

## DAFTAR PUSTAKA

- Abioye, A., M., Ani, F., N. 2015. Recent development in the production of activated carbon electrodes from agricultural waste biomass for supercapacitors A review. *Renewable and Sustainable Energy Reviews* 52 1282–1293.
- Adrian, S., dan Rolland G. 2000. Properties and Applications of Supercapacitor From The State of The Art To Future Trends, *Proceeding PCIM*, 1-10.
- Apriani, R., Faryuni, I.D., Wahyuni, D. 2013. Pengaruh Konsentrasi Aktivator Kalium Hidroksida (KOH) terhadap Kualitas Karbon Aktif Kulit Durian sebagai Adsorben Logam Fe pada Air Gambut. *Jurnal Prima Fisika*, Jurusan Fisika FMIPA Universitas Tanjungpura.
- 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, Perdama Y.A. 2017. Performance Karbon Aktif dari Limbah Cangkang Kelapa Sawit Sebagai Bahan Elektroda Superkapasitor. *Jurnal Zarah* 2, 1-6.
- 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.
- Bhoyate, S., Charith, K. R., Chunyang, Z., Tucker, M., Megan, H., Pawan, K. K., Madhav, G., Sanjay, R. M., Ram, K. G. 2017. Eco-Friendly and High Performance for eElevated Temperature Application Using Recycled Tea Leaves. *Advanced Science News* 1700063, 1-12.
- Budiono, A., Suhartana, Gunawan. 2009. Pengaruh Aktivasi Arang Tempurung Kelapa Dengan Asam Sulfat dan Asam Posfat untuk Adsorpsi Fenol. *E-Journal*, 1-12.
- Burke, A. 2000. Ultracapacitors Why, How, and Where is the Technology. *Journal of Power Sources*, 91(1), 37-50.
- Chaitra, K., Vinny, R. T., Sivaraman, P., Narendra, R., Chunyan, H., Krishna, V., Vivek, C. S., Nagaraju, N., Kathyayini, N. 2016. KOH activated carbon from biomass-banana fibers as an efficient negative electrode in high performance asymmetric supercapacitor. *Journal of Energy chemistry* 6(28) 1-7.
- Chand, B. Roop, Meenakshi, G. 2005. Activated Carbon Adsorption. New York: Lewis.
- Chen, T., Dai, L. 2013. Carbon nanomaterials for highperformance supercapacitors. *Materials Today* 16272-280.

- Connolly, J. R. 2007. Introduction to X-Ray powder diffraction, *Spring*.
- Conway. 1999. *Electrochemical Supercapacitor-Scientific Fundamentals and Technological Applications*. Ottawa University of Ottawa.
- Daud, T. 2011. Pengaruh Arus Listrik dan Waktu Proses Terhadap Ketebalan dan Massa Lapisan Yang Terbentuk Pada Proses Elektroplating Pelat Baja. *Jurnal Ilmiah Sains*, 11(1) 97 – 101.
- David, C., Bell. 2003. *Scanning Electron Microscopy (SEM) Techniques for Nanostructure*, Centre for Imaging and Mesoscale Structures (CIMS).
- Direktorat Jenderal Perkebunan, 2015. Statistik Perkebunan Indonesia 2014-2016 Komoditas Teh. Direktorat Jenderal perkebunan. Jakarta.
- Duran, C., D. V. Ozdes, A. Gundogdu, M. Imamoglu, dan H. B. Senturk. 2011. Tea-industry waste activated carbon, as a novel adsorbent, for separation, preconcentration and speciation of chromium. *Analytica Chimica Acta* 688 75-83.
- Ferreira, C.S., Passos, R.R., Pocrifka, L.A. 2014. Synthesis and Properties of Ternary Mixture of Nikel/Cobalt/Tin Oxides for Supercapacitor. *Power Sources*. 271, 104-107.
- García, P., G. 2017. Activated carbon from lignocellulosics precursors a review of the synthesis methods, characterization techniques and applications. *Renewable and Sustainable Energy Reviews*.
- Godse, L.S. 2014. Study of Carbon Materials and Effect of It's Ball Miling on Capacitance of Supercapacitor, *Energy Procedia*, 54, 302-309.
- 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.
- Gualous, H., H. Louahlia-Gualous, R. Gallay, A. Miraoui. 2009. Supercapacitor thermal modeling and characterization in transient state for industrial applications, *IEEE Trans.* 45(3) 1035-1044.
- Gurten, I. I., M. Ozmak, E. Yagmur, dan Z. Aktas. 2012. Preparation and characterisation of activated carbon from waste tea using  $K_2CO_3$ . *Biomass and Bioenergy* 37 73-81.
- Hartono, Singgih dan Ratnawati. 2010. Pembuatan Karbon Aktif dari Tempurung Kelapa Sawit dengan Metode Aktivasi Kimia, *Jurnal Sains Materi Indonesia*. 12 (1) 12-16.

