

DAFTAR PUSTAKA

- Abd Mutalib, M., Rahman, M. A., Othman, M. H. D., Ismail, A. F., & Jaafar, J. (2017). Scanning Electron Microscopy (SEM) and Energy-Dispersive X-Ray (EDX) Spectroscopy. In *Membrane Characterization*. <https://doi.org/10.1016/B978-0-444-63776-5.00009-7>
- Aprilia, F. R., Ayuliansari, Y., Putri, T., Azis, M. Y., Camelina, W. D., & Putra, M. R. (2018). ANALISIS KANDUNGAN KAFEIN DALAM KOPI TRADISIONAL GAYO DAN KOPI LOMBOK MENGGUNAKAN HPLC DAN SPEKTROFOTOMETRI UV/VIS. *BIOTIKA Jurnal Ilmiah Biologi*
- Arni, Labania, H., dan Nismayanti.,2014, Studi Uji Karakteristik Fisis Briket Bioarang Sebagai Sumber Energi Alternatif, *Jurnal of Natural Science* 3(1), 89-98
- Aziz, H., Tetra, O.N, Alif, A., Syukri. Ramadhan. W. 2016. Electrical properties of supercapacitor electrode-based on activated carbon from waste palm kernel shells. *Der Pharma Chemica*. 8(15), 227-232.
- Aziz, H., Tetra, O.N., Admin, A., Syukri, Perdana Y.A. 2017. Performance Karbon Aktif dari Limbah Cangkang Kelapa Sawit Sebagai Bahan Elektroda Superkapasitor. *Jurnal Zarah* 2, 1-6.
- Aziz, H., Tetra, O.N., Alif. A., Syukri and Ramadhan, W. (2016). Electrical Properties of Supercapacitor ElectrodeBased on Activated Carbon from Waste Palm Kernel Shells. *Der Pharma Chemica*. 8(15):227-232
- Barmawi, I., Taer, E., Umar, A., Lukita, J., Lustania. 2012. Penumbuhan Nanopartikel Logam dengan Metode Kimia Basah untuk Meningkatkan Prestasi Superkapasitor Elektrokimia, *Prosiding SNTK TOPI*, Pekanbaru.
- Barzegar, F., Manyala, N., Momodu, D.Y., Fashedemi, O.O., Bello, A., dan Dangbegnon, J.K., 2015, Investigation of Different Aqueous Electrolytes on the Electrochemical Performance of Activated Carbon based Supercapacitors, *RSC Adv.*, 5, 107482-107487.
- Boujibar, O., Ghosh, A., Achak, O., Chafik, T. & Ghamouss, F. 2019. A high energy storage supercapacitor based on nanoporous activated carbon electrode made from Argan shells with excellent ion transport in aqueous

- and non-aqueous electrolytes. *Journal of Energy Storage*, 26(September): 100958.
- Budiono, A., Suhartana, Gunawan. 2009. Pengaruh Aktivasi Arang Tempurung Kelapa Dengan Asam Sulfat dan Asam Posfat untuk Adsorpsi Fenol. *EJournal*, 1-12.
- Burke, A. 2000. Ultracapacitors: why, how, and where is the technology. *Journal of power sources*, 91(1):37–50. Tersedia di <http://www.sciencedirect.com/>
- Chand, B. Roop, Meenakshi, G. 2005. *Activated Carbon Adsorption*. New York: Lewis.
- Deng, P., Lei, S., Wang, W., Zhou, W., Ou, X., Chen, L., Xiao, Y. & Cheng, B. 2018. Conversion of biomass waste to multi-heteroatom-doped carbon networks with high surface area and hierarchical porosity for advanced supercapacitors. *Journal of Materials Science*, 53(20): 14536–14547. Tersedia di <https://doi.org/10.1007/s10853-018-2630-8>.
- Endo, M., Takeda, T., Kim, Y.J., Koshiba, K. & Ishii, K. 2001. High Power Electric Double Layer Capacitor (EDLC's); from Operating Principle to Pore Size Control in Advanced Activated Carbons. *Carbon Science*, 1(3): 117–128.
- Fu, Y., Zhang, N., Shen, Y., Ge, X. & Chen, M. 2018. Micro-mesoporous carbons from original and pelletized rice husk via one- step catalytic pyrolysis. *Bioresource Technology*, 269: 67–73. Tersedia di <https://doi.org/10.1016/j.biortech.2018.08.083>.
- García, P., G. 2017. Activated carbon from lignocellulosics precursors a review of the synthesis methods, characterization techniques and applications. *Renewable and Sustainable Energy Reviews*.
- González-García, P., 2017, 'Activated carbon from lignocellulosics precursors: A review of the synthesis methods, characterization techniques and applications', *Renewable and Sustainable Energy Reviews* 82: 1393-1414
- Grandys, P., Rika, D., Istria, P.R., Ahmad, F. Amanda, P. 2004. Analisis luas permukaan arang aktif dengan menggunakan metode BET (SAA). Universitas Negeri Semarang. Semarang.
- Gultom, E. M., & Lubis, M. T. (2014). *APLIKASI KARBON AKTIF DARI*

