

DAFTAR PUSTAKA

- Afriwandi, A., Erman, T., & Taslim, R. 2017. Pemanfaatan Ampas Sagu Sebagai Elektroda Karbon Superkapasitor. *Jurnal Komunikasi Fisika Indonesia*, 14(2), 1119–1124.
- Rizky, A., Khakim, A., & Mahardika, L. 2011. Pembuatan Nanokarbon Dengan Karbon Limbah Baterai Untuk Aplikasi Elektroda Superkapasitor Bidang. *Ilmu Fisika*, 3(2), 5-14.
- Ariyanto, T., Prasetyo, I., & Rochmadi, R. 2012. Pengaruh Struktur Pori Terhadap Kapasitansi Elektroda Superkapasitor Yang Dibuat Dari Karbon Nanopori. *Reaktor*, 14(1), 25–32.
- Armynah, B., Taer, E., Djafar, Z., Piarah, W. H., & Tahir, D. 2019. Effect of temperature on physical and electrochemical properties of the monolithic carbon-based bamboo leaf to enhanced surface area and specific capacitance of the supercapacitor. *International Journal of Electrochemical Science*, 14, 7076-87.
- Arora, P., Zhang, Z. 2004. Battery Separator. Chemical Reviews. *Jornal of Applied Mathematics and Physics*, 4(2), 104.
- Azevedo, D. C. S., Araujo, M. S., Bastos-Neto, A., E. B. Torres, E. F. J. & C. I. L. 2007. Cavalcante, Microporous activated carbon prepared from coconut shells using chemical activation with zinc chloride, Microporous and Mesoporous Materials. *Quimca*, 31(6), 1269-1300.
- Aziz, H., Tetra, O. N., Alif, A., Syukri, S., & Perdana, Y. A. 2017. Performance Karbon Aktif dari Limbah Cangkang Kelapa Sawit sebagai Bahan Elektroda

Superkapasitor. *Jurnal Zarah*, 5(2), 1–6.

Badan Pusat Statistik. 2022. Luas Perkebunan Kakao Indonesia

Callister, Jr, W. 2009. *Materials Science and Engenering An Introduction 8Th* (JohnWiley and sons (ed.); 8th ed.).

Cao, W., & Yang, F. 2018. Supercapacitors from high fructose corn syrup-derived activated carbons. *Materials today energy*, 9, 406-415.

Daud, Z., Kassim, A. S. M., Aripin, A. M., Awang, H., & Hatta, M. Z. M. 2013. Chemical Composition and Morphological of Cocoa Pod Husks and Cassava Peels for Pulp and Paper Production. *Australian Journal of Basic and Applied Sciences*, 7(9), 406–411.

Divya, P., & Rajalakshmi, R. 2020. Renewable low cost green functional mesoporous electrodes from *Solanum lycopersicum* leaves for supercapacitors. *Journal of Energy Storage*, 27, 101149.

Efendi, Z., dan Astuti, A. 2016. Pengaruh Suhu Aktivasi Terhadap Morfologi dan Jumlah Pori Karbon Aktif Tempurung Kemiri sebagai Elektroda. *Jurnal Fisika Unand*, 5(4), 297–302.

Emmenegger, C., Mauron, Ph., Sudan, P., Wenger, P., Hermann, V., & Gallay, R., Zuttel, A. 2003. Investigation of electrochemical double-layer (EDLC) capacitors electrodes based on carbon nanotubes and activated carbon materials. *Journal of Power Sources* 124(1), 321-329.

Ewing, dan Galen ,W. 1960. *Instrumental Metods, Of Chemical Analysis*.

Farma, R., Oktaviandari, M., & Asyana, V. 2021. Effect of carbonized temperature to supercapacitor electrode from palm midrib biomass. *Journal*

of Aceh Physics Society, 10(1), 21-25.

Febriyanto, P., Jerry, J., Satria, A. W., & Devianto, H. 2019. Pembuatan Dan Karakterisasi Karbon Aktif Berbahan Baku Limbah Kulit Durian Sebagai Elektroda Supercapacitor. *Jurnal Integrasi Proses*, 8(1), 19.

Fuhu, L., C. Weidong, S. Zengmin, W. Yixian, L. Yunfang, and L. Hui. 2010. Activation of mesocarbon microbeads with different textures and their application for supercapacitor. *Fuel Processing Technology*, 91 (1):17–24.

Idrus, R., Lapanoro, B. P., & Putra, Y. S. 2013. Pengaruh Suhu Aktivasi Terhadap Kualitas Karbon Aktif Berbahan Dasar Tempurung Kelapa. *Prisma Fisika*, 1(1), 50–55.

Juradi, M. A., Tando, E., & Suwitra, K. 2019. Inovasi Teknologi Pemanfaatan Limbah Kulit Buah Kakao (*Theobroma cacao* L.) Sebagai Pupuk Organik Ramah Lingkungan. *AGRO RADIX: Jurnal Ilmu Pertanian*, 2(2), 9–17.

