

DAFTAR PUSTAKA

- Abdelwahab, M. A., Flynn, A., Chiou, B. S., Imam, S., Orts, W., & Chiellini, E. 2012. Thermal, Mechanical and Morphological Characterization of Plasticized PLA-PHB Blends. *Polymer Degradation and Stability*, 97(9), 1822–1828.
- Agbangba, C. E., Sacla Aide, E., Honfo, H., & Glèlè Kakai, R. 2024. On the Use of Post-hoc Tests in Environmental and Biological Sciences: A critical review. *Heliyon*. Elsevier Ltd.
- Akash, M. S. H., & Rehman, K. 2020. *Essentials of Pharmaceutical Analysis*. (pp. 1–222). Springer Singapore.
- Arikawa, H., Sato, S., Fujiki, T., & Matsumoto, K. 2017. Simple and Rapid Method for Isolation and Quantitation of Polyhydroxyalkanoate by SDS-Sonication Treatment. *Journal of Bioscience and Bioengineering*, 124(2), 250–254.
- Balla, E., Daniilidis, V., Karlioti, G., Kalamas, T., Stefanidou, M., Bikiaris, N. D., & Bikiaris, D. N. 2021. Poly(lactic acid): A Versatile Biobased Polymer for the Future with Multifunctional Properties Applications. *Polymers*, 13(11), 1822.
- Bewick, V., Cheek, L., & Ball, J. 2004. Statistics review 9: One-way Analysis of Variance. *Critical Care*, 8(2).
- Charrez, B., Qiao, L., & Hebbard, L. 2015. The Role of Fructose in Metabolism and Cancer. *Hormone Molecular Biology and Clinical Investigation*, 22(2), 79–89.
- Cueva, L. C., Alvarado, J. C. A., Fuentes-Olivera, A. J., Llontop-Bernabé, K. S., Cerna, C. E. Q., Rodriguez-Soto, J. C., & Quezada Alvarez, M. A. 2022. Production of Polyhydroxyalkanoate by *Bacillus thuringiensis* Isolated from Agricultural Soils of Cascas-Peru. *Brazilian Archives of Biology and Technology*, 65.
- Depoorter, E., Bull, M. J., Peeters, C., Coenye, T., Vandamme, P., & Mahenthiralingam, E. 2016. *Burkholderia*: an Update on Taxonomy and Biotechnological Potential as Antibiotic Producers. *Applied Microbiology and Biotechnology*. Springer Verlag.
- Diniz, M. S. da F., Mourão, M. M., Xavier, L. P., & Santos, A. V. 2023. Recent Biotechnological Applications of Polyhydroxyalkanoates (PHA) in the Biomedical Sector—A Review. *Polymers*. Multidisciplinary Digital Publishing Institute (MDPI).

- Fiuza, L. M., Polanczyk, R. A., & Crickmore, N. 2017. *Bacillus thuringiensis and Lysinibacillus sphaericus: Characterization and use in the Field of Biocontrol*. Springer International Publishing : (pp. 1–288).
- Getino L., Martín JL., & Chamizo-Ampudia A. 2024. A Review of Polyhydroxyalkanoates: Characterization, Production, and Application from Waste. *Microorganisms*, 12(10).
- Gio, P. U., & Rosmaini, E. 2016. *Belajar Olah Data dengan SPSS, Minitab, R, Microsoft Excel, Eviews, Lisrel, Amos, dan SMARTPLS (Disertai Beberapa Contoh Perhitungan Manual)*. USU Press, 234.
- Gomez, J.G.C., Fontolan, V., Alli, R.C.P., Rodrigues, M.F.A., Bueno Netto, C.L., Silva, L.F. and Simões, D.A. 1997. Production of P3HB-co-3HV by Soil Isolated Bacteria Able to use Sucrose. *Rev Microbiol* 28, 43–48.
- Gonzalez, A., Irusta, L., Fernández-Berridi, M. J., Iriarte, M., & Iruiñ, J. J. 2005. Application of Pyrolysis/Gas Chromatography/Fourier Transform Infrared Spectroscopy and TGA Techniques in the Study of Thermal Degradation of Poly (3-hydroxybutyrate). *Polymer Degradation and Stability*, 87(2), 347–354.
- Gulzar, H., Tariq, T., Kainat, I., Lou, H., Ghorbanpour, M., Mustafa, G., & Hasan, M. 2024. Optimization of Bioethanol Production from Reducing Sugar in Stress Tolerance by GSH: GSSG cycle in *S. cerevisiae*. *Biomass Conversion and Biorefinery*.
- Gupta, J., Rathour, R., Maheshwari, N., & Shekhar Thakur, I. 2021. Integrated Analysis of Whole Genome Sequencing and Life Cycle Assessment for Polyhydroxyalkanoates Production by *Cupriavidus* sp. ISTL7. *Bioresource Technology*, 337.
- Iftikhar, N., Ali, I., Quddus, F., Raza, M. U., Nadeem, N., & Zaid, M. 2024. Production of Polyhydroxyalkanoates by *Bacillus* and *Pseudomonas* on Cheap Carbon Substrates. *Brazilian Archives of Biology and Technology*, 67.
- Khatami, K., Perez-Zabaleta, M., Owusu-Agyeman, I., & Cetecioglu, Z. 2021. Waste to Bioplastics: How Close Are We to Sustainable Polyhydroxyalkanoates Production. *Waste Management*. Elsevier Ltd.
- Kuddus, M., & Roohi, R. 2021. *Bioplastics for Sustainable Development*. *Bioplastics for Sustainable Development* (pp. 1–730). Springer Singapore.
- Lanz, E., Gregor, M., Slavík, J., & Kotyk, A. 1997. Use of FITC as a Fluorescent Probe for Intracellular pH Measurement. *Journal of Fluorescence*, 7(4), 317–319.

