

DAFTAR PUSTAKA

- [1] F. H. Zaman dan A. Maruf, "MODEL PEMANFAATAN SAMPAH PLASTIK DENGAN TEKNOLOGI PIROLISIS MENJADI BAHAN BAKAR," 2024.
- [2] E. Azwar, Y. Darni, M. Sulha, dan L. Lismeri, "Pengaruh Waktu Dan Temperatur Polimerisasi Pada Pembuatan Poly(Lactic) Acid (PLA) Dengan Metode Ring-Opening Polymerization (ROP)," *Jurnal Teknologi dan Inovasi Industri*, vol. 5, no. 2, hlm. 75–80, 2024, [Daring]. Tersedia pada: <https://doi.org/xx.xxx/rkl.v12i1.xxxx>
- [3] M. Wibowo, P. Sosiawan, M. Hanif, dan F. Yuliaty, "KEMAJUAN TERKINI DALAM PENGEMASANBIODEGRADABLE PENGGUNAAN KEMASAN BERBASIS PLA TINJAUAN SISTEMATIS," hlm. 136, Des 2024.
- [4] S. Salsabila, J. Teknik Kimia, dan P. Negeri Lhokseumawe Jl Banda Aceh -Medan Km, "PEMBUATAN KOMPOSIT POLY LACTID ACID-BENTONIT UNTUK PLASTIK BIODEGRADABLE," 2024.
- [5] S. Ahsan, R. Diniyah, dan M. F. Firmana, "Sifat Mekanis dan Termal PLA dengan Filler TiO₂ dan ZnO," *Jurnal Teknologi dan Manajemen*, vol. 20, no. 1, hlm. 27–32, Feb 2022, doi: 10.52330/jtm.v20i1.43.
- [6] D. N. Wening dan R. Amalia, "Optimasi kondisi operasi pembuatan plastik biodegradable dari selulosa tongkol jagung dan pati kulit singkong dengan penambahan PVa dan TiO₂ sebagai smart packaging," *Jurnal Rekayasa Proses*, vol. 17, no. 2, hlm. 139–147, Des 2023, doi: 10.22146/jrekpros.77598.
- [7] E. A. S. González, D. Olmos, M. ángel Lorente, I. Vélaz, dan J. González-Benito, "Preparation and characterization of polymer composite materials based on PLA/TiO₂ for antibacterial packaging," *Polymers (Basel)*, vol. 10, no. 12, Des 2018, doi: 10.3390/polym10121365.
- [8] I.-G. Athanasoulia, M. Mikropoulou, S. Karapati, P. Tarantili, dan C. Trapalis, "Study of thermomechanical and antibacterial properties of TiO₂ /Poly(lactic acid) nanocomposites," 2018. [Daring]. Tersedia pada: www.sciencedirect.comwww.materialstoday.com/proceedings2214-7853

