DAFTAR PUSTAKA

[1] E. Kamsiati, H. Herawati, and E. Y. Purwani, "Potensi Pengembangan Plastik Biodegradable Berbasis Pati Sagu dan Ubikayu di Indonesia," *J. Penelit. dan Pengemb. Pertan.*, vol. 36, no. 2, pp. 67–76, 2017, doi: 10.21082/jp3.v36n2.2017.p67-76.

[2] S. A. Riyajan, W. Sukhlaaied, and A. Keawmang, "Preparation And Properties of a Hydrogel Of Maleated Poly(vinyl alcohol) (PVAM) Grafted With Cassava Starch," *Carbohydr. Polym*, vol. 122, pp. 301–307, 2015, doi: 10.1016/j.carbpol.2014.12.012.

[3] R. Reshmy, "Development of an Eco-Friendly Biodegradable Plastic From Jack Fruit Peel Cellulose With Different Plasticizers And Boswellia Serrata as Filler," *Sci. Total Env.*, vol. 767, 2021, doi: 10.1016/j.scitotenv.2020.144285.

[4] J. Yang, Y. C. Ching, C. H. Chuah, N. D. Hai, R. Singh, and A. R. M. Nor, "Preparation and Characterization of Starch-Based Bioplastic Composites With Treated Oil Palm Empty Fruit Bunch Fibers and Citric Acid," *Cellulose*, vol. 28, no. 7, pp. 4191–4210, 2021, doi: 10.1007/s10570-021-03816-8.

[5] H. Abral, "Highly Transparent And Antimicrobial PVA Based Bionanocomposites Reinforced By Ginger Nanofiber," *Polym. Test.*, vol. 81, 2020, doi: 10.1016/j.polymertesting.2019.106186.

[6] Gitawati and Retno, "Karakterisasi Tiga Jenis Ekstrak Gambir ((Uncaria Gambir Roxb)) dari Sumatera Barat," *Indones. Bull. Heal. Res.*, vol. 40, no. 4, 2012.

[7] H. Abral, "Anti-UV, Antibacterial, Strong, and High Thermal Resistant Polyvinyl Alcohol/Uncaria Gambir Extract Biocomposite Film," *J. Mater. Res. Technol.*, vol. 17, pp. 2193–2202, 2022, doi: 10.1016/j.jmrt.2022.01.120.

[8] C. R. Mendes, G. Dilarri, and C. . Forsan, "Antibacterial Action And Target Mechanism Of Zinc Oxide Nanoparticles Against Bacterial," *SCI*,

vol. 12, 2022, doi: https://doi.org/10.1038/s41598-022-06657-y.

[9] M. S. Ghamsari, "Impact Of Nanostrutured Thin ZnO Film In Ultraviolet Protection," *Int. J. Nanomedicne*, vol. 12, pp. 207–216, 2016, doi: doi:10.2147/IJN.S118637.

[10] A. Sharma, P. Kumar, and S. P. Mahaprata, "Morphology and Mechanical and Rheological Studies of Zinc Oxide/Silicone Rubber Nanocomposites," *J. Rubbes Res.*, vol. 27, pp. 235–243, 2023, [Online]. Available: https://doi.org/10.1007/s42464-023-00227-1

[11] H. G. El Gohary, T. F. Qahtan, and A. . Waly, "Studies of the Structural, Optical, Thermal, Electrical and Dielectric Properties of a Polyvinyl Alcohol/Sodium Alginate Blend Doped with Cu Nanoparticles and ZnO Nanorods as Hybrid Nanofillers for Use in Energy Storage Devices," *J. Polym. Environ.*, vol. 31, pp. 2930–2940, 2023.

[12] A. Abd-Elnaiem, M. Rashad, T. . Hanafy, and N. . Shaalan, "Improvement of Optical Properties of Functionalized Polyvinyl Alcohol-Zinc Oxide Hybrid Nanocomposites for Wide UV Optoelectronic Applications," *J. Inorgic Organomet. Polym. Mater.*, vol. 33, pp. 2429–2444, 2023.

[13] S. A. Khan, A. Rahman, W. Khan, and S. M. Haider, "Characterization and application of nano-composite zinc oxide/poly vinyl alcohol thin-film in solar cell performance enhancement," *J. Mech. Sci. Technol.*, vol. 37, pp. 5505–5065, 2023.

[14] Aminur, M. Hasbi, and Y. Gunawan, "Proses Pembuatan Biokomposit Polimer Serat Untuk Aplikasi Kampas Rem," *Semin. Nas. dan Teknol.*, pp. 1–7, 2015, [Online]. Available: https://jurnal.umj.ac.id/index.php/semnastek/article/view/480

[15] A. . Sharma, R. Bhandari, A. Aherwar, and R. Rimašauskiene, "Matrix Materials Used In Composites: A Comprehensif Study," *Mater. Today Proc.*, vol. 21, pp. 1559–1562, 2020, doi: 10.1016/j.matpr.2019.11.086.