- Lau, N. S., & Sudesh, K. 2012. Revelation of the Ability of *Burkholderia* sp. USM (JCM 15050) PHA synthase to Polymerize 4-hydroxybutyrate Monomer. *AMB Express*, 2(1).
- Liu, S. 2017. How Cells Grow. In *Bioprocess Engineering* (pp. 629–697). Elsevier.
- Liu, Q., Forrester, M. F., Dileep, D., Subbiah, A., Garg, V., Finley, D., & Broderick, S. R. 2025. Data-Driven Modeling and Design of Sustainable High Tg Polymers. *International Journal of Molecular Sciences*, 26(6).
- Meereboer, K. W., Misra, M., & Mohanty, A. K. 2020. Review of Recent Advances in the Biodegradability of Polyhydroxyalkanoate (PHA) Bioplastics and Their Composites. *Green Chemistry*.
- Mendonça, T. T., Gomez, J. G. C., Buffoni, E., Sánchez Rodriguez, R. J., Schripsema, J., Lopes, M. S. G., & Silva, L. F. 2014. Exploring the Potential of *Burkholderia sacchari* to Produce Polyhydroxyalkanoates. *Journal of Applied Microbiology*, 116(4), 815–829.
- Mishra, B., Nayak, S.K., Mohapatra, S., & Samantaray, D. 2021. *Environmental and Agricultural Microbiology*. Scrivener Publishing, USA
- Miu, D. M., Eremia, M. C., & Moscovici, M. 2022. Polyhydroxyalkanoates (PHAs) as Biomaterials in Tissue Engineering: Production, Isolation, Characterization. *Materials*. Multidisciplinary Digital Publishing Institute (MDPI)
- Mohammed, S., & Ray, L. 2022. Polyhydroxyalkanoate Recovery from Newly Screened *Bacillus* sp. LPPI-18 Using Various Methods of Extraction from Loktak Lake Sediment Sample. *Journal of Genetic Engineering and Biotechnology*, 20(1).
- Mohapatra, S., Maity, S., Dash, H. R., Das, S., Pattnaik, S., Rath, C. C., & Samantaray, D. 2017. *Bacillus* and Biopolymer: Prospects and Challenges. *Biochemistry and Biophysics Reports*. Elsevier B.V.
- Mousavioun, P., George, G. A., & Doherty, W. O. S. (2012). Environmental Degradation of Lignin/poly(hydroxybutyrate) Blends. *Polymer Degradation and Stability*, 97(7), 1114–1122.
- Mukherjee, A., & Koller, M. 2023. Microbial Polyhydroxyalkanoate (PHA) Biopolymers—Intrinsically Natural. *Bioengineering*. Multidisciplinary Digital Publishing Institute (MDPI).
- Muneer, F., Rasul, I., Qasim, M., Sajid, A., & Nadeem, H. 2022. Optimization, Production and Characterization of Polyhydroxyalkanoate (PHA) from Indigenously Isolated Novel Bacteria. *Journal of Polymers and the Environment*, 30(8), 3523–3533.