CANGKANG KELAPA SAWIT DENGAN AKTIVATOR H₃ PO₄ UNTUK PENYERAPAN LOGAM BERAT Cd DAN Pb. *Jurnal Teknik Kimia USU*.

Inagaki, M., Konno, H. & Tanaike, O. 2010. Carbon materials for electrochemical capacitors. *Journal of Power Sources*, 195(24): 7880–7903. Tersedia di <http://dx.doi.org/10.1016/j.jpowsour.2010.06.036>.

Iro, Z., S., Subramani C., Dash S., S. 2016. A Brief Review on Electrode Materials for Supercapacitor. *International Journal of Electrochemical Science* 1110628– 10643.

Ismanto, A. E., Wang, Steven., Soetaredjo, F. E., Ismadji, S. 2010. Preparation of capacitor's electrode from cassava peel waste. *Bioresource Technology*; 101: 3534.

Jayalakshmi, M. 2008. Simple Capacitors to Supercapacitors, *Int. J. Electrochem. Sci.* Vol 3, 1196–1217.

Kalpana, D., Cho, S.H., Lee, S.B., Lee, Y.S., Misra, R., and Renganthan, N.G., 2009, Recycled waste paper-a new source of raw material for electric double-layer capacitors, *Journal of Power Sources* 190: 587-591.

Kamikuri, N., Hamasuna, Y., Tashima, D., Fukuma, M., Kumagai S., Madden J., D., W. 2014. Low-cost Activated Carbon Materials Produced from Used Coffee Grounds for Electric Double-layer Capacitors. *International Journal of Engineering Science and Innovative Technology (IJESIT)* 3492-501

Kampouris, D.K., Ji, X., Randviir, E.P. & Banks, C.E. 2015. A new approach for the improved interpretation of capacitance measurements for materials utilised in energy storage. *RSC Advances*, 5(17): 12782–12791. Tersedia di <http://dx.doi.org/10.1039/C4RA17132B>.

Kang, X., Zhu, H., Wang, C., Sun, K., Yin, J. 2018. Biomass derived hierarchically porous and heteroatom-doped carbons for supercapacitors. *Journal of Colloid and Interface Science* 509369–383.

Khu, L. V., Thu, T. L. T. 2014. Activated Carbon Derived From Rice Husk By Naoh Activation and Its Application In Supercapacitor. *Progress in Natural Science Materials International*, 24, 191-198.

- Kwiatkowski, M., Broniek, E. 2017. An Analysis of the Porous Structure of Activated Carbons Obtained From Hazelnut Shells by Various Physical and Chemical Methods of Activation. *Colloids and Surfaces A*.
- Kwon, S. H., Lee, E., Kim, B. S., Kim, S. G., Lee, B. J., Kim, M. S., & Jung, J. C. (2014). Activated carbon aerogel as electrode material for coin-type EDLC cell in organic electrolyte. *Current Applied Physics*. <https://doi.org/10.1016/j.cap.2014.02.010>
- Li, C., Iqbal, M., Lin, J., Luo, X., Jiang, B., Malgras, V., ... Yamauchi, Y. (2018). Electrochemical Deposition: An Advanced Approach for Templated Synthesis of Nanoporous Metal Architectures. *Accounts of Chemical Research*. <https://doi.org/10.1021/acs.accounts.8b00119>
- Lowell, S., Joan E., S., Martin, A., T., Matthias, T., 2004, 'Characterization of Porous Solids and Powders: Surface Area, Pore Size and Density', The Netherlands : Kluwer Academic Publishers, 349 hal
- Liu, Zhi., Zhu, zhi., Dai, Jiangdong., Yan, Yongsheng. 2018. Waste Biomass Based-Activated Carbons Derived from Soybean Pods as Electrode Materials for High-Performance Supercapacitors. *Journal Chem Pub Soc Europe*, School of chemistry and Chemical Engineering, Jiangsu University.
- Marsh, H., Rodriguez-Reinoso, F. 2006. Activated carbon, *Material Science Books Elsevier Great Britain India*. 70-105.
- Miller, E.E., Hua, Y. & Tezel, F.H. 2018. Materials for energy storage: Review of electrode materials and methods of increasing capacitance for supercapacitors. *Journal of Energy Storage*, 20(February): 30–40. Tersedia di <https://doi.org/10.1016/j.est.2018.08.009>.
- Mison, I., I., Khairiyah, N., Radhiyah, M., Z., Baiju, A., A., Jose, V., R. 2015. Electrochemical properties of carbon from oil palm kernel shell for high performance supercapacitors. *Electrochimica Acta*.
- Mossfika, E., Syukri, S., & Aziz, H. (2020). Preparation of Activated Carbon from Tea Waste by NaOH Activation as A Supercapacitor Material. *Journal of Aceh Physics Society*.
- Pandolfo, A.G. & Hollenkamp, A.F. 2006. Carbon properties and their role in supercapacitors. *Journal of Power Sources*, 157(1): 11–27.

