DAFTAR PUSTAKA

[1] M. Parit, H. Du, X. Zhang, C. Prather, M. Adams, and Z. Jiang, "Polypyrrole and cellulose nano fi ber based composite fi lms with improved physical and electrical properties for electromagnetic shielding applications," *Carbohydr. Polym.*, vol. 240, no. December 2019, p. 116304, 2020, doi: 10.1016/j.carbpol.2020.116304.

[2] R. Sharma, S. Mahdi, and S. Sharma, "Antimicrobial bio-nanocomposites and their potential applications in food packaging," *Food Control*, vol. 112, no. September 2019, p. 107086, 2020, doi: 10.1016/j.foodcont.2020.107086.

[3] A. Tanvir, P. Sobol, A. Popelka, M. Mrlik, and Z. Spitalsky, "Electrically Conductive , Transparent Polymeric Nanocomposites Modified by 2D Ti 3 C 2 T x (MXene)," pp. 1–19, 2019, doi: 10.3390/polym11081272.

[4] A. S. Levitt, M. Alhabeb, C. B. Hatter, A. Sarycheva, G. Dion, and Y. Gogotsi, "Electrospun MXene/carbon nanofibers as supercapacitor electrodes," *J. Mater. Chem. A*, vol. 7, no. 1, pp. 269–277, 2019, doi: 10.1039/c8ta09810g.

[5] K. Rajavel *et al.*, "2D Ti3C2Tx MXene/polyvinylidene fluoride (PVDF) nanocomposites for attenuation of electromagnetic radiation with excellent heat dissipation," *Compos. Part A Appl. Sci. Manuf.*, vol. 129, p. 105693, 2020, doi: 10.1016/j.compositesa.2019.105693.

[6] K. H. Tan, L. Samylingam, N. Aslfattahi, R. Saidur, and K. Kadirgama, "Optical and conductivity studies of polyvinyl alcohol-MXene (PVA-MXene) nanocomposite thin films for electronic applications," *Opt. Laser Technol.*, vol. 136, no. October, p. 106772, 2021, doi: 10.1016/j.optlastec.2020.106772.

[7] D. Candani, M. Ulfah, W. Noviana, and R. Zainul, "A Review Pemanfaatan Teknologi Sonikasi," no. 26, 2018, doi: 10.31227/osf.io/uxknv.

[8] H. Abral, "effect of heat treatment on thermal resistance transparency and antimicrobial activity of sonicated ginger cellulose film," vol. 240, 2020.

[9] I. Artikel, "Jurnal Litbang Industri," pp. 89–94, 2018.

[10] S. Purnavita and V. C. Dewi, "KAJIAN KETAHANAN BIOPLASTIK PATI JAGUNG DENGAN VARIASI BERAT DAN SUHU PELARUTAN

POLIVINIL ALKOHOL," vol. 2, pp. 14–22, 2021.

[11] H. Luo, J. Xie, L. Xiong, Y. Zhu, Z. Yang, and Y. Wan, "Fabrication of fl exible , ultra-strong , and highly conductive bacterial cellulose-based paper by engineering dispersion of graphene nanosheets," *Compos. Part B*, vol. 162, no. January, pp. 484–490, 2019, doi: 10.1016/j.compositesb.2019.01.027.

[12] A. Manuscript, "Materials Chemistry C," 2019, doi: 10.1039/C9TC03309B.

[13] P. Studi, K. Fakultas, and U. C. Palopo, "No Title," vol. 08, no. 2, pp. 1–13, 2017.

[14] F. Jamil *et al.*, "Evaluation of photovoltaic panels using different nano phase change material and a concise comparison : An experimental study," vol. 169, 2021, doi: 10.1016/j.renene.2021.01.089.

[15] W. Zhang *et al.*, "Wasp nest-imitated assembly of elastic rGO / p-Ti 3 C 2 T x MXene- cellulose nano fi bers for high-performance sodium-ion batteries," *Carbon N. Y.*, vol. 153, pp. 625–633, 2019, doi: 10.1016/j.carbon.2019.07.040.

[16] L. H. Saputri and R. Sukmawan, "Pengaruh Proses Blending dan Ultrasonikasi terhadap Struktur Morfologi Ekstrak Serat Limbah Batang Kelapa Sawit untuk Bahan Baku Bioplastik (Selulosa Asetat)," *Rekayasa*, vol. 13, no. 1, pp. 15–21, 2020, doi: 10.21107/rekayasa.v13i1.6180.

[17] H. Abral *et al.*, "Effect of ultrasonication duration of polyvinyl alcohol (PVA) gel on characterizations of PVA film," *J. Mater. Res. Technol.*, vol. 9, no. 2, pp. 2477–2486, 2020, doi: 10.1016/j.jmrt.2019.12.078.

[18] J. Michael, Z. Qifeng, and W. Danling, "Titanium carbide MXene : Synthesis , electrical and optical properties and their applications in sensors and energy storage devices," vol. 9, pp. 1–9, 2019, doi: 10.1177/1847980418824470.