- Inrizky, D., Erman, T., Rakhmawati F. 2015. Pembuatan dan Karakterisasi Karbon Aktif Monolit dari Kayu Karet dengan Variasi Konsentrasi KOH Untuk Aplikasi Superkapasitor. *JOM FMIPA*, 2(1) 8-12.
- Iro, Z., S., Subramani C., Dash S., S. 2016. A Brief Review on Electrode Materials for Supercapacitor. *International Journal of Electrochemical Science* 1110628– 10643.
- Jayalakshmi, M. 2008. Simple Capacitors to Supercapacitors, *Int. J. Electrochem. Sci.* Vol 3, 1196–1217.
- Julinawati, Marlina, Rosnani, N., Sheilatina. 2015. Applying SEM-EDX Techniques to Identifying the Types of Mineral of Jades (Giok) Takengon, Aceh. *Jurnal Natural*, Vol.15, No.2, ISSN 1411-8513.
- Kaiwen, Zheng, Yuanyuan, Li., Ming, Zhu., Xi, Yu., Mengyan, Zhang., Ling, Shi., Jue, Cheng,. 2017. The Porous Carbon Derived from Water Hyacinth eith Well-designed Hierarchical Structure for Supercapacitors. *Journal of Power Sources*. 366270-277.
- 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.
- 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.
- Kumar, A., Kriti, S., Debmalya, B. 2013. Ultra Capacitor Alternative Energy Storage Systems. *Internasional Journal of Scientific Engineering and Technology*, 12, (2), 1208-1210.
- Kwon, SH., Lee, E., Kim, B., Kim, S., Lee, B., Kim, M., Jung, JC. 2014. Activated carbon aerogel as electrode material for coin-type EDLC cell in organic electrolyte. *Current Applied Physics* 603-607.
- 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*.
- Li, X., Wei, B. 2013. Supercapacitors based on nanostructured carbon. *Nano Energy* 2159–173.

- 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.
- Lu, W., Hartman, R. 2011. Nanocomposite electrodes for high-performance supercapasitors. *Journal of Physical Chemistry Letters*, 43, 655.
- Mahvi, A.H., Naghipour, D., Vaezi, F., Nazmara, S. 2005. Teawaste as an adsorben for heavy metal removal from industrial wastewaters. *Am J App Sci* 2(1)372-375 21372-375.
- Marsh, H., Rodriguez-Reinoso, F. 2006. *Activated carbon*, Material Science Books Elsevier Great Britain India. 70-105.
- Memori, R., Fery, I., Mikrajuddin, A., Khairurrijal. 2013. Syntheses and Characterization of Supercapacitor using nano-sized ZnO/nanoporous Carbon Electrodes and PVA-Based Polymer-Hydrogel Electrolytes. *Materials Science Forum*. 737, 191-196.
- Memori, R., Fery, I., Mikrajuddin, A., Khairurrijal. 2014. Hydrogel-Polymer Electrolytes Based on Polyvinyl Alcohol and Hydroxyethylcellulose for Supercapacitor Applications. *Electrochemical Science*. 9, 4251-4256.
- Misnon, I., I., Khairiyyah, 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*.
- Pagketananga, T., Artnaseawa, A., Wongwichaa, P., Thabuota, M. 2015. Microporous Activated Carbon from KOH-Activation of Rubber Seed-Shells for Application in Capacitor Electrode. *Energy Procedia*. 79651–656.
- 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., X. Yan, R. Wang, J. Lang, Y. Ou, dan Q. Xue. 2013. Promising activated carbons derived from waste tea-leaves and their application in high performance supercapacitors electrodes. *Electrochimica Acta* 87 401-408.
- Qiao, Zhi-jun, Chen Ming-ming. 2014. Humic acids-based hierarchical porous carbons as high-rate performance electrodes for symmetric supercapacitors. *Bioresource Technology*, 163, 386-289.

