

DAFTAR PUSTAKA

- Ahmed, A. S., Alsultan, M., Sabah, A. A., & Swiegers, G. F. (2023). Carbon Dioxide Adsorption by a High-Surface-Area Activated Charcoal. *Journal of Composites Science*, 7(5), 179. <https://doi.org/10.3390/jcs7050179>
- Ahmed Alsharif, M. (2025). Understanding Adsorption: Theories, Techniques, and Applications. In *Adsorption - Fundamental Mechanisms and Applications*. IntechOpen. <https://doi.org/10.5772/intechopen.1008865>
- Alcañiz-Monge, J., Román-Martínez, M. del C., & Lillo-Ródenas, M. Á. (2022). Chemical Activation of Lignocellulosic Precursors and Residues: What Else to Consider? *Molecules*, 27(5), 1630. <https://doi.org/10.3390/molecules27051630>
- Amer, M., & Elwardany, A. (2020). Biomass Carbonization. In *Renewable Energy - Resources, Challenges and Applications*. IntechOpen. <https://doi.org/10.5772/intechopen.90480>
- Atkins, P. W., & De Paula, J. (2018). Atkins' Physical Chemistry, 11th Ed. In *Oxford University Press*.
- Boulika, H., El Hajam, M., Hajji Nabih, M., Idrissi Kandri, N., & Zerouale, A. (2022). Activated carbon from almond shells using an eco-compatible method: screening, optimization, characterization, and adsorption performance testing. *RSC Advances*, 12(53), 34393–34403. <https://doi.org/10.1039/D2RA06220H>
- BSN. (1995). *SNI 06-3730-1995 Arang Aktif Teknis*.
- Buhani, Halimah, S. N., Suharso, & Sumadi. (2022). Utilization of Activated Carbon From Candlenut Shells (*Aleurites Moluccana*) as Methylene Blue Adsorbent. *Rasayan Journal of Chemistry*, 15(01), 124–131. <https://doi.org/10.31788/RJC.2022.1516538>
- Cheng, Y., Chen, M., Xia, K., Li, H., Xu, G., Yang, L., Zhao, Z., Liu, P., & Wang, L. (2024). Rapid Conversion of Biomass to Hierarchical Porous Carbons via One-step Microwave Carbonization/activation for Long Cycle-stable Supercapacitor and Zinc-ion Capacitor. *Journal of Power Sources*, 624, 235523. <https://doi.org/10.1016/j.jpowsour.2024.235523>
- Efiyanti, L., Wati, S. A., & Maslaha, M. (2020). Pembuatan dan Analisis Karbon Aktif dari Cangkang Buah Karet dengan Proses Kimia dan Fisik. *Jurnal Ilmu Kehutanan*.
- Elewa, A. M., Amer, A. A., Attallah, M. F., Gad, H. A., Al-Ahmed, Z. A. M., & Ahmed, I. A. (2023). Chemically Activated Carbon Based on Biomass for Adsorption of Fe(III) and Mn(II) Ions from Aqueous Solution. *Materials*, 16(3), 1251. <https://doi.org/10.3390/ma16031251>
- Elisa, Shintawati, Afifah, D. A., & Ramdani, A. A. (2024). Characteristics Candlenut shell-based activated carbon for reduction Iron (Fe) in surface water from Bratasena Tulang Bawang, Lampung. *Journal of Natural Sciences and Mathematics Research J. Nat. Scien. & Math. Res*, 10(1), 35–45. <http://journal.walisongo.ac.id/index.php/jnsmr>

- Farma, R., Tania, Y., & Apriyani, I. (2023). Conversion of Hazelnut Seed Shell Biomass Into Porous Activated Carbon With KOH and Co2 Activation for Supercapacitors. *Materials Today: Proceedings*, 87. <https://doi.org/10.1016/j.matpr.2023.02.099>
- Franco, F. M., & Mustaqim, W. A. (2021). *Introduction to Ethnobotany of the Mountain Regions of Southeast Asia*. https://doi.org/10.1007/978-3-030-38389-3_208
- Gan, Y. X. (2021). Activated Carbon from Biomass Sustainable Sources. *C*, 7(2). <https://doi.org/10.3390/c7020039>
- Ganjoo, R., Sharma, S., Kumar, A., & Daouda, M. M. A. (2023). Activated Carbon: Fundamentals, Classification, and Properties. In *Activated Carbon*. <https://doi.org/10.1039/bk9781839169861-00001>
- Gao, Y., Yue, Q., Gao, B., & Li, A. (2020). Insight into activated carbon from different kinds of chemical activating agents: A review. *Science of The Total Environment*, 746, 141094. <https://doi.org/10.1016/j.scitotenv.2020.141094>