[16] R. M. Mehra, V. Agarwal, and P. C. Mathur, "Development and Characterization of Porous Silicon (a review)," *Solid State Phenom*, vol. 55, pp. 71–76, 1997, doi: 10.4028/www.scientific.net/ssp.55.71.

[17] A. Berger, “Numerical Modelling of Composite Materials Based on a Combined Manufacturing-Crash Simulation,” 2014.

[18] H. Suryanto, E. Marsyahyo, Y. S. Irawan, and R. Soenoko, “Effect of Alkali Treatment on Crystalline Structure of Cellulose Fiber From Mendong (Fimbristylis Globulosa) Straw,” *Key Eng. Mater*, vol. 594–595, pp. 720–724, 2014, doi: 10.4028/www.scientific.net/KEM.594-595.720.

[19] Ş. Yıldızhan, A. Çalık, M. Özcanlı, and H. Serin, “Bio-composite Materials: A Short Review Of Recent Trends, Mechanical and Chemical Properties, And Applications,” *Eur. Mech. Sci*, vol. 2, no. 3, pp. 83–91, 2018, doi: 10.26701/ems.369005.

[20] O. Suparno, “Potensi Dan Masa Depan Serat Alam Indonesia Sebagai Bahan Baku Aneka Industri,” *J. Teknol. Ind. Pertan.*, vol. 30, no. 2, pp. 221–227, 2020, doi: 10.24961/j.tek.ind.pert.2020.30.2.221.

[21] T. S. Gaaz, “Properties and Applications of Polyvinyl Alcohol, Halloysite Nanotubes and Their Nanocomposites,” *Molecules*, vol. 20, no. 12, pp. 22833–22847, 2015, doi: 10.3390/molecules201219884.

[22] R. A. Wiliastuti, “Studi Penumbuhan Membran Polyvinyl Alcohol dengan Variasi Konstentrasi PVA Menggunakan Metode Spin Coating di Atas Lapisan Elektroda Platinum,” 2006.

[23] F. Nasrullah, “Pengembangan Komposit Polivinil Alkohol (PVA)- Alginat Dengan Perasan Daun Binahong Sebagai Wound Dressing Antibakteri,” 2015.

[24] K. Pasaribu, D. Ricky, and H. Saragih, “Aktivitas Antimikrobial Nanopartikel Zinc Oxide (ZnO) Pada Strain Staphylococcus Aureus.,” *Pros. Semin. Kontribusi Fis.*, 2013.

[25] Y. V Pamela, R. Syarief, E. S. Iriani, and N. E. Suyatma, “Karakteristik mekanik, termal, dan morfologi film polivinil alkohol dengan penambahan nanopartikel ZnO dan asam stearat untuk kemasan multilayer,” *J. Penelit. Pascapanen Pertan.*, vol. 13, no. 2, pp. 109–119, 2016.

[26] S. Baruah and J. Dutta, “Hydrothermal growth of ZnO nanostructures.,” *Sci. Technol. Adv. Mater.*, vol. 10, no. 1, 1009.

[27] N. B. Kumar, Rithin, Crasta, Vincent, and B. M. Praveen, "Advancement in Microstructural, Optical, and Mechanical Properties of PVA (Mowiol 10-98) Doped by ZnO Nanoparticles, Physics Research International," *Phys. Res. Int.*, 2014, [Online]. Available: https://doi.org/10.1155/2014/742378

[28] D. C. William and D. G. Rethwisch, "Materials Science and Eng," *Mater. Sci. Eng. An Introd*, 2013.

[29] D. Rahmadiawan *et al.*, "Enhanced UV blocking, tensile and thermal properties of bendable TEMPO-oxdized bacterial cellulose powder-based films immersed in PVA/ Uncaria gambir/ZnO solution," *J. Mater. Res. Technol.*, vol. 26, pp. 5566–5575, 2023.

[30] American Society For Testing and Materials, "ASTM D638-14, Standard Practice for Preparation of Metallographic Specimens," *ASTM Int.*, vol. 82, no. C, pp. 1–15, 2016, doi: 10.1520/D0638-14.1.

[31] W. Liu and T. He, "Effect of ZnO nanoparticles on mechanical properties of polyacrylate composites," *Acad. J. Mater. Chem.*, vol. 5, no. 1, 2024, [Online]. Available: https://doi.org/10.25236/AJMC.2024.050111.