

## DAFTAR PUSTAKA

- Abbaszadegan, A. *et al.* (2015) ‘The Effect of Charge at the Surface of Silver Nanoparticles on Antimicrobial Activity against Gram-Positive and Gram-Negative Bacteria: A Preliminary Study’, *Journal of Nanomaterials*. Edited by R. Hazan. Hindawi Publishing Corporation, 2015, p. 720654. doi: 10.1155/2015/720654.
- Akter, M. *et al.* (2018) ‘A systematic review on silver nanoparticles-induced cytotoxicity: Physicochemical properties and perspectives’, *Journal of Advanced Research*. Cairo University, 9, pp. 1–16. doi: 10.1016/j.jare.2017.10.008.
- Ameen, F. *et al.* (2019) ‘Phytosynthesis of silver nanoparticles using *Mangifera indica* flower extract as bioreductant and their broad-spectrum antibacterial activity’, *Bioorganic Chemistry*. Elsevier, 88(March), p. 102970. doi: 10.1016/j.bioorg.2019.102970.
- Amirjani, A., Firouzi, F. and Haghshenas, D. F. (2020) ‘Predicting the Size of Silver Nanoparticles from Their Optical Properties’, *Plasmonics*. Plasmonics. doi: 10.1007/s11468-020-01121-x.
- Anjali Das, C. G. *et al.* (2020) ‘Antibacterial activity of silver nanoparticles (biosynthesis): A short review on recent advances’, *Biocatalysis and Agricultural Biotechnology*. Elsevier Ltd, p. 101593. doi: 10.1016/j.bcab.2020.101593.
- Artini, M. *et al.* (2013) ‘Comparison of the action of different proteases on virulence properties related to the staphylococcal surface’, *Journal of Applied Microbiology*, 114(1), pp. 266–277. doi: 10.1111/jam.12038.
- Arunasri, K. and Mohan, S. V. (2019) *Chapter 2.3-Biofilms, Microbial Electrochemical Technology*. Elsevier B.V. doi: 10.1016/B978-0-444-64052-9.00011-X.
- Ashajyothi, C. *et al.* (2016) ‘Antibiofilm activity of biogenic copper and zinc oxide nanoparticles-antimicrobials collegiate against multiple drug resistant bacteria: a nanoscale approach’, *Journal of Nanostructure in Chemistry*. Springer Berlin Heidelberg, 6(4), pp. 329–341. doi: 10.1007/s40097-016-0205-2.
- Badiyah, H. I. *et al.* (2019) ‘Synthesis of Silver Nanoparticles and the Development in Analysis Method’, *IOP Conference Series: Earth and Environmental Science*, 217(1). doi: 10.1088/1755-1315/217/1/012005.
- Bae, E. *et al.* (2013) ‘Effect of agglomeration of silver nanoparticle on nanotoxicity depression’, *Korean Journal of Chemical Engineering*, 30(2), pp. 364–368. doi: 10.1007/s11814-012-0155-4.
- Ballottin, D. *et al.* (2016) ‘Elucidating Protein Involvement in the Stabilization of the Biogenic Silver Nanoparticles’, *Nanoscale Research Letters*. Nanoscale Research Letters, 11(1). doi: 10.1186/s11671-016-1538-y.
- Balouiri, M., Sadiki, M. and Ibnsouda, S. K. (2016) ‘Methods for in vitro evaluating antimicrobial activity: A review’, *Journal of Pharmaceutical Analysis*. Elsevier, 6(2), pp. 71–79. doi: 10.1016/j.jpha.2015.11.005.
- Baptista, P. V. *et al.* (2018) ‘Nano-strategies to fight multidrug resistant bacteria-

- "A Battle of the Titans", *Frontiers in Microbiology*, 9(JUL), pp. 1–26. doi: 10.3389/fmicb.2018.01441.
- Barber, M. (1961) 'Methicillin-resistant staphylococci', *Journal of Clinical Pathology*, 14(4), pp. 385–393.
- Becker, K. (2018) *Chapter 2 - Pathogenesis of Staphylococcus aureus A2 - Fetsch, Alexandra BT - Staphylococcus aureus, Staphylococcus aureus*. Elsevier Inc. doi: <https://doi.org/10.1016/B978-0-12-809671-0.00002-4>.
- Beloin, C., Roux, A. and Ghigo, J. (2008) 'Escherichia coli biofilms - Samenvatting', pp. 249–289.
- Bhatia, E. and Banerjee, R. (2020) 'Hybrid silver-gold nanoparticles suppress drug resistant polymicrobial biofilm formation and intracellular infection', *Journal of Materials Chemistry B*, 8(22), pp. 4890–4898. doi: 10.1039/d0tb00158a.
- Boundless (2019) *4.4C: Gram-Positive Cell Envelope*, *Microbiology*. Available at: [https://bio.libretexts.org/Bookshelves/Microbiology/Book%3A\\_Microbiology\\_\(Boundless\)/4%3A\\_Cell\\_Structure\\_of\\_Bacteria%2C\\_Archaea%2C\\_and\\_Eukaryotes/4.4%3A\\_Cell\\_Walls\\_of\\_Prokaryotes/4.4C%3A\\_Gram-Positive\\_Cell\\_Envelope](https://bio.libretexts.org/Bookshelves/Microbiology/Book%3A_Microbiology_(Boundless)/4%3A_Cell_Structure_of_Bacteria%2C_Archaea%2C_and_Eukaryotes/4.4%3A_Cell_Walls_of_Prokaryotes/4.4C%3A_Gram-Positive_Cell_Envelope) (Accessed: 20 July 2020).
- Burmølle, M. et al. (2014) 'Interactions in multispecies biofilms: Do they actually matter?', *Trends in Microbiology*. Elsevier Ltd, 22(2), pp. 84–91. doi: 10.1016/j.tim.2013.12.004.
- Carr, J. H. (2001) *Details - Public Health Image Library(PHIL)*. Available at: <https://phil.cdc.gov/details.aspx?pid=11157> (Accessed: 18 September 2019).
- Carretto, E., Visiello, R. and Nardini, P. (2018) *Methicillin Resistance in Staphylococcus aureus, Pet-to-Man Travelling Staphylococci: A World in Progress*. Elsevier Inc. doi: 10.1016/B978-0-12-813547-1.00017-0.
- Carrol, K. C. et al. (2016) *Jawetz Melnick & Adelbergs Medical Microbiology 27 E (Lange)*. McGraw Hill Professional. doi: 10.1017/CBO9781107415324.004.
- Castiglioni, S. et al. (2017) 'Silver nanoparticles in orthopedic applications: New insights on their effects on osteogenic cells', *Nanomaterials*, 7(6). doi: 10.3390/nano7060124.
- Centre of Agriculture and Biosciences International (2018) *Lansium domesticum (langsat), Invasive Species Compendium*. Available at: <https://www.cabi.org/isc/datasheet/29802#topests> (Accessed: 20 September 2019).
- Centres of Disease Control and Prevention (2019) *Glossary of Terms Related to Antibiotic Resistance, National Antimicrobial Resistance Monitoring System for Enteric Bacteria (NARMS)*. Available at: <https://www.cdc.gov/narms/resources/glossary.html> (Accessed: 30 September 2019).
- Charan, J. and Biswas, T. (2013) 'How to Calculate Sample Size for Different Study Designs in Medical Research?', *Indian Journal of Psychological Medicine*, 35(2), pp. 121–126. doi: 10.4103/0253-7176.116232.
- Chaudhuri, R. R. and Henderson, I. R. (2012) 'The evolution of the Escherichia coli phylogeny', *Infection, Genetics and Evolution*. Elsevier B.V., 12(2), pp.