- Han, Y.-X., Bai, B., Zhang, J.-Y., Huang, J.-T., Feng, P.-Y., & Sun, H.-B. (2024). Light-Modulated Van der Waals Force Microscopy. *Nature Communications*, 15(1), 9104. <https://doi.org/10.1038/s41467-024-53461-5>
- Haruni., K., Maarit.H., K., & Markku., K. (2011). *Aleurites moluccana* (L.) Willd.: Ekologi, Silvikultur Dan Produktivitas. In *Aleurites moluccana* (L.) Willd.: *ekologi, silvikultur dan produktivitas*. <https://doi.org/10.17528/cifor/003480>
- Hisbullah, H. (2022). Characterization of Physically and Chemically Activated Carbon Derived From Palm Kernel Shells. *International Journal of GEOMATE*, 23(97). <https://doi.org/10.21660/2022.97.7554>
- Inegbedion, F. (2022). Estimation Of The Moisture Content, Volatile Matter, Ash Content, fixed Carbon And Calorific Values Of Saw Dust Briquettes. *MANAS Journal of Engineering*.
- ISO. (2019). ISO 22519:2019 Purified Water and Water for Injection Pretreatment and Production Systems. In *The International Organization for Standardization*.
- Jamilatun, S., Salamah, S., & Isparulita, I. D. (2016). Karakteristik Arang Aktif dari Tempurung Kelapa Dengan Pengaktivasi H₂SO₄ Variasi Suhu Dan Waktu. *CHEMICA: Jurnal Teknik Kimia*, 2(1). <https://doi.org/10.26555/chemica.v2i1.4562>
- Karimi, M., Aminzadehsarikhanebeglou, E., & Vaferi, B. (2021). Robust intelligent topology for estimation of heat capacity of biochar pyrolysis residues. *Measurement: Journal of the International Measurement Confederation*, 183. <https://doi.org/10.1016/j.measurement.2021.109857>
- Kementrian Pertanian Republik Indonesia. (2024). *Portal Statistik Pertanian*.
- Lempang, M., Syafii, W., & Pari, G. (2012). Sifat dan Mutu Arang Aktif Cangkang Kemiri. *Jurnal Penelitian Hasil Hutan*, 30(2), 100–113. <https://doi.org/10.20886/jphh.2012.30.2.100-113>

- Mariana, M., Mistar, E. M., Syabriyana, M., Zulkipli, A. S., Aswita, D., & Alfatah, T. (2022). Properties and Adsorptive Performance of Candlenut Shell and Its Porous Charcoals for Aqueous Mercury(Ii) Removal. *Bioresource Technology Reports*, 19. <https://doi.org/10.1016/j.biteb.2022.101182>
- Mianowski, A., Owczarek, M., & Marecka, A. (2007). Surface area of activated carbon determined by the iodine adsorption number. *Energy Sources, Part A: Recovery, Utilization and Environmental Effects*, 29(9). <https://doi.org/10.1080/00908310500430901>
- Mudaim, S., Hidayat, S., & Risdiana. (2021). Analisis Proksimat Karbon Kulit Kemiri (*Aleurites moluccana*) dengan Variasi Suhu Karbonisasi. *Jurnal Ilmu Dan Inovasi Fisika*, 5(2), 157–163. <https://doi.org/10.24198/jiif.v5i2.35056>
- Mustafa, D., Ibrahim, B., & Erten, A. (2024). Adsorptive Removal of Anticarcinogen Pazopanib From Aqueous Solutions Using Activated Carbon: Isotherm, Kinetic and Thermodynamic Studies. *Scientific Reports*, 14(1), 17765. <https://doi.org/10.1038/s41598-024-68666-3>
- Namazi, A. B., Allen, D. G., & Jia, C. Q. (2016). Benefits of Microwave Heating Method in Production of Activated Carbon. *The Canadian Journal of Chemical Engineering*, 94(7), 1262–1268. <https://doi.org/10.1002/cjce.22521>
- Nazem, M. A., Zare, M. H., & Shirazian, S. (2020). Preparation and Optimization of Activated Nano-carbon Production Using Physical Activation by Water Steam From Agricultural Wastes. *RSC Advances*, 10(3), 1463–1475. <https://doi.org/10.1039/C9RA07409K>
- Nazir, R., Khan, M., Ur Rehman, R., Shujah, S., Khan, M., Ullah, M., Zada, A., Mahmood, N., & Ahmad, I. (2020). Adsorption of selected azo dyes from an aqueous solution by activated carbon derived from *Monotheca buxifolia* waste seeds. *Soil and Water Research*, 15(3), 166–172. <https://doi.org/10.17221/59/2019-SWR>
- Ola, P. D., & Buu, M. S. (2025). Pembuatan Arang Aktif Dari Tempurung Kemiri (*Aleurites moluccana*). In *Chem. Notes* (Vol. 7, Issue 1).
