

DAFTAR PUSTAKA

- Abdel-Ghani, NT., El-Chaghaby GA, Rawash ESA, & Lima EC. Magnetic activated carbon nanocomposite from *Nigella sativa* L. waste(MNSA) for the removal of Coomassie brilliant blue dye from aqueous solution: Statistical design of experiments for optimization of the adsorption conditions. *Journal of Advanced Research* 17: 55–63. doi:org/10.1016/j.jare.2018.12.004
- Aliyev, E., Filiz, V., Khan, M. M., Lee, Y. J., Abetz, C., & Abetz, V. (2019). Structural characterization of graphene oxide: Surface functional groups and fractionated oxidative debris. *Nanomaterials*, 9(8). <https://doi.org/10.3390/nano9081180>
- Aman, F dkk., (2018). Penyerapan limbah cair ammonia menggunakan arang aktif ampas kopi. *Jurnal Litbang Industri*, 8(1), 47. <https://doi.org/10.24960/jli.v8i1.3685.47-52>
- Anggraeni, I. S. dan Yuliana, L. E., 2015. Pembuatan Karbon Aktif dari Limbah Tempurung Siwalan (*Borassus Flabellifer* L.) dengan Menggunakan Aktivator Seng Klorida ($ZnCl_2$) dan Natrium Karbonat (Na_2CO_3). Institut Teknologi Sepuluh Nopember.
- Ayu, Shinta. 2018. Optimasi Komposit Kitosan dan Ampas Kopi yang Ramah Lingkungan untuk Adsorpsi *Methylene Blue* (MB). (Skripsi Sarjana, Universitas Gadjah Mada).
- Badan Pusat Statistik, “Pertumbuhan Ekonomi Indonesia Triwulan IV-2019,” [Www.Bps.Go.Id](http://www.bps.go.id), 2020.
- Bellani Y. W., Nove K. E., Racmad R. Y., & Erwan A. S., Pra Perancangan Pabrik Karbon Aktif dari Tempurung Kelapa dengan Proses Aktivasi Kimia pada Kapasitas 20.000 ton/tahun. *Jurnal Teknik ITS* Vol. 9, No. 2, (2020) ISSN: 2337-3539 (2301-9271 Print).

- Chai, J.; Zhang, K.; Xue, Y.; Liu, W.; Chen, T.; Lu, Y.; & Zhao, G. 2020. Review of MEMS Based Fourier Transform Spectrometers. *Micromachines*. 11, 214. [CrossRef]
- De Nicola, E., Meriç, S., Gallo, M., Iaccarino, M., Della Rocca, C., Lofrano, G., Russo, T., & Pagano, G., 2007. Vegetable and synthetic tannins induce hormesis/toxicity in sea urchin early development and in algal growth. *Environ Poll.* 146 (1), 46–54.
- Ernawati, Mafliah, I., Ubang, I., Podung, P. N., Nurbaiti, W., & Lestari, S. (2021). Adsorpsi Metilen Biru dengan Menggunakan Arang Aktif dari Ampas Kopi. *Prosiding Seminar Nasional Kimia*, 5(5), 173–179.
- Fairuza, A. 2023. Pengaruh Variasi Suhu Aktivasi Fisika Karbon Aktif dari Ampas Kopi yang Diekstraksi untuk Adsorpsi Metilen Biru. (Skripsi Sarjana, Universitas Gadjah Mada).
- Fathoni, I., 2016. Pemanfaatan Bentonit Teknis Sebagai Adsorben Zat Warna. *UNESA Journal of Chemistry*, 5(3), 18–22.
- Fernandes, A.S., Mello, F.V.C., Thode Filho, S., Carpes, R.M., Honório, J.G., Marques, M.R.C., Felzenszwalb, I., & Ferraz, E.R.A., 2017. Impacts of discarded coffee waste on human and environmental health. *Ecotoxicol Environ Saf.* 141, 30–36.
- Gayathiri, M., Pulingam, T., Lee, K. T., & Sudesh, K. (2022). Chemosphere Activated carbon from biomass waste precursors : Factors affecting production and adsorption mechanism. *Chemosphere*, 294(January), 133764. <https://doi.org/10.1016/j.chemosphere.2022.133764>
- Goleman, D., Boyatzis, R. & Mckee, A., 2019. Karbon Aktif. *Journal of Chemical Information and Modeling*, 53(9), pp. 1689– 1699. doi: 10.1017/CBO978110741 5324.004.
- Handoyo Sahumena, M. dkk. (2020) ‘IDENTIFIKASI JAMU YANG BEREDAR DI KOTA KENDARI MENGGUNAKAN METODE SPEKTROFOTOMETRI UV-VIS’, *Journal Syifa Sciences and Clinical Research*, 2(2). Available at: <http://ejurnal.ung.ac.id/index.php/jsscr,E->.
- Hardi, A. D., Joni, R., Syukri, S., & Aziz, H. (2020). Pembuatan Karbon Aktif dari Tandan Kosong Kelapa Sawit sebagai Elektroda Superkapasitor. *Jurnal Fisika Unand*, 9(4), 479–486. <https://doi.org/10.25077/jfu.9.4.479-486.2020>.