- 214–226. doi: 10.1016/j.meegid.2012.01.005.
- Chen, C. *et al.* (2013) ‘Secreted proteases control autolysin-mediated biofilm growth of *staphylococcus aureus*’, *Journal of Biological Chemistry*, 288(41), pp. 29440–29452. doi: 10.1074/jbc.M113.502039.
- Chokkalingam, M. *et al.* (2019) ‘Facile synthesis of Au and Ag nanoparticles using fruit extract of *Lycium chinense* and their anticancer activity’, *Journal of Drug Delivery Science and Technology*. Elsevier, 49(December 2018), pp. 308–315. doi: 10.1016/j.jddst.2018.11.025.
- Ciocan, I. D. and Bara, I. I. (2007) ‘Plant Products As Antimicrobial Agents’, *Secțiunea Genetică și Biologie Moleculară*, pp. 151–156. Available at: <http://www.gbm.bio.uaic.ro/index.php/gbm/article/viewFile/1017/974>.
- Clinical and Laboratory Standards Institute (2012) *Methods for dilution antimicrobial susceptibility tests for bacteria that grow aerobically; Approved staCLSI document M07-A09ndard — Ninth Edition, Methods for Dilution Antimicrobial Susceptibility Tests for Bacteria That Grow Aerobically; Approved Standar- Ninth Edition.* doi: 10.4103/0976-237X.91790.
- Costa, G. A. *et al.* (2018) ‘Evaluation antibacterial and antibiofilm activity of the antimicrobial peptide P34 against *Staphylococcus aureus* and *Enterococcus faecalis*’, *Anais da Academia Brasileira de Ciencias*, 90(1), pp. 73–84. doi: 10.1590/0001-3765201820160131.
- Cowan, M. M. (1999) ‘Plant products as antimicrobial agents.’, *Clinical microbiology reviews*, 12(4), pp. 564–582. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC174783/>
- Cruz, C. D., Shah, S. and Tammela, P. (2018) ‘Defining conditions for biofilm inhibition and eradication assays for Gram-positive clinical reference strains’, *BMC Microbiology*. BMC Microbiology, 18(1), pp. 1–9. doi: 10.1186/s12866-018-1321-6.
- Daum, R. S. (2018) ‘115 - *Staphylococcus aureus*’, in Long, S. S., Prober, C. G., and Fischer, M. (eds) *Principles and Practice of Pediatric Infectious Diseases*. Fifth Edit. Philadelphia: Elsevier Inc., pp. 692-706.e4. doi: 10.1016/B978-0-323-40181-4.00115-8.
- Departemen Kesehatan Republik Indonesia (2008) *Farmakope Herbal Indonesia*. I. Jakarta: Departemen Kesehatan Republik Indonesia.
- Dewi, K. T. A. *et al.* (2019) ‘Karakter Fisik dan Aktivitas Antibakteri Nanopartikel Perak Hasil Green Synthesis Menggunakan Ekstrak Air Daun Sendok (*Plantago major L.*)’, *Pharmaceutical Sciences and Research*, 6(2), pp. 69–81. doi: 10.7454/psr.v6i2.4220.
- Drugbank (2019) *Silver*, *Drugbank Database*. Available at: <https://www.drugbank.ca/drugs/DB12965> (Accessed: 20 September 2019).
- Du, J. *et al.* (2019) *Antibacterial activity of a novel *Forsythia suspensa* fruit mediated green silver nanoparticles against food-borne pathogens and mechanisms investigation*, *Materials Science and Engineering C*. Elsevier. doi: 10.1016/j.msec.2019.04.031.
- Durán, N. *et al.* (2016) ‘Silver nanoparticles: A new view on mechanistic aspects on antimicrobial activity’, *Nanomedicine: Nanotechnology, Biology, and Medicine*. Elsevier Inc., 12(3), pp. 789–799. doi:

- 10.1016/j.nano.2015.11.016.
- Ebrahiminezhad, A. et al. (2016) ‘Ancient and Novel Forms of Silver in Medicine and Biomedicine’, *Journal of Advanced Medical Sciences and Applied Technologies*, 2(1), p. 122. doi: 10.18869/nrip.jamsat.2.1.122.
- Elias, S. and Banin, E. (2012) ‘Multi-species biofilms: Living with friendly neighbors’, *FEMS Microbiology Reviews*, 36(5), pp. 990–1004. doi: 10.1111/j.1574-6976.2012.00325.x.
- Engelking, L. R. (2015) ‘Chapter 61 – Cholesterol’, in *Textbook of Veterinary Physiological Chemistry*. Third, pp. 390–396. doi: 10.1016/B978-0-12-391909-0.50061-X.
- EUCAST (2019) ‘Antimicrobial susceptibility testing EUCAST disk diffusion method - Version 7.0’, *European Society of Clinical Microbiology and Infectious Diseases*, 7(January), pp. 1–21. Available at: www.eucast.org.
- Fahimirad, S., Ajalloueian, F. and Ghorbanpour, M. (2019) ‘Synthesis and therapeutic potential of silver nanomaterials derived from plant extracts’, *Ecotoxicology and Environmental Safety*. Elsevier Inc., 168(January 2018), pp. 260–278. doi: 10.1016/j.ecoenv.2018.10.017.
- Foster, T. J. (2002) *39 Staphylococcus aureus*. Volume 2, *Molecular Medical Microbiology*. Volume 2. San Diego: Academic Press. doi: <https://doi.org/10.1016/B978-012677530-3/50258-0>.
- Foster, T. J. and Geoghegan, J. A. (2015) *Chapter 37 – Staphylococcus aureus, Molecular Medical Microbiology*. Elsevier Ltd. doi: 10.1016/B978-0-12-397169-2.00037-8.
- Frey, B. B. (2018) ‘The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation’. Thousand Oaks,, California. doi: 10.4135/9781506326139 NV - 4.
- Fulaz, S. et al. (2019) ‘Nanoparticle–Biofilm Interactions: The Role of the EPS Matrix’, *Trends in Microbiology*. Elsevier Ltd, pp. 1–12. doi: 10.1016/j.tim.2019.07.004.
- Gaidhani, S. et al. (2013) ‘Biofilm disruption activity of silver nanoparticles synthesized by Acinetobacter calcoaceticus PUCM 1005’, *Materials Letters*, 108(October 2017), pp. 324–327. doi: 10.1016/j.matlet.2013.07.023.
- Gamse, T. (2019) *Extraction*. Graz. Available at: studenti.di3.units.it › 02 Script Extraction › \_layouts › mobile.
- Ganesan, P. et al. (2017) ‘Antimicrobial activity of some actinomycetes from Western Ghats of Tamil Nadu, India’, *Alexandria Journal of Medicine*. Alexandria University Faculty of Medicine, 53(2), pp. 101–110. doi: 10.1016/j.ajme.2016.03.004.
- Gomes, T. A. T. et al. (2016) ‘Diarrheagenic Escherichia coli’, *Brazilian Journal of Microbiology*. Sociedade Brasileira de Microbiologia, 47, pp. 3–30. doi: 10.1016/j.bjm.2016.10.015.
- González, A. L. et al. (2014) ‘Size, Shape, Stability, and Color of Plasmonic Silver Nanoparticles’, *The Journal of Physical Chemistry C*, 118(17), pp. 9128–9136. doi: doi:10.1021/jp5018168.
- Grace, D. and Fetsch, A. (2018) ‘*Staphylococcus aureus*— A Foodborne Pathogen: Epidemiology, Detection, Characterization, Prevention and Control: An Overview’, in Fetsch, A. (ed.) *Staphylococcus aureus*. First. San Diego: Elsevier Inc., pp. 1–10. doi: 10.1016/B978-0-12-809671-

0.00001-2.

- Gudikandula, K. and Charya Maringanti, S. (2016) ‘Synthesis of silver nanoparticles by chemical and biological methods and their antimicrobial properties’, *Journal of Experimental Nanoscience*. Taylor & Francis, 11(9), pp. 714–721. doi: 10.1080/17458080.2016.1139196.
- Gumbart, J. C. et al. (2014) ‘Escherichia coli Peptidoglycan Structure and Mechanics as Predicted by Atomic-Scale Simulations’, *PLoS Computational Biology*, 10(2). doi: 10.1371/journal.pcbi.1003475.
- Hoseinzadeh, E. et al. (2017) ‘A review of available techniques for determination of nano-antimicrobials activity’, *Toxin Reviews*. Taylor & Francis, 36(1), pp. 18–32. doi: 10.1080/15569543.2016.1237527.
- Hosokawa, M. et al. (eds) (2007) *Nanoparticle Technology Handbook*. First. Oxford: Elsevier Inc. doi: 10.1192/bjp.111.479.1009-a.
- Huang, K. C. et al. (2008) ‘Cell shape and cell-wall organization in Gram-negative bacteria’, *Proceedings of the National Academy of Sciences of the United States of America*, 105(49), pp. 19282–19287. doi: 10.1073/pnas.0805309105.
- Hussain, S. et al. (2005) ‘In vitro toxicity of nanoparticles in BRL 3A rat liver cells’, *Toxicology in Vitro*, 19, pp. 975–983.
- Husseiny, M. I. et al. (2007) ‘Biosynthesis of gold nanoparticles using *Pseudomonas aeruginosa*’, *Spectrochimica Acta - Part A: Molecular and Biomolecular Spectroscopy*, 67(3–4), pp. 1003–1006. doi: 10.1016/j.saa.2006.09.028.
- IGEM (2007) *Escherichia coli - International Genetically Engineered Machine Competition*. Available at: [https://2007.igem.org/wiki/index.php/Escherichia\\_coli](https://2007.igem.org/wiki/index.php/Escherichia_coli) (Accessed: 18 September 2019).
- Ikuma, K., Decho, A. W. and Lau, B. L. T. (2015) ‘When nanoparticles meet biofilms - Interactions guiding the environmental fate and accumulation of nanoparticles’, *Frontiers in Microbiology*, 6(MAY), pp. 1–6. doi: 10.3389/fmicb.2015.00591.
- Indrawati, A., Hartih, N. A. and Muyassara, M. (2019) ‘Isolasi dan uji potensi fungi endofit kulit batang Langsat (*Lansium domesticum* corr.) penghasil antibakteri terhadap *Staphylococcus aureus* dan *Escherichia coli*’, *Media Farmasi*, XV(1), p. 7.
- ITIS (2019a) *Escherichia coli*, *Integrated Taxonomic Information System*. Available at: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=285#null](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=285#null) (Accessed: 30 September 2019).
- ITIS (2019b) *Staphylococcus aureus*, *Integrated Taxonomic Information System*. Available at: [https://www.itis.gov/servlet/SingleRpt/SingleRpt?search\\_topic=TSN&search\\_value=369#null](https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=369#null) (Accessed: 2 October 2019).
- Jalani, N. S. et al. (2018) ‘Biosynthesis of Silver Nanoparticles using Citrus grandis Peel Extract’, *Malaysian Journal of Analytical Sciences*, 22(4), pp. 676–683. doi: <https://doi.org/10.17576/mjas-2018-2204-14>.
- Jamkhande, P. G. et al. (2019) ‘Metal nanoparticles synthesis: An overview on methods of preparation, advantages and disadvantages, and applications’,