[19] Y. Wang *et al.*, "Engineering 3D Ion Transport Channels for Flexible MXene Films with Superior Capacitive Performance," *Adv. Funct. Mater.*, vol. 29, no. 14, pp. 1–10, 2019, doi: 10.1002/adfm.201900326.

[20] K. Kannan, M. H. Sliem, A. M. Abdullah, K. K. Sadasivuni, and B. Kumar, "Fabrication of ZnO-Fe-MXene Based Nanocomposites for E ffi cient CO 2 Reduction," pp. 1–15, 2020.

[21] K. Maleski, C. E. Ren, M. Zhao, B. Anasori, and Y. Gogotsi, "Size-Dependent Physical and Electrochemical Properties of Two- Dimensional MXene Flakes," *ACS Appl. Mater. Interfaces*, vol. 10, pp. 24491–24498, 2018, doi: 10.1021/acsami.8b04662.

[22] Y. Cao *et al.*, "RSC Advances Enhanced thermal properties of poly (vinylidene fl uoride) composites with ultrathin nanosheets of," *RSC Adv.*, vol. 7, pp. 20494–20501, 2017, doi: 10.1039/C7RA00184C.

[23] M. Alhabeb, K. Maleski, B. Anasori, P. Lelyukh, L. Clark, and S. Sin, "Guidelines for Synthesis and Processing of Two-Dimensional Titanium Carbide (Ti 3 C 2 T," 2017, doi: 10.1021/acs.chemmater.7b02847.

[24] R. Novitra *et al.*, "Superkapasitor berbahan dasar karbon aktif dari ampas biji kopi robusta menggunakan aktivator NaOH Supercapactors based on active carbon from spent arabica coffee ground using NaOH activators," vol. 11, no. 1, pp. 33–40, 2022, doi: 10.24815/jacps.v11i1.22227.

[25] P. Li, J. Antti, A. Haapala, A. Khakalo, and H. Liimatainen, "Food Hydrocolloids Anti-oxidative and UV-absorbing biohybrid fi lm of cellulose nano fi brils and tannin extract," vol. 92, no. January, pp. 208–217, 2019, doi: 10.1016/j.foodhyd.2019.02.002.

[26] A. Kumar, N. Islam, O. Faruk, and R. Dungani, "South African Journal of Botany Review on tannins : Extraction processes , applications and possibilities," *South African J. Bot.*, vol. 135, pp. 58–70, 2020, doi: 10.1016/j.sajb.2020.08.008.

[27] T. Azwir, "Perubahan Nilai Konduktivitas Listrik dari Biokomposit Nata De Coco, Tempo dan MXene Disebabkan Oleh Waktu Perebusan," Universitas Andalas, 2021.

[28] F. Wang, H. Kim, S. Park, C. Kee, S. Kim, and I. Oh, "Bendable and fl exible supercapacitor based on polypyrrole-coated bacterial cellulose core-shell composite network," *Compos. Sci. Technol.*, vol. 128, pp. 33–40, 2016, doi: 10.1016/j.compscitech.2016.03.012.

[29] N. Sandewi, "Karakterisasi nanohidroksiapatit dari cangkang telur menggunakan uji sem dan xrd," *Skripsi Fak. Sains dan Teknol. UIN Alauddin Makasar*, 2017.

[30] S. Pirsa, “Smart Films Based On Bacterial Cellulose Nanofibers Modified By Conductive Polypyrrole and Zinc Oxide Nanoparticles,” vol. 46617, 2018.

[31] A. Sujatno, R. Salam, A. Dimyati, P. Sains, and B. Maju, “STUDI SCANNING ELECTRON MICROSCOPY (SEM) UNTUK KARAKTERISASI PROSES OXIDASI PADUAN ZIRKONIUM,” vol. 9, no. November, pp. 44–50.

[32] “ A. A. Qalbi, A. M. Rusnadar, E. W. Utama, F. Jannah, R. A. Shavira, Lusiana, D. A. Primadani and Faridawati, “Pengujian Konduktivitas Listrik Material dangan Metode Four Point Probe (FPP),” *urnal Prakt. Fis. Lab. Mater.* ., 2019.

[33] D. Hidayat, R. Zulianto, B. M. Wibawa, and B. Y. Tumbelaka, “Pengembangan Pengukuran Sheet Resistance Film Tipis Menggunakan Metode Four Point Probe,” no. November, pp. 26–27, 2016.

[34] H. A. M. Bacelo, S. C. R. Santos, and C. M. S. Botelho, “Tannin-based biosorbents for environmental applications – A review,” *Chem. Eng. J.*, vol. 303, pp. 575–587, 2016, doi: 10.1016/j.cej.2016.06.044.

[35] L. Khalafi, *Cyclic voltammetry*, no. Cv. 2017.

[36] H. Suryanto, “Analisis struktur serat selulosa dari bakteri,” *Pros. SNTT 2017 – Politek. Negeri Malang*, vol. 3, no. October, pp. 17–22, 2017.

[37] J. Song *et al.*, “Wearable Force Touch Sensor Array Using a Flexible and Transparent Electrode,” vol. 201605286, pp. 1–9, 2017, doi: 10.1002/adfm.201605286.