- [9] A. Satriyatama, V. A. A. Rochman, dan R. E. Adhi, "Study of the Effect of Glycerol Plasticizer on the Properties of PLA/Wheat Bran Polymer Blends," *IOP Conf Ser Mater Sci Eng*, vol. 1143, no. 1, hlm. 012020, Apr 2021, doi: 10.1088/1757-899x/1143/1/012020.
- [10] H. Setiawan, R. Faizal, dan A. Amrullah, "PENENTUAN KONDISI OPTIMUM MODIFIKASI SORBITOL PLA KITOSAN KULIT UDANG," *Saintekno*, vol. 13, hlm. 1–10, Jul 2015.
- [11] J. Budiman, R. Nopianti, dan S. D. Lestari, "Fishtech-Jurnal Teknologi Hasil Perikanan Characteristics of Bioplastic from Large-Leafed Mangrove (*Bruguiera gymnorizha*) Starch," vol. 7, no. 1, hlm. 49–59, 2018.
- [12] S. N. Fauziyah, A. S. Mubarak, dan D. Y. Pujiastuti, "Application of glycerol on bioplastic based carrageenan waste cellulose on biodegradability and mechanical properties bioplastic," dalam *IOP Conference Series: Earth and Environmental Science*, IOP Publishing Ltd, Feb 2021. doi: 10.1088/1755-1315/679/1/012005.
- [13] N. K. Kalita, A. Sarmah, S. M. Bhasney, A. Kalamdhad, dan V. Katiyar, "Demonstrating an ideal compostable plastic using biodegradability kinetics of poly(lactic acid) (PLA) based green biocomposite films under aerobic composting conditions," *Environmental Challenges*, vol. 3, Apr 2021, doi: 10.1016/j.envc.2021.100030.
- [14] Mukhtar dan Dedi, "ANALISA KEKUATAN TARIK KOMPOSIT DENGAN PENGUAT SERAT PELEPAH KELAPA SAWIT," *Jurnal Teknik Mesin UBL*, vol. 3, 2016, [Daring]. Tersedia pada: <http://jurnal.ubl.ac.id/index.php/JTM>.
- [15] W. Callister dan D. G. Rethwiscg, *Materials Science and Engineering An Introduction*, 10 ed. 2020.
- [16] R. F. Gibson, *PRINCIPLES_OF_COMPOSITE_MATERIAL_MECHANI*. 2016.
- [17] G. Cirillo, M. A. Kozlowski, U. G. Spizzirri, R. Venkatesan, T. Thendral Thiyagu, dan N. Rajeswari, "Zinc Composite Materials and Food Packaging," 2018.
- [18] T. Narancic, F. Cerrone, N. Beagan, dan K. E. O'Connor, "Recent advances in bioplastics: Application and biodegradation," 1 April 2020, *MDPI AG*. doi: 10.3390/POLYM12040920.
- [19] T. Narancic dkk., "Biodegradable Plastic Blends Create New Possibilities for End-of-Life Management of Plastics but They Are Not a Panacea for Plastic Pollution,"

- Environ Sci Technol*, vol. 52, no. 18, hlm. 10441–10452, Sep 2018, doi: 10.1021/acs.est.8b02963.
- [20] A. A. Shah, F. Hasan, A. Hameed, dan S. Ahmed, “Biological degradation of plastics: A comprehensive review,” Mei 2008. doi: 10.1016/j.biotechadv.2007.12.005.
- [21] O. : Dian, A. Widiasih, D. Pembimbing, dan H. Ni'mah, “STUDI PROPERTI POLY (L-LACTIC ACID) (PLLA) : EFEK PENAMBAHAN JENIS PLASTICIZER,” Institut Teknologi Sepuluh Nopember, 2018.
- [22] A. Mahapatro dan D. K. Singh, “Biodegradable nanoparticles are excellent vehicle for site directed in-vivo delivery of drugs and vaccines,,” 2011. doi: 10.1186/1477-3155-9-55.
- [23] J. M. Pasaribu, B. Y. sari Romaji, Y. Rahmawati, dan F. Taufany, “Pra Desain Pabrik Poly Lactic Acid (PLA) dari Porang,” *Jurnal Teknik ITS*, vol. 10, hlm. 1–7, 2021.
- [24] B. C. Devi, B. A. Febriansyah, S. Nurkhamidah, dan Rahmawa Yeni, “Studi Pemilihan Proses Pabrik PolyLLactic dari Tetes Tebu,” *Jurnal Teknik ITS*, vol. 8 No. 2, hlm. 1, 2019.
- [25] S. Y. Masssijaya dkk., “Utilization of Spent Coffee Grounds as a Sustainable Resource for the Synthesis of Bioplastic Composites with Polylactic Acid, Starch, and Sucrose,” *Journal of Composites Science*, vol. 7, no. 12, Des 2023, doi: 10.3390/jcs7120512.
- [26] Rahmayetty, N. Kanani, dan E. Yudo, “PENGARUH PENAMBAHAN PLA PADA PATI TERPLASTISASI GLISEROL TERHADAP SIFAT MEKANIK BLEND FILM,” *jurnal UMJ*, vol. 14, hlm. 1, 2018.
- [27] W. F. Karim, A. Harahap, M. Galih Prakoso, M. A. Finaldin, dan T. Kemala, “Characterization of Bioplastic Compostable PLA-Cellulose Based as Eco-friendly Packaging,” 2021. [Daring]. Tersedia pada: <http://journal.unnes.ac.id/sju/index.php/ijcs>
- [28] A. I. Pambudi, “ANALISIS PENGARUH INTERNAL GEOMETRI TERHADAP SIFAT MEKANIK MATERIAL PLA DIPREPARASI MENGGUNAKAN 3D,” Institut Teknologi Sepuluh Nopember, 2017.