- Journal of Drug Delivery Science and Technology*. Elsevier, 53(July), p. 101174. doi: 10.1016/j.jddst.2019.101174.
- Jebril, S., Khanfir Ben Jenana, R. and Dridi, C. (2020) ‘Green synthesis of silver nanoparticles using *Melia azedarach* leaf extract and their antifungal activities: In vitro and in vivo’, *Materials Chemistry and Physics*, 248(March). doi: 10.1016/j.matchemphys.2020.122898.
- Jefferson, K. K. (2004) ‘What drives bacteria to produce a biofilm?’, *FEMS Microbiology Letters*, 236(2), pp. 163–173. doi: 10.1016/j.femsle.2004.06.005.
- Jorge de Souza, T. A., Rosa Souza, L. R. and Franchi, L. P. (2019) ‘Silver nanoparticles: An integrated view of green synthesis methods, transformation in the environment, and toxicity’, *Ecotoxicology and Environmental Safety*. Elsevier Inc., 171(December 2018), pp. 691–700. doi: 10.1016/j.ecoenv.2018.12.095.
- Kailasa, S. K. et al. (2019) *Antimicrobial activity of silver nanoparticles, Nanoparticles in Pharmacotherapy*. Elsevier Inc. doi: 10.1016/b978-0-12-816504-1.00009-0.
- Kamran, U. et al. (2019) ‘Biogenic synthesis, characterization and investigation of photocatalytic and antimicrobial activity of manganese nanoparticles synthesized from *Cinnamomum verum* bark extract’, *Journal of Molecular Structure*. Elsevier B.V, 1179, pp. 532–539. doi: 10.1016/j.molstruc.2018.11.006.
- Kapoor, G., Saigal, S. and Elongavan, A. (2017) ‘Action and Resistance Mechanisms of Antibiotics: A Guide for Clinicians’, *Journal of Anaesthesiology Clinical Pharmacology*, 33(3), pp. 300–305.
- Kawas, H. (2016) *How Plant Extract Affect and Reduce AgNO<sub>3</sub>?*, Reserach Gate. Available at: [https://www.researchgate.net/post/how\\_plant\\_extract\\_affect\\_and\\_reduce\\_AgNO3](https://www.researchgate.net/post/how_plant_extract_affect_and_reduce_AgNO3) (Accessed: 21 February 2020).
- Kędziora, A. et al. (2018) ‘Similarities and differences between silver ions and silver in nanoforms as antibacterial agents’, *International Journal of Molecular Sciences*, 19(2). doi: 10.3390/ijms19020444.
- Key, F. (2019) *About Ionic Silver*. Available at: <https://www.silver-colloids.com/about-ionic-silver/>.
- Khanna, P., Kaur, A. and Goyal, D. (2019) ‘Algae-based metallic nanoparticles: Synthesis, characterization and applications’, *Journal of Microbiological Methods*. Elsevier, 163(September 2018), p. 105656. doi: 10.1016/j.mimet.2019.105656.
- Khaytarova, M. (2019) *Trees of Tropical Asia - Lansium*. Available at: <http://www.plantsofasia.com/index/lansium/0-528> (Accessed: 18 September 2019).
- Khodashenas, B. and Ghorbani, H. R. (2019) ‘Synthesis of silver nanoparticles with different shapes’, *Arabian Journal of Chemistry*. King Saud University, 12(8), pp. 1823–1838. doi: 10.1016/j.arabjc.2014.12.014.
- Kim, S. J., Chang, J. and Singh, M. (2015) ‘Peptidoglycan architecture of Gram-positive bacteria by solid-state NMR’, *Biochimica et Biophysica Acta - Biomembranes*. Elsevier B.V., 1848(1), pp. 350–362. doi: 10.1016/j.bbamem.2014.05.031.