- Özçifçi, Z., Emirik, M., Akçay, H. T., & Yumak, T. (2024). Production and Characterization of Activated Carbon Foams With Various Activation Agents for Electrochemical Double Layer Capacitors (EDLCS) Applications. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 690, 133851. <https://doi.org/10.1016/j.colsurfa.2024.133851>
- Paputungan, R., Nikmatin, S., Maddu, A., & Pari, G. (2018). Microstructure of Activated Charcoal from Coconut Shell as Consumables Oil Refining. *Jurnal Keteknik Pertanian*, 6(1). <https://doi.org/10.19028/jtep.06.1.69-74>
- Patandung, P., Riset, B., Standardisasi, D., & Manado, I. (2017). Pengaruh Jenis Aktivator Terhadap Kualitas Arang Aktif Dari Tempurung Kemiri (*Aleurites Moluccana* Willd) the Effect of Activator on the Quality of Activated Charcoal for Candlenut. In *Jurnal Penelitian Teknologi Industri* (Vol. 9, Issue Desember).

- Perry, R. H., & Green, D. W. (2013). Perry's Chemical Engineers' Handbook, 8th Edition. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).
- Pet, I., Sanad, M. N., Farouz, M., ElFaham, M. M., El-Hussein, A., El-sadek, M. S. A., Althobiti, R. A., & Ioanid, A. (2024). Review: Recent Developments in the Implementation of Activated Carbon as Heavy Metal Removal Management. In *Water Conservation Science and Engineering* (Vol. 9, Issue 2). Springer Nature. <https://doi.org/10.1007/s41101-024-00287-3>
- Ruthven, D. M. (1984). Principle of adsorption and Adsorption Process. In *Principles of Adsorption and Adsorption Processes* (Vol. 19).
- Shabir, S., Hussain, S. Z., Bhat, T. A., Amin, T., Beigh, M., & Nabi, S. (2024). High Carbon Content Microporous Activated Carbon From Thin Walnut Shells: Optimization, Physico-chemical Analysis and Structural Profiling. *Process Safety and Environmental Protection*, 190, 85–96. <https://doi.org/10.1016/j.psep.2024.06.121>
- Sila, V. U. R., Masing, F. A., & Santiari, M. (2022). Identifikasi dan Karakterisasi Senyawa Metabolit Sekunder Tumbuhan Endemik Asal Desa Fatunisuan Kabupaten Timor Tengah Utara. *JST (Jurnal Sains Dan Teknologi)*, 11(1). <https://doi.org/10.23887/jstundiksha.v11i1.44995>
- Sugiyono. (2007). *Statistika untuk Penelitian*.