Karim, A. A., Azlan, A., & Hashim, P. 2014. Antioxidant Propis Of Cocoa Pods And Shells Oil Palm Kernel Protein Hydrolysate View Project. *Malaysian Cocoa Journal*, 8(November 2015), 49–56.

Khajonrit, J., Sichumsaeng, T., Kalawa, O., Chaisit, S., Chinnakorn, A., Chanlek, N., & Maensiri, S. 2022. Mangosteen peel-derived activated carbon for supercapacitors. *Progress in Natural Science: Materials International*, 32(5), 570–578.

Lestari, H. D., Asri, M. T., Biologi, J., Matematika, F., Pengetahuan, I., Universitas, A., & Surabaya, N. 2021. Aktivitas Antibakteri Ekstrak Kulit Buah Kakao (*Theobroma cacao* L.) Terhadap *Staphylococcus epidermidis*

Antibacterial Activity of Cocoa Pod Husk Extract (*Theobroma cacao* L.)
Journal Universitas Negeri Surabaya, 10, 302–308.

Li, X. R., Jiang, Y. H., Wang, P. Z., Mo, Y., Li, Z. J., Yu, R. J., & Chen, Y. 2020. Effect of the oxygen functional groups of activated carbon on its electrochemical performance for supercapacitors. *New Carbon Materials*, 35(3), 232-243.

Li, Z., Gou, D., Liu, Y., Wang, H., & Wang, L. 2020. Recent advances and challenges in biomass-derived porous carbon nanomaterials for supercapacitors. *Chemical Engineering Journal*, 397:125418.

Loppies, J. E. 2016. Karakteristik Arang Kulit Buah Kakao Yang Dihasilkan Dari Berbagai Kondisi Pirolisis. *Jurnal Industri Hasil Perkebunan*, 11(2), 105.

Lu, Q., Zhou, S., Li, B., Wei, H., Zhang, D., Hu, J., & Liu, Q. 2020. Mesoporous carbon like aerogel from lotus leaves with ultrahigh performance for supercapacitors. *Electrochimica Acta*, 333, 135-481.

Mashuni, Nur Arfa Yanti, M. Jahiding, Kartina, F. H. H. 2018. Pemanfaatan Asap Cair Dari Limbah Kulit Kakao Sebagai Antijamur Pada Benih Tanaman Kakao. *Prosiding SNTK Eco-SMART*, 1, 89-97

Miller, J. R., & Burke, A. F. 2008. Electrochemical capacitors: Challenges and opportunities for real-world applications. *Electrochemical Society Interface*, 17(1), 53–57.

Muchammadsam, I.D. Taer, E. dan Farma, R. 2015, Modifikasi Karbon Aktif Dengan Aktivasi Kimia Dan Aktivasi Fisika Menjadi Elektroda Superkapasitor. *4024-7886-1-Sm*, 2(1), 8–13.

- Nicholson, M., & Shain, D. A. N. 2020. Analisis Voltammogram Siklik Senyawa Klorambusil. *Journal Universitas Lampung*, 5(02), 111–122.
- Nuradi, R. F. 2021. Pembuatan Superkapasitor Dari Karbon Aktif kulit Buah Kakao Sebagai Penyimpan Energi. *Jurnal Ilmu Fisika*, 02520002, 1–15.
- Nurhasmia, N. 2021. Studi Penggunaan Superkapasitor Sebagai Media Penyimpan Energi. *Progressive Physics Journal*, 2(2), 79.
- Pal, B., Yang, S., Ramesh, S., Thangadurai, V., & Jose, R. 2019. Electrolyte selection for supercapacitive devices: A critical review. *Nanoscale Advances*, 1(10), 3807–3835.
- Pari, G., Darmawan, S., & Prihandoko, B. 2014. Porous Carbon Spheres from Hydrothermal Carbonization and KOH Activation on Cassava and Tapioca Flour Raw Material. *Procedia Environmental Sciences*, 20, 342–351.
- Puastuti, W. 2014. Potensi dan Pemanfaatan Kulit Buah Kakao sebagai Pakan Alternatif Ternak Ruminansia. *Wartazoa* 24(3), 151–159.
- Ratnasari, D., Hermanihadi, S., Indriyanto, W., Fathony, A., Devi WH. F., Agung R, P. dan Amin Rais, Y. 2009. Kimia Fisika X-Ray Diffraction (XRD), Surakarta: FT UNS.
- Reichenbach, A., Bringmann, A., Reader, E. E., Pournaras, C. J., Rungger-Brändle, E., Riva, C. E., Hardarson, S. H., Stefansson, E., Yard, W. N., Newman, E. A., & Holmes, D. 2019. Analisis struktur co dispersion indikator yang berhubungan dengan kesehatan di pusat rasa subjektif kesehatan. *Progress in Retinal and Eye Research*, 561(3), S2–S3.
- Riyanto, A. 2014. Superkapasitor Sebagai Piranti Penyimpan Energi Listrik Masa

Depan. *Jurnal Ilmiah Pendidikan Fisika Al-Biruni*, 3(2), 56–63.