- Nanni, A., & Messori, M. 2021. Effect of the Wine Wastes on the Thermal Stability, Mechanical Properties, and Biodegradation's Rate of Poly(3-hydroxybutyrate). *Journal of Applied Polymer Science*, 138(3).
- Nascimento, V. M., Silva, L. F., Gomez, J. G. C., & Fonseca, G. G. 2015. Growth of *Burkholderia sacchari* LFM 101 Cultivated in Glucose, Sucrose and Glycerol at Different Temperatures. *Scientia Agricola*, 73(5), 429–433.
- Okoffo, E. D., & Thomas, K. V. 2024. Quantitative Analysis of Nanoplastics in Environmental and Potable Waters by Pyrolysis-Gas Chromatography–Mass Spectrometry. *Journal of Hazardous Materials*, 464.
- Parker, N., Schneegurt, M., Tu, A. H., Lister, P. 2016. *Microbiology*. Rice University : Texas
- Picó, Y., & Barceló, D. 2020. Pyrolysis Gas Chromatography-Mass Spectrometry in Environmental Analysis: Focus on Organic Matter and Microplastics. *TrAC - Trends in Analytical Chemistry*. Elsevier B.V.
- Piper, J. 2009. Luminance Contrast, A New Illumination Technique in Light Microscopy: Optical Basics, Practical Evaluations, Further Developments. *Optik*, 120(18), 963–975.
- Purnomo, Sutadji, E., Utomo, W., Purnawirawan, O., & Farich, R. 2022. *Analisis Data Multivariat*. (pp. 1–330). Omara Pustaka.
- Ratnaningrum, D., Saraswaty, V., Priatni, S., Lisdiyanti, P., Purnomo, A., & Pudjiraharti, S. 2019. Screening of Polyhydroxyalkanoates (PHA)-Producing Bacteria from Soil Bacteria Strains. In *IOP Conference Series: Earth and Environmental Science* (Vol. 277). Institute of Physics Publishing.
- Ray, S., & Chandra Kalia, V. 2017. Co-metabolism of Substrates by *Bacillus thuringiensis* Regulates Polyhydroxyalkanoate Co-polymer Composition. *Bioresource Technology*
- Ren, Y., Meng, D., Wu, L., Chen, J., Wu, Q., & Chen, G. Q. 2017. Microbial Synthesis of A Novel Terpolyester P(LA-co-3HB-co-3HP) from Low-cost Substrates. *Microbial Biotechnology*, 10(2), 371–380.
- Ren, Y., Inoue, D., & Ike, M. 2024. Potential of Activated Sludge-Derived Mixed Microbial Culture Enriched on Acetate to Produce Polyhydroxyalkanoates from Various Substrates. *Journal of Material Cycles and Waste Management*, 26(4), 2355–2365.
- Robergs, R. A., Ghiasvand, F., & Parker, D. 2004. Biochemistry of Exercise-Induced Metabolic Acidosis. *American Journal of Physiology - Regulatory Integrative and Comparative Physiology*.

- Sachan, R., Kumar, A., Karnwal, A. 2025. Screening and Characterization of PHA Producing Bacteria from Sewage Water Identifying *Bacillus paranthracis* for Bioplastic Production. *BMC Microbiology*, 25:136.
- Santos, A. J., Valentina, O. D., Schulz, H., & Duarte, M. A. 2017. From Obtaining to Degradation of PHB:Material Properties. Part I. *Ingeniería y Ciencia*, 13(26), 269–298.
- Santullano, N.A, Villegas, P., Mardones, M. S., Durán, R. E., Donoso, R., González, A., & Seeger, M. 2021. Genome-wide Metabolic Reconstruction of the Synthesis of Polyhydroxyalkanoates from Sugars and Fatty Acids by *Burkholderia Sensu Lato* Species. *Microorganisms*, 9(6).
- Seymour, R. B., & Carraher, C. E. 1984. Thermal Properties of Polymers. In *Structure—Property Relationships in Polymers* (pp. 83–93). Springer US.
- Shao, L., Xi, Y., & Weng, Y. 2022. Recent Advances in PLA-Based Antibacterial Food Packaging and Its Applications. *Molecules*. Multidisciplinary Digital Publishing Institute (MDPI).
- Shao, Z., Kumagai, S., Kameda, T., Saito, Y., & Yoshioka, T. 2023. Effects of Heating Rate and Temperature on Product Distribution of Poly-lactic Acid and Poly-3-hydroxybutyrate-co-3-hydroxyhexanoate. *Journal of Material Cycles and Waste Management*, 25(2), 650–661.
- Sharma, N. 2019. Polyhydroxybutyrate (PHB) Production by Bacteria and its Application as Biodegradable Plastic in Various Industries. *Academic Journal of Polymer Science*, 2(3).
- Singh, S., Sithole, B., Lekha, P., Permaul, K., & Govinden, R. 2021. Optimization of Cultivation Medium and Cyclic Fed-batch Fermentation Strategy for Enhanced Polyhydroxyalkanoate Production by *Bacillus thuringiensis* Using a Glucose Rich Hydrolyzate. *Bioresources and Bioprocessing*, 8(1).
- Sun, C., Li, C., Tan, H., & Zhang, Y. 2019. Synergistic Effects of Wood Fiber and Polylactic Acid During Co-pyrolysis Using TG-FTIR-MS and Py-GC/MS. *Energy Conversion and Management*, 202.
- Sun, S., Ding, Y., Liu, M., Xian, M., & Zhao, G. 2020. Comparison of Glucose, Acetate and Ethanol as Carbon Resource for Production of Poly(3-Hydroxybutyrate) and Other Acetyl-CoA Derivatives. *Frontiers in Bioengineering and Biotechnology*, 8.
- Taguchi, S., Yamada, M., Matsumoto, K., Tajima, K., Satoh, Y., Munekata, M., & Obata, S. 2008. A Microbial Factory for Lactate-Based Polyesters Using a Lactate-Polymerizing Enzyme. *Proceedings of the National Academy of Sciences of the United States of America*, 105(45), 17323–17327.