- Pambayun, S. G. 2013. Pembuatan karbon aktif dari arang tempurung kelapa dengan aktivator $ZnCl_2$ dan Na_2CO_3 sebagai adsorben untuk mengurangi kadar fenol dalam air limbah. *Jurnal Teknik POMITS*, 1(2), 2301-9271.
- Peng, C., Yan, X.B., Wang, R.T., Lang, J.W., Jing Ou. J., Ji Xue, Q. (2013). Promising Activated Carbons From Waste TeaLeaves And Their Applicatio In High Performance Supercapacitors Electrodes. *Electrochimica Acta*, 87, 401-408
- Puspita Sari, Fitria. 2014. Efek Variasi Waktu Tunggu Ball Milling Terhadap Karakteristik Elektro Kimia Sel Super Kapasitor Berbasis Karbon. Skripsi Jurusan Fisika Fakultas Matematika Dan Ilmu Pengetahuan Alam, Universitas Riau, Pekanbaru.
- Reny, Yantika, Tetra, O.N., Admin, A., Emriadi. 2014. Pengaruh Elektrolit H_2SO_4 Terhadap Sifat Listrik Elektroda Campuran Zeolit Dari Bottom Ash Dan Resin Damar Sebagai Superkapasitor. *Jurnal Kimia Unand*, 3
- Rossi, M. 2014. Hydrogel-Polymer Electrolytes Based on Polivinil Alcohol and Hydroxyethylcellulose for Supercapacitor Applications, *Int. J. Electrochem. Sci.*, 9 4251-4256.
- S. Koohi-Fayegh, MA Rosen, *Tinjauan jenis penyimpanan energi, aplikasi dan perkembangan terakhir* , *J. Energy Storage*. 27 (2020)101047.
- Salita S, Via. 2013. Mesoporus carbon Materials as Electrodes for Electrochemical Supercapacitors. *Int. J. Electrochem. Sci*, 903-916.
- Sattayarut, V., Wanchaem, T., Ukkakimapan, P., Yordsri, V. 2019. Nitrogen self – doped activated carbons via the direct activation of *samanea saman* leaves for high energy density supercapacitors. *Royal societ of chemistry* 20 (June) 21724.science/article /pii/S0378775300004857%5Cnpapers 3 ://publication/livfe/id/55939.
- Scott, K. 2016. Electrochemical principles and characterization of bioelectrochemical systems. *Microbial electrochemical and fuel cells*. Elsevier Ltd. Tersedia di <http://dx.doi.org/10.1016/B978-1-78242-375-1.00002-2>.