- Kim, Y. *et al.* (2010) ‘Subchronic oral toxicity of silver nanoparticles’, *Particle and Fibre Toxicology*, 7, p. 20.
- Kirmusaoğlu, S. (2019) ‘The Methods for Detection of Biofilm and Screening Antibiofilm Activity of Agents’, *Antimicrobials, Antibiotic Resistance, Antibiofilm Strategies and Activity Methods*. doi: 10.5772/intechopen.84411.
- Kittler, S. *et al.* (2010) ‘Toxicity of silver nanoparticles increases during storage because of slow dissolution under release of silver ions’, *Chemistry of Materials*, 22, pp. 4548–4554.
- Kumar, A. *et al.* (2017) ‘Biofilms: Survival and defense strategy for pathogens’, *International Journal of Medical Microbiology*, 307(8), pp. 481–489. doi: 10.1016/j.ijmm.2017.09.016.
- Larios-Rodriguez, E. *et al.* (2011) ‘Bio-synthesis of gold nanoparticles by human epithelial cells, *in vivo*’, *Nanotechnology*, 22(35). doi: 10.1088/0957-4484/22/35/355601.
- Li, G. *et al.* (2012) ‘Fungus-mediated green synthesis of silver nanoparticles using aspergillus terreus’, *International Journal of Molecular Sciences*, 13(1), pp. 466–476. doi: 10.3390/ijms13010466.
- Licitra, G. (2013) ‘Etymologia: Staphylococcus’, *Emerging Infectious Diseases*, 19(9), p. 1553. Available at: [www.cdc.gov/eid](http://www.cdc.gov/eid).
- Lim, T. K. (2012) ‘*Lansium domesticum* “Langsat Lonkong Group”’, *Edible Medicinal And Non-Medicinal Plants*, 3(April), pp. 318–336. doi: 10.1007/978-94-007-2534-8.
- Linlin, W., Chen, H. and Longquan, S. (2017) ‘The antimicrobial activity of nanoparticles: present situation and prospects for the future’, *International journal of nanomedicine*, 12, pp. 1227–1249. doi: 10.2147/IJN.S121956.
- Lister, J. L. and Horswill, A. R. (2014) ‘Staphylococcus aureus biofilms: Recent developments in biofilm dispersal’, *Frontiers in Cellular and Infection Microbiology*, 4(DEC), pp. 1–9. doi: 10.3389/fcimb.2014.00178.
- Liu, X. *et al.* (2020) ‘Antibacterial activity and mechanism of linalool against *Pseudomonas aeruginosa*’, *Microbial Pathogenesis*, 141, pp. 1469–1487. doi: 10.1016/j.micpath.2020.103980.
- Liwa, A. C. *et al.* (2017) *Bioactive Plant Molecules, Sources and Mechanism of Action in the Treatment of Cardiovascular Disease, Pharmacognosy: Fundamentals, Applications and Strategy*. Elsevier Inc. doi: 10.1016/B978-0-12-802104-0.00015-9.
- López, D., Vlamakis, H. and Kolter, R. (2010) ‘Biolims’, *Cold Spring Harb Perspect Biol*, 2, pp. 1–11.
- Mahamuni-Badiger, P. P. *et al.* (2020) ‘Biofilm formation to inhibition: Role of zinc oxide-based nanoparticles’, *Materials Science and Engineering C*, 108(June 2019). doi: 10.1016/j.msec.2019.110319.
- Makkar, H. P. S., Siddhuraju, P. and Becker, K. (2002) *Saponins*. New Jersey: Humana Press Inc.
- Makovcova, J. *et al.* (2017) ‘Dynamics of mono- and dual-species biofilm formation and interactions between *Staphylococcus aureus* and Gram-negative bacteria’, *Microbial Biotechnology*, 10(4), pp. 819–832. doi: 10.1111/1751-7915.12705.
- Mandal, D. *et al.* (2016) ‘Bio-fabricated silver nanoparticles preferentially targets

- Gram positive depending on cell surface charge.', *Biomedicine & pharmacotherapy = Biomedecine & pharmacotherapie*. France, 83, pp. 548–558. doi: 10.1016/j.biopha.2016.07.011.
- Mao, C. et al. (2003) 'Viral assembly of oriented quantum dot nanowires', *Proceedings of the National Academy of Sciences of the United States of America*, 100(12), pp. 6946–6951. doi: 10.1073/pnas.0832310100.
- Masturoh, I. and Temesvari, N. A. (2018) *Metodologi Penelitian Kesehatan*. 1st edn, *Bahan Ajar Rekam Medis dan Informasi Kesehatan (RMIK)*. 1st edn. Edited by R. Y. Priyati. Jakarta: Kementerian Kesehatan Republik Indonesia. Available at: [http://bppsdmk.kemkes.go.id/pusdiksdmk/wp-content/uploads/2018/09/Metodologi-Penelitian-Kesehatan\\_SC.pdf](http://bppsdmk.kemkes.go.id/pusdiksdmk/wp-content/uploads/2018/09/Metodologi-Penelitian-Kesehatan_SC.pdf).
- Masurkar, S. A. et al. (2012) 'Effect of biologically synthesised silver nanoparticles on *Staphylococcus aureus* biofilm quenching and prevention of biofilm formation', *IET Nanobiotechnology*, 6(3), pp. 110–114. doi: 10.1049/iet-nbt.2011.0061.
- Matsumoto, T. et al. (2019) 'Structures of triterpenoids from the leaves of *Lansium domesticum*', *Journal of Natural Medicines*. Springer Singapore, (0123456789). doi: 10.1007/s11418-019-01319-2.
- Maunders, E. and Welch, M. (2017) 'Matrix exopolysaccharides; the sticky side of biofilm formation', *FEMS Microbiology Letters*, 364(13), pp. 1–10. doi: 10.1093/femsle/fnx120.
- Mayanti, T. et al. (2015) '9,19-cyclolanost-24-en-3-one,21,23-epoxy-21,22-dihydroxy (21R, 22S, 23S) from the leaves of *Lansium domesticum* corr cv kokossan', *MolBank*, 2015(4). doi: 10.3390/M880.
- McAuliffe, M. and Perry, M. (2007) 'Are nanoparticles potential male reproductive toxicants? A literature review', *Nanotoxicology*, 1, pp. 204–210.
- Menon, S., S., R. and S., V. K. (2017) 'A review on biogenic synthesis of gold nanoparticles, characterization, and its applications', *Resource-Efficient Technologies*. Elsevier B.V., 3(4), pp. 516–527. doi: 10.1016/j.refft.2017.08.002.
- Mohammed, Y. H. E. et al. (2018) 'Vision for medicine: *Staphylococcus aureus* biofilm war and unlocking key's for anti-biofilm drug development', *Microbial Pathogenesis*, 123(July), pp. 339–347. doi: 10.1016/j.micpath.2018.07.002.
- Mukherjee, P. K. (2019) *Extraction and Other Downstream Procedures for Evaluation of Herbal Drugs, Quality Control and Evaluation of Herbal Drugs*. doi: 10.1016/b978-0-12-813374-3.00006-5.
- Nam, N. H. and Luong, N. H. (2019) *Nanoparticles: synthesis and applications, Materials for Biomedical Engineering*. Elsevier Inc. doi: 10.1016/b978-0-08-102814-8.00008-1.
- Nazir, R., Zaffar, M. R. and Amin, I. (2019) *Bacterial biofilms : the remarkable heterogeneous biological communities and nitrogen fixing microorganisms in lakes*, *Freshwater Microbiology*. Elsevier Inc. doi: 10.1016/B978-0-12-817495-1.00008-6.
- Neihaya, H. Z. and Zaman, H. H. (2018) 'Investigating the effect of biosynthesized silver nanoparticles as antibiofilm on bacterial clinical isolates', *Microbial Pathogenesis*, 116(January), pp. 200–208. doi:

- 10.1016/j.micpath.2018.01.024.
- Niba, E. T. E. *et al.* (2007) ‘A genome-wide approach to identify the genes involved in biofilm formation in *E. coli*’, *DNA Research*, 14(6), pp. 237–246. doi: 10.1093/dnare/dsm024.
- Noah, N. (2019) *Green synthesis: Characterization and application of silver and gold nanoparticles*, *Green Synthesis, Characterization and Applications of Nanoparticles*. Elsevier Inc. doi: 10.1016/b978-0-08-102579-6.00006-x.
- Nolan, R. (2018) *Colloidal Silver vs Nano Silver*. Available at: <https://elementalsilver.com/blog/colloidal-silver-vs-nano-silver/> (Accessed: 14 August 2020).
- Ovais, M. (2016) *The Reason for Green Colour of Silver Nanoparticle*, Reserach Gate. Available at: [https://www.researchgate.net/post/What\\_is\\_the\\_reason\\_for\\_green\\_colour\\_of\\_silver\\_nanoparticle](https://www.researchgate.net/post/What_is_the_reason_for_green_colour_of_silver_nanoparticle) (Accessed: 17 February 2020).
- Ovais, M. *et al.* (2017) ‘Biosynthesized colloidal silver and gold nanoparticles as emerging leishmanicidal agents: An insight’, *Nanomedicine*, 12(24), pp. 2807–2819. doi: 10.2217/nmm-2017-0233.
- Pal, G., Rai, P. and Pandey, A. (2019) *Green synthesis of nanoparticles: A greener approach for a cleaner future*, *Green Synthesis, Characterization and Applications of Nanoparticles*. Elsevier Inc. doi: 10.1016/b978-0-08-102579-6.00001-0.
- Pana, Z. D. and Zaoutis, T. (2018) ‘Treatment of extended-spectrum β-lactamase-producing enterobacteriaceae (ESBLs) infections: What have we learned until now? [version 1; referees: 2 approved]’, *F1000Research*, 7(0), pp. 1–9. doi: 10.12688/f1000research.14822.1.
- Pandiarajan, J. and Krishnan, M. (2017) ‘Properties, synthesis and toxicity of silver nanoparticles’, *Environmental Chemistry Letters*. Springer International Publishing, 15(3), pp. 387–397. doi: 10.1007/s10311-017-0624-4.
- Park, Y. *et al.* (2011) ‘Polysaccharides and phytochemicals: A natural reservoir for the green synthesis of gold and silver nanoparticles’, *IET Nanobiotechnology*, 5(3), pp. 69–78. doi: 10.1049/iet-nbt.2010.0033.
- Parveen, K., Banse, V. and Ledwani, L. (2016) ‘Green synthesis of nanoparticles: Their advantages and disadvantages’, in *AIP Conference Proceedings*. doi: 10.1063/1.4945168.
- Paterson, D. L. and Bonomo, R. A. (2005) ‘Clinical Update Extended-Spectrum Beta-Lactamases: a Clinical Update’, *Clinical Microbiology Reviews*, 18(4), pp. 657–686. doi: 10.1128/CMR.18.4.657.
- Patra, J. K. and Baek, K. H. (2014) ‘Green Nanobiotechnology: Factors Affecting Synthesis and Characterization Techniques’, *Journal of Nanomaterials*, 2014. doi: 10.1155/2014/417305.
- Percival, S. L. *et al.* (2015) ‘Healthcare-Associated infections, medical devices and biofilms: Risk, tolerance and control’, *Journal of Medical Microbiology*, 64(4), pp. 323–334. doi: 10.1099/jmm.0.000032.
- Percival, S. L. and Williams, D. W. (2014) *Escherichia coli*. Second Edi, *Microbiology of Waterborne Diseases: Microbiological Aspects and Risks: Second Edition*. Second Edi. Elsevier. doi: 10.1016/B978-0-12-415846-7.00006-8.

- Perugu, S., Nagati, V. and Bhanoori, M. (2016) ‘Green synthesis of silver nanoparticles using leaf extract of medicinally potent plant Saraca indica: a novel study’, *Applied Nanoscience (Switzerland)*. Springer Berlin Heidelberg, 6(5), pp. 747–753. doi: 10.1007/s13204-015-0486-7.
- Pinoyentre, P. (2010) *Lanzones Production - Franchise, Business and Entrepreneur*. Available at: <https://www.pinoyentrepreneur.com/2010/02/24/lanzones-production/> (Accessed: 18 September 2019).
- Poirel, L., Naas, T. and Nordmann, P. (2008) ‘Genetic support of extended-spectrum  $\beta$ -lactamases’, *Clinical Microbiology and Infection*. European Society of Clinical Microbiology and Infectious Diseases, 14(SUPPL. 1), pp. 75–81. doi: 10.1111/j.1469-0691.2007.01865.x.
- Prabhu, S. and Poulose, E. K. (2012) ‘Silver nanoparticles: mechanism of antimicrobial’, *Int. Nano Lett.*, 2, pp. 32–41. Available at: <http://www.inl-journal.com/content/pdf/2228-5326-2-32.pdf>.
- Prasad, R. (2014) ‘Synthesis of Silver Nanoparticles in Photosynthetic Plants’, *Journal of Nanoparticles*, 2014, pp. 1–8. doi: 10.1155/2014/963961.
- Qing, Y. et al. (2018) ‘Potential antibacterial mechanism of silver nanoparticles and the optimization of orthopedic implants by advanced modification technologies’, *International Journal of Nanomedicine*, 13, pp. 3311–3327. doi: 10.2147/IJN.S165125.
- Radzig, M. A. et al. (2013) ‘Antibacterial effects of silver nanoparticles on gram-negative bacteria: Influence on the growth and biofilms formation, mechanisms of action’, *Colloids and Surfaces B: Biointerfaces*. Elsevier B.V., 102, pp. 300–306. doi: 10.1016/j.colsurfb.2012.07.039.
- Rafique, M. et al. (2019) ‘Novel and facile synthesis of silver nanoparticles using Albizia procera leaf extract for dye degradation and antibacterial applications’, *Materials Science and Engineering C*. Elsevier, 99(February 2018), pp. 1313–1324. doi: 10.1016/j.msec.2019.02.059.
- Rajan, R. et al. (2015) ‘Plant extract synthesized silver nanoparticles: An ongoing source of novel biocompatible materials’, *Industrial Crops and Products*. Elsevier B.V., 70, pp. 356–373. doi: 10.1016/j.indcrop.2015.03.015.
- Rajeshkumar, S. and Bharath, L. V. (2017) ‘Mechanism of plant-mediated synthesis of silver nanoparticles – A review on biomolecules involved, characterisation and antibacterial activity’, *Chemico-Biological Interactions*. Elsevier Ltd, 273, pp. 219–227. doi: 10.1016/j.cbi.2017.06.019.
- Rajeshkumar, S., Bharath, L. V. and Geetha, R. (2019) *Broad spectrum antibacterial silver nanoparticle green synthesis: Characterization, and mechanism of action*, *Green Synthesis, Characterization and Applications of Nanoparticles*. Elsevier Inc. doi: 10.1016/b978-0-08-102579-6.00018-6.
- Rashid, S. et al. (2019) ‘Characterization and synergistic antibacterial potential of green synthesized silver nanoparticles using aqueous root extracts of important medicinal plants of Pakistan’, *Colloids and Surfaces B: Biointerfaces*, 179(March), pp. 317–325. doi: 10.1016/j.colsurfb.2019.04.016.
- Rupiah, R. et al. (2018) ‘Morphological Diversity of Lansiumdomesticum Corr in South Sumatra’, *Science and Technology Indonesia*, 3(1), pp. 41–44. doi: 10.26554/sti.2018.3.1.41-44.