- Hock, P. E., & Zaini, M. A. A. (2018). Activated carbons by zinc chloride activation for dye removal – a commentary. *Acta Chimica Slovaca*, 11(2), 99–106. <https://doi.org/10.2478/acs-2018-0015>
- Huang G., dkk., (2021). Applications of Lambert-Beer law in the preparation and performance evaluation of graphene modified asphalt. *Construction and Building Materials* 273 (2021) 121582.
- Finanda, I. & Purwandito, M. 2020. “Analisis Kuat Tekan Dan Daya Serap Air Batu Bata Pasca Pembakaran Menggunakan Bahan Campuran Abu Serbuk Kayu,” *J. Media Tek. Sipil Samudra*, vol. 1, no. 2, pp. 1–4,.
- Istiqomah, A. U., Rahmawati, F., & Nugrahaningtyas, K. D. (2016). Penggantian Soda Api (NaOH) dengan Kalium Hidroksida (KOH) pada Destilasi Sistem Biner Air-Etanol. *ALCHEMY Jurnal Penelitian Kimia*, 12(2), 179–189. <https://jurnal.uns.ac.id/alchemy/article/download/1876/PDF>.
- International Coffee Organization. (2020). Historical Data on the Global Coffee Trade. Diakses 20 Maret 2023 dari https://www.ico.org/new_historical.asp
- Iriany, Angkasa, H., & Namira, C. A. (2021). Ekstraksi Tanin dari Buah Balakka (*Phyllanthus emblica* L.) dengan Bantuan Microwave: Pengaruh Daya Microwave, Perbandingan Massa Kering Terhadap Jumlah Pelarut Etil Asetat. *Jurnal Teknik Kimia USU*, 10(1), 8–12. <https://talenta.usu.ac.id/jtk>
- Iqbal, M., Parwati, W. D. U., & Ginting, C. (2018). Pengaruh Ampas Kopi Sebagai Pupuk Organik Dan Dosis Dolomit Terhadap Pertumbuhan Bibit Kelapa Sawit di Pre-Nursery. *Jurnal Agromast*, 3(2), 1–10.
- Janissen, B. & Huynh, T. 2018. “Chemical Composition and Value Adding Applications of Coffee Industry by-Products: A Review.” *Resources, Conservation and Recycling* 128 (September 2017): 110–17.
- Jutakradsada, P., Prajaksud, C., Kuboonya-Aruk, L., Theerakulpisut, S., & Kamwilaisak, K. (2016). Adsorption characteristics of activated carbon prepared from spent ground coffee.

- Kang, Le-Le dkk., 2022. “Removal of Pollutants from Wastewater Using Coffee Waste as Adsorbent: A Review.” *Journal of Water Process Engineering* 49(September): 103178.
- Kharin, A.Y. (2020). Deep learning for scanning electron microscopy: synthetic data for the nanoparticle’s detection. *Ultramicroscopy*, 113125.
- Koyunluoglu, S., Arslan-Alaton, I., Eremektar, G., & Germirli-Babuna, F., 2006. Pre-ozonation of commercial textile tannins: effects on biodegradability and toxicity. *J. Environ. Sci. Health Part A* 41 (9), 1873–1886.
- Kristianingrum, S. 2017. *Handout Spektroskopi Infra Merah*. Universitas Negeri Yogyakarta. Yogyakarta.
- Kristianto, H. 2017. REVIEW: Sintesis Karbon Aktif dengan Menggunakan Aktivasi Kimia ZnCl_2 . Available at: <http://jurnal.untirta.ac.id/index.php/jip>
- Latief, Y. N., 2015. Sejarah Awal Karbon Aktif. Available at: <https://www.pasirsilika.com/2015/05/sejarah-awal-karbonaktif-081322599149.html>.
- Lessa, E. ., Nunes, M. L., & Fajardo, A. R. (2018). Chitosan/waste coffee-grounds composite: An efficient and eco-friendly adsorbent for removal of pharmaceutical contaminants from water. *Carbohydrate Polymers*, 189(December 2017), 257–266. <https://doi.org/10.1016/j.carbpol.2018.02.018>
- Lellis, B., Fávaro-Polonio, C. Z., Pamphile, J. A., & Polonio, J. C. (2019). Effects of textile dyes on health and the environment and bioremediation potential of living organisms. *Biotechnology Research and Innovation*, 3(2), 275–290. <https://doi.org/10.1016/j.biori.2019.09.001>
- Liew RK, Azwar E, Yek PNY, Lim XY, Cheng CK, Ng JH, Jusoh A, Lam WH, Ibrahim MD, Ma NL, & Lam SS. Microwave pyrolysis with KOH/NaOH mixture activation: A new approach to produce micromesoporous activated carbon for textile dye adsorption. *Bioresource Technology* 266: 1-10. doi: [org/10.1016/j.biortech.2018.06.051](https://doi.org/10.1016/j.biortech.2018.06.051)