- Siti, Z., Aris, W., Nur, H., Apriza, M., Yoga, A. P., Lutfi, N., Novita, D., R. 2015. Analisis Luas Permukaan Zeolit Alam Termodifikasi Dengan Metode BET Menggunakan Surface Area Analyzer (SAA). Dalam Pelatihan Instrumen 2015 Jurusan Kimia FMIPA Universitas Negri Semarang, Semarang.
- Song, T., Liao, J.M., Xiao, J. & Shen, L.H. 2015. Effect of micropore and mesopore structure on CO₂ adsorption by activated carbons from biomass. *Xinxing Tan Cailiao/New Carbon Materials*, 30(2): 156–166. Tersedia di [http://dx.doi.org/10.1016/S1872-5805\(15\)60181-0](http://dx.doi.org/10.1016/S1872-5805(15)60181-0).
- Suwandana, R., Suwandana, R. F., & Susanti, D. (2015). Analisis Pengaruh Massa Reduktor Zinc Terhadap Sifat Kapasitif Superkapasitor Material Graphene. *Jurnal Teknik ITS*.
- Taer, E, R Syech, And R Taslim. 2015. “Analisa Siklis Voltametri Superkapasitor Karet Berdasarkan Variasi Aktivator KOH” IV: 105–10.
- Taer, E., Agustino., Apriwandi., S. T., Taslim. R., Awitdrus, A ., K, Farma, R. 2020. Sintesis karbon nanofiber berasal dari serat daun nanas sebagai elektroda karbon untuk aplikasi superkapasitor. *Jurnal konversi dan penyimpanan energi elektrokimia Adv. Nat. Sci.: Nanosci. nanoteknologi*. 2021, vol. 18/031004-1
- Taer, E., Apriwandi., Agustino., S. T., Taslim. R., Mustika. 2020. Stuktur pori tiga dimensi dari karbon aktif monolitik yang diturunkan dari batang bamboo hierarkis untuk aplikasi superkapasitor. *Advanced Materials Research Vol(896) : Hal 22-30*.
- Taer, E., Apriwandi., Agustino., S. T., Taslim. R., Natalia ., K, Farma, R. 2020. Sintesis karbon aktif nano fiber elektroda yang terbuat dari daun akasia (*Acacia mangium wild*) sebagai superkapasitor. *Adv. Nat. Sci.: Nanosci. nanoteknologi*. 11 (2020) 025007 (7 hal)
- Taer, E., Satri., Taslim, R., Iwantono. 2014. Elektroda Komposit Karbon Aktif dari Kulit Ubi Kayu-Karbon Nano Tube-Polianelin Untuk Aplikasi Superkapasitor. *Seminar Rapat Tahunan ISBN : 978-602-70491-0-9*. Hal 39-46.
- Taer, E., Zulkifli, Arif, E. N., dan Taslim, R., 2016, Analisa Kapasitansi Spesifik Elektroda Karbon Superkapasitor dari Kayu Karet terhadap Laju Scan berdasarkan Variasi Aktivasi HNO₃, *Jurnal Fisika dan Aplikasinya*, 1(1), 29-34
- Taer, E., Zulkifli, Arif, E. N., dan Taslim, R., 2016, Analisa Kapasitansi Spesifik Elektroda Karbon Superkapasitor dari Kayu Karet terhadap Laju Scan berdasarkan Variasi Aktivasi HNO₃, *Jurnal Fisika dan Aplikasinya*, 1(1),

29-34

- Tetra, Olly Norita, Hermansyah Aziz, Emriadi, Hanif Wahyuni, And Admin Alif. 2016. "Performance Of TiO₂-Carbon On Ceramic Template With Sodium Hydroxide Activation As Supercapacitor Electrode Materials." *Der Pharma Chemica* 8 (17): 26–30.
- Tetra, Olly Norita, Hermansyah Aziz, Syukri, Bustanul Arifin, and Asih Novia. 2018. "The Effect Of Addition Of Activated Carbons From Peon Performance Of Superkapasitor Base Of Activated Carbon Of Palm Kernel Shell." *Jurnal Zarah* 6(2): 47-52.
- Wang, C.-H., Wen, W.-C., Hsu, H.-C., & Yao, B.-Y. 2016. High-capacitance KOHactivated nitrogen-containing porous carbon material from waste coffee grounds in supercapacitor. *Advanced Powder Technology*, 27(4), 1387– 1395.
- wu, J., Xia, M., Zhang, X., Chen, Y., Sun, F., Wang, X., Yang, H. & Chen, H. 2020. Hierarchical porous carbon derived from wood tar using crab as the template: Performance on supercapacitor. *Journal of Power Sources*, 455(February): 227982. Tersedia di <https://doi.org/10.1016/j.jpowsour.2020.227982>.
- Yueming Li. 2011. KOH Modified Graphene Nanosheets for Supercapacitor Electrodes, *Journal of Power Source*, 196, 6003-6006
- Zhang, Y., Yu, S., Lou, G., Shen, Y., Chen, H., Shen, Z., Zhao, S., Zhang, J., Chai, S. & Zou, Q. 2017. Review of macroporous materials as electrochemical supercapacitor electrodes. *Journal of Materials Science*, 52(19): 11201–11228
- Zhong, C., Deng, Y., Hu, W., Qiao, J., Zhang, L., dan Zhang, J., 2015, A Review of Electrolyte Materials and Compositions for Electrochemical Supercapacitors, *Chem.Soc.Rev.*, 44, 7484-7539
- Zulichatun, S., Wijayanti, A., Marfina, A., Pranata, Y. A., Nurbaeti, L., & Rahayuningsih, N. D. (2015). Analisis Luas Permukaan Zeolit Alam Termodifikasi Dengan Metode BET Menggunakan Surface Area Analyzer (SAA). *Pelatihan Instrumen*.