- Sabbineni, J. (2016) ‘Phenol-An effective antibacterial Agent’, *Research & Reviews: Journal of Medicinal & Organic Chemistry*, 3(2), pp. 182–191.
- Saewan, N., Sutherland, J. D. and Chantrapoomma, K. (2006) ‘Antimalarial tetranortriterpenoids from the seeds of *Lansium domesticum* Corr.’, *Phytochemistry*, 67(20), pp. 2288–2293. doi: <https://doi.org/10.1016/j.phytochem.2006.07.005>.
- Sauer, K., Rickard, A. H. and Davies, D. G. (2007) ‘Biofilms and biocomplexity’, *Microbe*, 2(7), pp. 347–353. doi: 10.1128/microbe.2.347.1.
- Schwalbe, R., Steele-Moore, L. and Goodwin, A. C. (eds) (2007) *Antimicrobial Susceptibility Testing Protocols*. United States of America: CRC Press.
- Seifipour, R., Nozari, M. and Pishkar, L. (2020) ‘Green Synthesis of Silver Nanoparticles using *Tragopogon Collinus* Leaf Extract and Study of Their Antibacterial Effects’, *Journal of Inorganic and Organometallic Polymers and Materials*. Springer US, (0123456789). doi: 10.1007/s10904-020-01441-9.
- Shankar, S. et al. (2014) ‘Synthesis, characterization, in vitro biocompatibility, and antimicrobial activity of gold, silver and gold silver alloy nanoparticles prepared from *Lansium domesticum* fruit peel extract’, *Materials Letters*. Elsevier, 137, pp. 75–78. doi: 10.1016/j.matlet.2014.08.122.
- Sharma, G. et al. (2016) ‘*Escherichia coli* biofilm: development and therapeutic strategies’, *Journal of Applied Microbiology*, 121(2), pp. 309–319. doi: 10.1111/jam.13078.
- Shukla, A. K. and Iravani, S. (2017) ‘Metallic nanoparticles: green synthesis and spectroscopic characterization’, *Environmental Chemistry Letters*. Springer International Publishing, 15(2), pp. 223–231. doi: 10.1007/s10311-017-0618-2.
- Siddiqi, K. S., Husen, A. and Rao, R. A. K. (2018) ‘A review on biosynthesis of silver nanoparticles and their biocidal properties’, *Journal of Nanobiotechnology*. BioMed Central, 16(1). doi: 10.1186/s12951-018-0334-5.
- Sim, W. et al. (2018) ‘Antimicrobial silver in medicinal and consumer applications: A patent review of the past decade (2007–2017)’, *Antibiotics*, 7(4), pp. 1–15. doi: 10.3390/antibiotics7040093.
- Singh, N. et al. (2016) ‘Inhibition of quorum-sensing-mediated biofilm formation in *Cronobacter sakazakii* strains’, *Microbiology (United Kingdom)*, 162(9), pp. 1708–1714. doi: 10.1099/mic.0.000342.
- Sizar, O. and Unakal, C. G. (2020) *Gram Positive Bacteria*, StatPearls Publishing. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK470553/> (Accessed: 20 July 2020).
- Sökmen, M. et al. (2017) ‘Microwave assisted production of silver nanoparticles using green tea extracts’, *Journal of Alloys and Compounds*, 725, pp. 190–198. doi: 10.1016/j.jallcom.2017.07.094.
- Sonohara, R. et al. (1995) ‘Difference in surface properties between *Escherichia coli* and *Staphylococcus aureus* as revealed by electrophoretic mobility measurements’, *Biophysical Chemistry*, 55(3), pp. 273–277. doi: 10.1016/0301-4622(95)00004-H.
- Soto, K. M. et al. (2019) ‘Fruit peels waste for the green synthesis of silver nanoparticles with antimicrobial activity against foodborne pathogens’, *Lwt*.