Samanta, A. K., Basu, G., & Mishra, L. 2018. Role of major constituents of coconut fibres on absorption of ionic dyes. *Industrial Crops and Products*, 117, 20-27.

Saikia, B. K., Benoy, S. M., Bora, M., Tamuly, J., Pandey, M., & Bhattacharya, D. 2020. A brief review on supercapacitor energy storage devices and utilization of natural carbon resources as their electrode materials. *Fuel*, 282, 118796.

Septyantoko, A., Pembimbing, D., Susanti, D., Purwaningsih, H., Teknik, J., Dan, M., & Industri, F. T. 2016. Analisa Pengaruh Lama Waktu Deposisi. *Journal ITS*, 6, 256-277

Shanmuga,K., Bharathi.M., Indra. S., Vionth.G., Mahalakshmi.T., dan Induja.E. 2020. Green Synthesis of Benzimidazole Deritives Under Ultrasound Irradiation Embedded Over MCM-41 as Efficient and Reusable Catalyst. *Journal of Coordination Chemistry*, 73, 653-670.

Simon, P., dan Gogotsi, Y. 2010. Charge storage mechanism in nanoporous carbons and its consequence for electrical double layer capacitors. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 368(1923), 3457–3467.

Sinha, P., Yadav, A., Tyagi, A., Paik, P., Yokoi, H., Naskar, A. K., ... & Kar, K. K. 2020. Keratin-derived functional carbon with superior charge storage and transport for high-performance supercapacitors. *Carbon*, 168, 419- 438.

Sri Hermawan, Yuli Rizky Ananda Nasution, & Rosdanelli Hasibuan. 2012.

- Penentuan Efisiensi Inhibisi Korosi Baja Menggunakan Ekstrak Kulit Buah Kakao (*Theobroma cacao*). *Jurnal Teknik Kimia USU*, 1(2), 31–33.
- Taer, E., Syech, R., & Taslim, R. 2015. Analisa Siklis Voltametri Superkapasitor Menggunakan Elektroda Karbon Aktif dari Kayu Karet Berdasarkan Variasi Aktivator KOH. *Prosiding Seminar Nasional Fisika (E-Journal) SNF2015*, IV, 105–110.
- Tetra, et al. 2018. Superkapasitor Berbahan Dasar Karbon Aktif Dan Larutan Ionik Sebagai Elektrolit. *Jurnal Zarah*, 6(1), 39–46.
- Wati, G. A., Rohmawati, L., & Putri, N. P. 2015. Kapasitansi Elektroda Superkapasitor Dari Tempurung Kelapa. *Jurnal Fisika*, 4(1), 6–9.
- Wang, Y., Qu, Q., Gao, S., Tang, G., Liu, K., He, S., & Huang, C. 2019. Biomass derived carbon as binder-free electrode materials for supercapacitors. *Carbon*, 155, 706-726.
- Yetri, Y., Hoang, A. T., Mursida, Dahlan, D., Muldarisnur, Taer, E., & Chau, M. Q. 2020. Synthesis of activated carbon monolith derived from cocoa pods for supercapacitor electrodes application. *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*, 1, 1–15.
- Ying, Z., Zhang, Y., Lin, X., Hui, S., Wang, Y., Yang, Y., & Li, Y. 2020. A biomass-derived super-flexible hierarchically porous carbon film electrode prepared via environment-friendly ice-microcrystal pore-forming for supercapacitors. *Chemical Communications*, 56(73), 10730-10733.
- Yusriwandi, Taer, E., Farma, R. 2017. Pembuatan dan Karakterisasi Elektroda Karbon Aktif Dengan Karbonisasi Dan Aktivasi Bertingkat Menggunakan

Gas CO₂ dan Uap Air, *Jurnal Ilmiah Edu Research*, 6,1071-1075.

Y. Wang, M. Qiao, and X. Mamat., 2018. Nitrogen-doped macro-meso-micro hierarchical ordered porous carbon derived from ZIF-8 for boosting supercapacitor performance,” *Appl. Surf. Sci.*, 540, 148352,

Zakir, M., Kasim, H., Raya, I., Lamba, Y., & Jorge, A. B. 2019. Performance of Candlenut Shell (*Alleuretus moluccana*) Based Supercapacitor Electrode with Acid Electrolytes and Their Salts. *In IOP Conference Series: Materials Science and Engineering*, 619, No. 1, p. 012042.

Zhang, G., Chen, Y., Chen, Y., & Guo, H. 2018. Activated biomass carbon made from bamboo as electrode material for supercapacitors. *Materials Research Bulletin*, 102, 391-398.

Zhou.W., Apkarian,R., Wang,ZL., dan Joy.D . 2007. Fundamental of Scanning Electron Microscopy for Nanotechnology, *Springer*, 4, 1-40.