- Vahabi, H., Michely, L., Moradkhani, G., Akbari, V., Cochez, M., Vagner, C., & Cochez, M. 2019. Thermal Stability and Flammability Behavior of Poly (3-hydroxybutyrate) (PHB) Based Composites. *Materials*, 12(14).
- Vicente, D., Proença, D. N., & Morais, P. V. 2023. The Role of Bacterial Polyhydroalkanoate (PHA) in a Sustainable Future: A Review on the Biological Diversity. *International Journal of Environmental Research and Public Health*. Multidisciplinary Digital Publishing Institute (MDPI).
- Vu, D. H., Wainaina, S., Taherzadeh, M. J., Åkesson, D., & Ferreira, J. A. 2021. Production of Polyhydroxyalkanoates (PHAs) by *Bacillus megaterium* Using Food Waste Acidogenic Fermentation Derived Volatile Fatty Acids. *Bioengineered*, 12(1), 2480–2498.
- Wang, S., Chen, W., Xiang, H., Yang, J., Zhou, Z., & Zhu, M. 2016. Modification and Potential Application of Short Chain Length Polyhydroxyalkanoate (SCL-PHA). *Polymers*. Multidisciplinary Digital Publishing Institute (MDPI).
- Weldon, M., & Euler, C. 2025. Physiology Informed Use of *Cupriavidus necator* in Biomanufacturing: A Review of Advances and Challenges. *Microbial Cell Factories* 2025 24:1, 24(1), 1–17.
- Yamada, M., Matsumoto, K., Uramoto, S., Motohashi, R., Abe, H., & Taguchi, S. 2011. Lactate Fraction Dependent Mechanical Properties of Semitransparent Poly(lactate-co-3-hydroxybutyrate)s Produced by Control of Lactyl-CoA Monomer Fluxes in Recombinant *Escherichia coli*. *Journal of Biotechnology*, 154(4), 255–260.
- Yang, Y. H., Jeon, J. M., Yi, D. H., Kim, J. H., Seo, H. M., Rha, C. K., & Brigham, C. J. 2015. Application of a Non-halogenated Solvent, Methyl Ethyl Ketone (MEK) for Recovery of Poly(3-hydroxybutyrate-co-3-hydroxyvalerate) [P(HB-co-HV)] from Bacterial Cells. *Biotechnology and Bioprocess Engineering*, 20(2), 291–297.
- Yanti, N. A., Sembiring, L., Margino, S., & Ahmad, S. W. 2021. Bacterial Production of Polyhydroxybutyrate (PHB): Converting Starch into Bioplastics. In *Bioplastics for Sustainable Development* (pp. 259–276). Springer Singapore.
- Zytner, P., Kumar, D., Elsayed, A., Mohanty, A., Ramarao, B. V., & Misra, M. 2023. A Review on Polyhydroxyalkanoate (PHA) Production Through the Use of Lignocellulosic Biomass. *RSC Sustainability*. Royal Society of Chemistry.