- [29] V. Luque-Agudo, A. M. Gallardo-Moreno, dan M. L. González-Martín, "Influence of solvent and substrate on hydrophobicity of pla films," *Polymers (Basel)*, vol. 13, no. 24, Des 2021, doi: 10.3390/polym13244289.
- [30] K. A. Gisan, M. Y. Chan, dan S. C. Koay, "Solvent-cast Biofilm from Poly(lactic) Acid and Durian Husk Fiber: Tensile, Water Absorption, and Biodegradation Behaviors," *Journal of Natural Fibers*, vol. 19, no. 11, hlm. 4338–4349, 2022, doi: 10.1080/15440478.2020.1857894.
- [31] W. Ode, S. Zubaydah, dan M. Handoyo Sahumena, "Fast Dissolving Oral Film Salbutamol Sulfat dengan Menggunakan Polimer HPMC," 2021. [Daring]. Tersedia pada: www.journal.ugm.ac.id/v3/IJCPA
- [32] H. Mukaffa, "PENGARUH PERLAKUAN ALKALISASI SERBUK DAUN SIRIH TERHADAP SIFAT TARIK BIOKOMPOSIT BERBASIS POLY(LACTIC ACID): METODE SOLVENT CAST-FILM," Universitas Jember, Jember, 2020.
- [33] K. Hanifa, A. Suprihanto, dan G. D. Haryadi, "PENGARUH PERSENTASE FLAKE POLYLACTIC ACID (PLA) TERHADAP DENSITAS CAMPURAN BIODEGRADABLE POLYMER PLA DENGAN POLYCAPROLACTONE (PCL) MENGGUNAKAN METODE SOLVENT CASTING," 2024.
- [34] A. Hutajulu, "SINTESIS DAN KARAKTERISASI MATERIAL BIOKOMPOSIT POLYLACTIC ACID (PLA) BERPENGUAT SERBUK TULANG SAPI SEBAGAI KANDIDAT BAHAN TULANG BUATAN," Institut Teknologi Sepuluh Nopember, 2017.
- [35] A. Rahman *dkk.*, "PRARANCANGAN PABRIK KOROFORM DARI ASETON DAN KALSIUM HIPOKLORIT DENGAN KAPASITAS 11.000 TON/TAHUN," 2024.
- [36] National Center for Biotechnology Information (NLBI), "Chloroform," ubChem Compound Summary for CID 6212.
- [37] merck, "Kloroform untuk analisis (untuk penentuan dengan ditizon) msds merch kloroform," 2006.
- [38] I. Fajriati, E. Sedyadi, dan S. Sudarlin, "SYNTHESIS OF CHITOSAN-FILM COMPOSITE TiO₂ USING SORBITOL AS PLASTICIZER," *ALCHEMY Jurnal Penelitian Kimia*, vol. 13, no. 1, hlm. 75, Apr 2017, doi: 10.20961/alchemy.v13i1.4350.