- Elsevier, 103(December 2018), pp. 293–300. doi: 10.1016/j.lwt.2019.01.023.
- Steimle, A., Autenrieth, I. B. and Frick, J. S. (2016) ‘Structure and function: Lipid A modifications in commensals and pathogens’, *International Journal of Medical Microbiology*. Elsevier GmbH., 306(5), pp. 290–301. doi: 10.1016/j.ijmm.2016.03.001.
- Stepanović, S. et al. (2007) ‘Quantification of biofilm in microtiter plates’, *Apmis*, 115(8), pp. 891–899.
- Tamilarasi, P. and Meena, P. (2020) ‘Green synthesis of silver nanoparticles (Ag NPs) using Gomphrena globosa (Globe amaranth) leaf extract and their characterization’, *Materials Today: Proceedings*. Elsevier Ltd, (xxxx). doi: 10.1016/j.matpr.2020.04.025.
- Te-chato, S., Lim, M. and Masahiro, M. (2005) ‘Comparison of cultivar identification methods of Longkong, Langsat and Duku: Lansium spp .’, *Songklanakarin Journal of Science Technology*, 27(3), pp. 465–472.
- Techavuthiporn, C. (2018) *Langsat— Lansium domesticum, Exotic Fruits*. Elsevier Inc. doi: 10.1016/b978-0-12-803138-4.00036-8.
- Thakur, B. K., Kumar, A. and Kumar, D. (2019) ‘Green synthesis of titanium dioxide nanoparticles using Azadirachta indica leaf extract and evaluation of their antibacterial activity’, *South African Journal of Botany*. SAAB, 124, pp. 223–227. doi: 10.1016/j.sajb.2019.05.024.
- Thokala, N. et al. (2018) ‘Comparative activity of silver-based antimicrobial composites for urinary catheters’, *International Journal of Antimicrobial Agents*. Elsevier B.V., 52(2), pp. 166–171. doi: 10.1016/j.ijantimicag.2018.03.015.
- Tong, S. Y. C. et al. (2015) ‘Staphylococcus aureus infections: Epidemiology, pathophysiology, clinical manifestations, and management’, *Clinical Microbiology Reviews*, 28(3), pp. 603–661. doi: 10.1128/CMR.00134-14.
- Trevor, A. J., Katzung, B. G. and Kruidering-Hall, M. (2015) *Katzung and Trevor’s Pharmacology: Examination and Board Review*. 11th edn. United States of America: McGraw-Hill Education.
- UC Santa Cruz (2014) *Phenol*. Available at: <https://ehs.ucsc.edu/lab-safety-manual/specialty-chemicals/phenol.html> (Accessed: 18 September 2019).
- Vázquez-Sánchez, D. and Rodríguez-López, P. (2018) *Biofilm Formation of Staphylococcus aureus, Staphylococcus aureus*. Elsevier Inc. doi: 10.1016/b978-0-12-809671-0.00005-x.
- Velkov, T. et al. (2013) ‘Pharmacology of Polymyxins: New Insights into an “Old” Class of Antibiotics’, *Future Microbiology*, 8(6), pp. 711–724.
- Velusamy, P. et al. (2016) ‘Bio-inspired green nanoparticles: Synthesis, mechanism, and antibacterial application’, *Toxicological Research*, 32(2), pp. 95–102. doi: 10.5487/TR.2016.32.2.095.
- Ventola, C. L. (2015) ‘The antibiotic resistance crisis: causes and threats.’, *P&T Journal*, 40(4), pp. 277–83. doi: Article.
- Wady, A. F. et al. (2014) ‘Effect of a Silver Nanoparticles Solution on *Staphylococcus aureus* and *Candida* spp.’, *Journal of Nanomaterials*. Edited by M. A. Correa-Duarte. Hindawi Publishing Corporation, 2014, p. 545279. doi: 10.1155/2014/545279.
- Wilkinson, J. M. (2006) ‘Methods for Testing the Antimicrobial Activity of

- Extracts', *Modern Phytomedicine: Turning Medicinal Plants into Drugs*, pp. 157–171. doi: 10.1002/9783527609987.ch8.
- World Health Organization (2002) *Silver and silver compounds : environmental aspects, Concise International Chemical Assessment Document 44*. Available at: <https://www.who.int/ipcs/publications/cicad/en/cicad44.pdf>.
- World Health Organization (2014) *Antimicrobial resistance, Antimicrobial Resistance Global Report on Surveillance*. Available at: [https://apps.who.int/iris/bitstream/handle/10665/112642/9789241564748\\_en\\_g.pdf;jsessionid=21594BEE3EF1AEF1C7D2D04FB31FD78C?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/112642/9789241564748_en_g.pdf;jsessionid=21594BEE3EF1AEF1C7D2D04FB31FD78C?sequence=1).
- Yapp, D. T. T. and Yap, S. Y. (2003) 'Lansium domesticum: skin and leaf extracts of this fruit tree interrupt the lifecycle of Plasmodium falciparum, and are active towards a chloroquine-resistant strain of the parasite (T9) in vitro', *Journal of Ethnopharmacology*, 85(1), pp. 145–150. doi: [https://doi.org/10.1016/S0378-8741\(02\)00375-6](https://doi.org/10.1016/S0378-8741(02)00375-6).
- Yarwood, J. M. et al. (2004) 'Quorum sensing in *Staphylococcus aureus* biofilms', *Journal of bacteriology*. American Society for Microbiology, 186(6), pp. 1838–1850. doi: 10.1128/jb.186.6.1838-1850.2004.
- Yasinta, M. S. (2018) *Sintesis Nanopartikel Perak Termodifikasi dan Uji Aktifitas Antibiofilmnya Terhadap Biofilm Polimikroba*. Universitas Airlangga.
- Yuan, Y. G., Peng, Q. L. and Gurunathan, S. (2017) 'Effects of silver nanoparticles on multiple drug-resistant strains of *Staphylococcus aureus* and *Pseudomonas aeruginosa* from mastitis-infected goats: An alternative approach for antimicrobial therapy', *International Journal of Molecular Sciences*, 18(3). doi: 10.3390/ijms18030569.
- Yunus, I., Boddhi, W. and Queljoe, E. De (2018) 'Skrining Fitokimia Dan Uji Toksisitas Ekstrak Etanol Daun Langsat (*Lansium domesticum* Corr) Terhadap Larva Artemia salina Leach dengan Metode Brine Shrimp Lethality Test (BSLT)', *Pharmacon (Jurnal Ilmiah Farmasi)*, 7(3), pp. 89–96.
- Zhang, X. F. et al. (2016) 'Silver nanoparticles: Synthesis, characterization, properties, applications, and therapeutic approaches', *International Journal of Molecular Sciences*, 17(9). doi: 10.3390/ijms17091534.