MIC Determination, *Antimicrob Agents Chemother*, 62(8).
- Stuart, B., 2004, *Infrared Spectroscopy: Fundamental and Applications*, John Wiley & Sons, New York.

- Tong, S. Y., Davis, J. S., Eichenberger, E., Holland, T. L., & Fowler, V. G., Jr, 2015, *Staphylococcus aureus* Infections: Epidemiology, Pathophysiology, Clinical Manifestations, and Management, *Clinical Microbiology Reviews*, 28(3).
- Treangen T.J., Maybank R.A., Enke S., Friss M.B., Diviak L.F., Karaolis D.K., Koren S., Ondov B., Phillippy A.M., Bergman N.H., Rosovitz M.J., 2014, Complete Genome Sequence of the Quality Control Strain *Staphylococcus aureus* subsp. aureus ATCC 25923, *Genome Announcements*, 2(6), e01110-14.
- Trigo-Gutierrez J.K., Vega-Chacón Y., Soares A.B., Mima E.G.O., 2021, Antimicrobial Activity of Curcumin in Nanoformulations: A Comprehensive Review, *International Journal of Molecular Sciences*, 22(13), 7130.
- Viesser, R.V., Ducati, L.C., Tormena, C.F., & Autschbach, J., 2017, The Unexpected Roles of σ and π Orbitals in Electron Donor and Acceptor Group Effects on the ^{13}C NMR Chemical Shifts in Substituted Benzenes, *Chemical Science*, 8, 6570-6576.
- Wadhwani, T., Desai, K., Patel, D., Lawani, D., Bahaley, P., Joshi, P. & Kothari, V., 2009, Effect of Various Solvents on Bacterial Growth in Context of Determining MIC of Various Antimicrobials, *The Internet Journal of Microbiology*, 7 (1).
- Wakte, P.S., B.S. Sachin, A.A. Patil, D.M. Mohato, T.H. Band, D.B. Shinde, 2011, Optimization of Microwave, Ultra-sonic and Supercritical Carbon Dioxide Assisted Extraction Techniques for Curcumin from *Curcuma longa*, *Separation and Purification Technology*, 79, 50-55.
- Warsi, Sardjiman, Sugeng R., 2018, Synthesis and Antioxidant Activity of Curcumin Analogues, *Journal of Chemical and Pharmaceutical Research*, 10(4): 1-9.
- Wiegand C, Völkel A, Ewald A, Remesch M, Kuever J, et al, 2018, Critical Physiological Factors Influencing the Outcome of Antimicrobial Testing According to ISO 22196/JIS Z 2801. *Plos One*, 13(3).