- [39] A. G. Seber, "PREPARATION OF ANTIMICROBIAL FILMS FROM AGRICULTURAL BIOMASS A THESIS SUBMITTED TO THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES OF MIDDLE EAST TECHNICAL UNIVERSITY," 2010.
- [40] NCBI, "Ringkasan Senyawa PubChem untuk CID 26042, Titanium dioksida.," <https://pubchem.ncbi.nlm.nih.gov/compound/Titanium-dioxide>.
- [41] M. Kaseem, K. Hamad, dan Z. U. Rehman, "Review of recent advances in polylactic Acid/TiO₂ composites," 1 November 2019, *MDPI AG*. doi: 10.3390/ma12223659.
- [42] National Center Library for Biotechnology Information, "Gliserin," Ringkasan Senyawa PubChem untuk CID 753.
- [43] F. Ahmad, K. Nasution, dan M. Arifin, "Analisis Sifat Mekanik Komposit Diperkuat Serat Pinang Menggunakan Metode Pengujian Bending Statik," *Jurnal Simetri Rekayasa*, hlm. 72–75, 2019, [Daring]. Tersedia pada: <http://jurnal.harapan.ac.id/index.php/JSR>
- [44] A. Nayan dan T. Hafli, "Malikussaleh Journal of Mechanical Science and Technology ANALISA STUKTUR MIKRO MATERIAL KOMPOSIT POLIMER BERPENGUAT SERBUK CANGKANG KERANG," vol. 6, no. 1, hlm. 15–24, 2022.
- [45] BBLM, "Pentingnya Kalibrasi Universal Testing Machine untuk Keakuratan Pengujian Material Anda," 2024.
- [46] M. I. Mihrozi, Mufarida Nely Ana, dan Kosjoko, "PENGARUH DIAMETER ELEKTRODA TERHADAP UJI TARIK LAS SMAW," *Jurnal Proteksion*, vol. Vol.2 No 2, 2018, doi: 10.32528/jp.v2i2.
- [47] K. Khotimah, A. Ridlo, dan C. A. Suryono, "Sifat Fisik dan Mekanik Bioplastik Komposit dari Alginat dan Karagenan," *J Mar Res*, vol. 11, no. 3, hlm. 409–419, Agu 2022, doi: 10.14710/jmr.v11i3.33865.
- [48] ASTM, "ASTM D882 Bioplastik".
- [49] SNI, "Kantong belanja plastik SNI 7188.7:2016 ," 2016.
- [50] M. A. Annas, U. Chasanah, dan A. Sandi, "Pengukuran Konduktifitas Termal pada Bahan Kayu, Kapur, dan Besi," *MASALIQ*, vol. 3, no. 4, hlm. 728–736, Jul 2023, doi: 10.58578/masaliq.v3i4.1528.

- [51] R. Dewi, “PENGARUH PENAMBAHAN POLIPROPILENA PADA KARAKTERISTIK PLASTIK DEGRADABLE BERBASIS PATI AMPAS KOPI,” *Jurnal Teknologi Kimia Unimal*, vol. 12, no. 2, hlm. 274, Nov 2023, doi: 10.29103/jtku.v12i2.13580.
- [52] TA Instruments, “Thermogravimetric Analyzers,” tainstruments.com.
- [53] P. Le Parlouër, “Thermal Analysis and Calorimetry Techniques for Catalytic Investigations,” dalam *Springer Series in Materials Science*, vol. 154, Springer Science and Business Media Deutschland GmbH, 2013, hlm. 51–101. doi: 10.1007/978-3-642-11954-5_2.
- [54] S. Kolawole *dkk.*, “Thermogravimetry Analysis of Epoxy and Unsaturated Polyester Filled with Some Agricultural Waste of Dates Palm (*Phoenix dactylifera*) and African Elemi (*Canarium shweinfurthii*) Particulate Composites,” 2019. [Daring]. Tersedia pada: <http://www.sdiarticle3.com/review-history/51213>
- [55] B. Tang, G. Hu, H. Gao, dan L. Hai, “Application of graphene as filler to improve thermal transport property of epoxy resin for thermal interface materials,” *Int J Heat Mass Transf*, vol. 85, hlm. 420–429, 2015, doi: 10.1016/j.ijheatmasstransfer.2015.01.141.
- [56] Z. Cai *dkk.*, “Biological Degradation of Plastics and Microplastics: A Recent Perspective on Associated Mechanisms and Influencing Factors,” 1 Juli 2023, *Multidisciplinary Digital Publishing Institute (MDPI)*. doi: 10.3390/microorganisms11071661.
- [57] R. R. A. Silva, C. S. Marques, T. R. Arruda, S. C. Teixeira, dan T. V. de Oliveira, “Biodegradation of Polymers: Stages, Measurement, Standards and Prospects,” 1 Juni 2023, *Multidisciplinary Digital Publishing Institute (MDPI)*. doi: 10.3390/macromol3020023.
- [58] N. Sasria, A. Asrilsyah, M. P. D. Lubis, A. Zulfikar, dan R. A. Tanjung, “Sintesis dan karakterisasi plastik biodegradable berbasis pati nasi aking dan kitosan cangkang udang,” *Teknika: Jurnal Sains dan Teknologi*, vol. 16, no. 2, hlm. 231, Nov 2020, doi: 10.36055/tjst.v16i2.8700.
- [59] I. Oliver, J. A. Conesa, dan A. Fullana, “Thermal Decomposition of Bio-Based Plastic Materials,” *Molecules*, vol. 29, no. 13, Jul 2024, doi: 10.3390/molecules29133195.