- Sujiono, E. H., Zabrian, D., Zurnansyah, Mulyati, Zharvan, V., Samnur, & Humairah, N. A. (2022). Fabrication and Characterization of Coconut Shell Activated Carbon Using Variation Chemical Activation for Wastewater Treatment Application. *Results in Chemistry*, 4, 100291. <https://doi.org/10.1016/j.rechem.2022.100291>
- Sutapa, J. P. G., Lukmandaru, G., Sunarta, S., Pujiarti, R., Irawati, D., Arisandi, R., Dwiyanra, R., & Priyambodo, R. D. (2024). Utilization of Sapwood Waste of Fast-Growing Teak in Activated Carbon Production and Its Adsorption Properties. *Journal of the Korean Wood Science and Technology*, 52(2), 118–133. <https://doi.org/10.5658/WOOD.2024.52.2.118>
- Tantalu, L., Hidayat, N., Suharto, B., Nurika, I., Agustina, P. W., & Fitriana Subekti, I. (2025). Impact of Different Pyrolysis Temperatures on the Quality of Activated Carbon from Sunan Candlenut Shells. *Transactions of the Chinese Society of Agricultural Machinery*, 56(5), 1–15. <https://doi.org/10.62321/issn.1000-1298.2025.5.1>
- Tetteh, I. K., Issahaku, I., & Tetteh, A. Y. (2024). Recent Advances in Synthesis, Characterization, and Environmental Applications of Activated Carbons and Other Carbon Derivatives. *Carbon Trends*, 14, 100328. <https://doi.org/10.1016/j.cartre.2024.100328>
- Thithai, V., Jin, X., Ajaz Ahmed, M., & Choi, J.-W. (2021). Physicochemical Properties of Activated Carbons Produced from Coffee Waste and Empty Fruit Bunch by Chemical Activation Method. *Energies*, 14(11), 3002. <https://doi.org/10.3390/en14113002>

- Tsai, C.-H., & Tsai, W.-T. (2023). Optimization of Physical Activation Process by CO₂ for Activated Carbon Preparation from Honduras Mahogany Pod Husk. *Materials*, *16*(19), 6558. <https://doi.org/10.3390/ma16196558>
- Udarno, Bambang, Eka, R., & Tedjo, L. (1990). Penampilan Morfologis Kemiri Di Kebun Koleksi Bogor', pp. 55–60. *Penelitian, Balai Rempah, Tanaman Industri, Tanaman*.
- Udyani, K., Purwaningsih, D. Y., Setiawan, R., & Yahya, K. (2019). Pembuatan Karbon Aktif dari Arang Bakau Menggunakan Gabungan Aktivasi Kimia dan Fisika dengan Microwave. *Jurnal IPTEK*, *23*(1). <https://doi.org/10.31284/j.iptek.2019.v23i1.479>
- Wajdi, M., Ashar, A., & Nurdiyanti, N. (2023). Diversifikasi Kemiri Dalam Rangka Peningkatan Pendapatan Petani Program Kemitraan Masyarakat (PKM) Kabupaten Bone. *Lambung Inovasi: Jurnal Pengabdian Kepada Masyarakat*, *8*(3). <https://doi.org/10.36312/linov.v8i3.1465>
- Widi, R. K., Setyoprato, P., Danatha, P. E., Nanholy, V. D., & Savitri, E. (2025). Preparation and Characterization of Activated Carbon from Cavendish Banana (*Musa acuminata*) Peels for Ferric Ions Adsorption. *International Journal of Technology*, *16*(4), 1362–1374.
- Wu, H., Dong, Z., Sun, J., & Ding, K. (2024). Boosting the Adsorption Capacity of Activated Carbon Prepared From *Amygdalus Communis* Shells Using Physicochemical Co-activation Method. *Biomass Conversion and Biorefinery*, *14*(15), 18121–18131. <https://doi.org/10.1007/s13399-023-04093-0>
- Yuliusman. (2016). Pembuatan Karbon Aktif Dari Tempurung Kelapa Melalui Aktifasi Kimia Dengan KOH Dan Fisika Dengan CO₂. *Seminar Nasional Teknik Kimia, June*.
- Zaman, K. K., Balasundram, V., Ibrahim, N., Samsudin, M. D. M., Kasmani, R. Md., Abd Hamid, Mohd. K., & Hasbullah, H. (2018). Effect of Particle Size and Temperature on Pyrolysis of Palm Kernel Shell. *International Journal of Engineering & Technology*, *7*(4.35), 118. <https://doi.org/10.14419/ijet.v7i4.35.22339>
- Zhang, J., Gao, J., Chen, Y., Hao, X., & Jin, X. (2017). Characterization, Preparation, and Reaction Mechanism of Hemp Stem Based Activated Carbon. *Results in Physics*, *7*. <https://doi.org/10.1016/j.rinp.2017.04.028>