- Reny, Yantika, Tetra, O.N., Admin, A., Emriadi. 2014. Pengaruh Elektrolit H<sub>2</sub>SO<sub>4</sub> 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.
- Saifudin, M., Melania S M. 2013. Perancangan sensor kelembaban beras berbasis kapasitor. *Jurnal Sains dan Seni Pomits*, 1(1) 1-6.
- Salita S, Via. 2013. Mesoporous carbon Materials as Electrodes for Electrochemical Supercapacitors. *Int. J. Electrochem. Sci*, 903-916.
- Sangeeta, Rawal, Bhawana, Joshi., Yogesh, Khumar. 2018. Synthesis and characterization of activated carbon from the biomass of Saccharum bengalense for electrochemical supercapacitors. *Journal of Energy Storage*. 20418-426.
- Simon, P., dan Burke, A. 2008. Nanostructured Carbons Double layer Capacitance Electrochemical, *Society Interface* 38-43.
- 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.
- Smallman, R., dan Bishop, R. 1999. *Modern Physics Metallurgy and Materials Engineering*, Oxford Butterworth-Heinemann.
- Solihat. 2015. Pasar teh domestik masih menggiurkan. <http://www.bumn.go.id/ptpn8/berita/15897/Pasar.Teh.Domestik.Masih.Menggiurkan> [diakses 03 September 2019].
- Song, X., Ma, X., Li, Y., Ding, L., Jiang, R. 2019. Tea Waste Derived Microporous Active Carbon with Enhanced Double-layer Supercapacitor Behaviors. *Journal of Applied Surface Science*, 487, 189-197.
- Soilfoodweb. 2001. Compost tea defined. <http://www.soilfoodweb.com> [diakses 03 September 2019].
- Tugiyanti, E., Emmy S., dan Ibnu HS. 2017. Review Pemanfaatan Ampas Teh Sebagai Feed Aditif Pakan Unggas dan Anti Bakteri Terhadap Escherichia Coli. *Dalam Teknologi dan Agribisnis Peternakan untuk Mendukung Ketahanan Pangan*. Prosiding Seminar, Teknologi dan Agribisnis Peternakan 18 November 2017. Fakultas Peternakan Universitas Jenderal Soedirman. Hal 54-62.

- Tutus, A., Kazaskeroglu, Y., Cicekler, M. 2015. Evaluation of tea wastes in usage pulp and paper production, *BioResources*. 10(3), 5407 – 5416.
- Wang, C.-H., Wen, W.-C., Hsu, H.-C., & Yao, B.-Y. 2016. High-capacitance KOH-activated nitrogen-containing porous carbon material from waste coffee grounds in supercapacitor. *Advanced Powder Technology*, 27(4), 1387–1395.
- Xie, F., Jin L., Tu J. Le M. Wang F. 2015. Advances in Research on Comprehensive Utilization of Tea Waste. *Academy of Agricultural*, China.
- Xi-Lin, W., An-Wu, X. 2014. Carbonaceous Hydrogels and Aerogels for Supercapacitors. *Journal of Materials Chemistry A*, 2, 4852.
- Yagmur, E., M. Ozmak, dan Z. Aktas. 2008. A novel method for production of activated carbon from waste tea by chemical activation with microwave energy. *Fuel* 87 3278-3285.
- Yin, Lihong, Chen, Yong. 2016. 3-Dimensional hierarchical porous activated carbon derived from coconut fibers with high-rate performance for symmetric supercapacitors. *Material and Design*, 111, 44-50.
- Yu Baojun, Chang, Zhenzhen. 2016. The key pre-pyrolysis in lignin-based activated carbon preparation for high performance supercapacitors. *Materials chemistry And Physic*, 181, 187-193.
- Yueming Li. 2011. KOH Modified Graphene Nanosheets for Supercapacitor Electrodes, *Journal of Power Source*, 196, 6003-6006.