- [60] A. Gupta, T. S. Stead, dan L. Ganti, "Determining a Meaningful R-squared Value in Clinical Medicine," *Academic Medicine & Surgery*, Okt 2024, doi: 10.62186/001c.125154.
- [61] P. Stloukal *dkk.*, "Kinetics and mechanism of the biodegradation of PLA/clay nanocomposites during thermophilic phase of composting process," *Waste Management*, vol. 42, hlm. 31–40, 2015, doi: 10.1016/j.wasman.2015.04.006.
- [62] Sari Nur Nilam, "PENAMBAHAN NANOFIBER SELULOSA DARI KULIT DAUN LIDAH BUAYA DAN ZAT PEMLASTIS GLISEROL PADA BIOPLASTIK BERBASIS PATI KULIT PISANG KEPOK," Universitas Islam Negeri Jakarta, 2021.
- [63] P. Ramadhany, J. K. Hardono, dan M. G. Kristanti, "The Effect of Hydrochloric Acid Solution and Glycerol on The Mechanical, Hydrate Properties and Degradation Rate of Biofilm from Ripe Banana Peels," *Jurnal Rekayasa Proses*, vol. 15, no. 2, hlm. 202, Des 2021, doi: 10.22146/jrekpros.69435.
- [64] R. I. D. Suyatmo dan H. F. P. Wiasih, "Degradasi Kantong Plastik Oxo-Degradable dan Limbah Polietilena Menggunakan Metode Kolom Winogradsky," *Journal of Polymer Chemical Engineering and Technology*, vol. 1, no. 1, hlm. 23–32, Feb 2024, doi: 10.52330/jpcet.v1i1.238.
- [65] A. Grzabka-Zasadzińska, A. Piątek, L. Klapiszewski, dan S. Borysiak, "Structure and Properties of Polylactide Composites with TiO₂–Lignin Hybrid Fillers," *Int J Mol Sci*, vol. 25, no. 8, hlm. 4398, Apr 2024, doi: 10.3390/ijms25084398.
- [66] N. A. Shahrim, N. Sarifuddin, H. H. M. Zaki, dan A. Z. A. Azhar, "The effects of glycerol addition to the mechanical properties of thermoplastic films based on jackfruit seed starch," *Malaysian Journal of Analytical Sciences*, vol. 22, no. 5, hlm. 892–898, Okt 2018, doi: 10.17576/mjas-2018-2205-17.
- [67] M. L. Sanyang, S. M. Sapuan, M. Jawaid, M. R. Ishak, dan J. Sahari, "Effect of plasticizer type and concentration on tensile, thermal and barrier properties of biodegradable films based on sugar palm (*Arenga pinnata*) starch," *Polymers (Basel)*, vol. 7, no. 6, hlm. 1106–1124, 2015, doi: 10.3390/polym7061106.
- [68] H. Zhang *dkk.*, "Preparation, characterization and properties of PLA/TiO₂ nanocomposites based on novel vane extruder."

- [69] N. A. Maziad, A. B. El-Deen Abd El-Aziz, S. El-Hamouly, M. Abd El-Aziz Mahmoud El-Hashish, S. A. Rizk, dan N. R. Nasef, "Characterization of Radiation Prepared Copolymer and Studies of Their Biodegradability," *J Biosci Med (Irvine)*, vol. 06, no. 02, hlm. 33–56, 2018, doi: 10.4236/jbm.2018.62004.
- [70] M. Majder-Lopatka *dkk.*, "Thermal analysis of plastics used in the food industry," *Materials*, vol. 15, no. 1, Jan 2022, doi: 10.3390/ma15010248.
- [71] R. Slezak, L. Krzystek, M. Puchalski, I. Krucińska, dan A. Sitarski, "Degradation of bio-based film plastics in soil under natural conditions," *Science of the Total Environment*, vol. 866, Mar 2023, doi: 10.1016/j.scitotenv.2023.161401.