- Liu, G., Sun, L., Zhang, P., Wu, Y., Ma, C., & Su, X. (2020). Preparation and Identification of Carbon Materials from Coffee Grounds. *Journal of Physics: Conference Series*, 1622(1). <https://doi.org/10.1088/1742-6596/1622/1/012047>
- M. Mohammad, I. Yakub, Z. Yaakob, N. Asim, & K. Sopian. 2018. “Adsorption Isotherm of Chromium (VI) into ZnCl₂ Impregnated Activated Carbon Derived by Jatropha Curcas Seed Hull,” in *IOP Conference Series: Materials Science and Engineering*, Jan. 2018, vol. 293, no. 1. doi: 10.1088/1757-899X/293/1/012013.
- Maslahat, M., Kamalia, E., & Arrisujaya, D. (2022). SINTESIS DAN KARAKTERISASI MIKRO PARTIKEL KARBON AKTIF TANDAN KOSONG KELAPA SAWIT. *Analit: Analytical and Environmental Chemistry*, 7(02). <http://dx.doi.org/10.23960%2Faec.v7i02.2022.p177-188> Anal. Environ. Chem.
- Masriatini, R. 2017. Pembuatan Karbon Aktif dari Kulit Pisang. *Jurnal Online Universitas PGRI Palembang* 3: 33-36.
- Mastiani, N., Amalia, V., & Rosahdi, T. D. (2018). Potensi Penggunaan Tempurung Kelapa sebagai Adsorben Ion Logam Fe(III). *Al-Kimiya*, 5(1), 42–47. <https://doi.org/10.15575/ak.v5i1.3731>
- Masthura & P, Z., 2018. Karakterisasi Mikrostruktur Karbon Aktif Tempurung Kelapa dan Kayu Bakau. *Journal of Islamic Science and Technology*, 4(1), pp. 45–54.
- McNutt, Josiah, & Quan (Sophia) He. 2019. “Spent Coffee Grounds: A Review on Current Utilization.” *Journal of Industrial and Engineering Chemistry* 71(May): 78–88. <https://doi.org/10.1016/j.jiec.2018.11.054>.
- Mohammed, J., Nasri, N.S., Ahmad Zaini, M.A., Hamza, U.D., & Ani, F.N., 2015. Adsorption of benzene and toluene onto KOH activated coconut shell-based carbon treated with NH₃. *Int. Biodeter. Biodegr.* 102, 245–255. <https://doi.org/10.1016/j.ibiod.2015.02.012>

- Nabilla, L. E., & Rusmini. (2019). Pengaruh Waktu Kontak Karbon Aktif dari Kulit Durian terhadap Kadar COD, BOD, dan TSS pada Limbah Cair Industri Tahu. *CHEMICA: Jurnal Teknik Kimia*, 6(2), 47–53.
- Nandiyanto, A., Oktiani, R., & Ragadhita, R. (2019). How to read and interpret FTIR spectroscopy of organic material. *Indonesian Journal of Science and Technology*, 4, 97–118. <https://doi.org/10.17509/ijost.v4i1.15806>
- Nandiyanto, A. B. ., Maryanti, R., Fiandini, M., Ragadhita, R., & Usdiyana, D. (2020). Synthesis of Carbon Microparticles from Red Dragon. 15(3), 199– 209.
- Nipa, S. T., Shefa, N. R., Parvin, S., Khatun, M. A., Alam, M. J., Chowdhury, S., & Rahman, M. W. (2023). Adsorption of methylene blue on papaya bark fiber: Equilibrium, isotherm and kinetic perspectives. *Results in Engineering*, 17(October), 100857. <https://doi.org/10.1016/j.rineng.2022.100857>
- Nurmanita dkk.,. 2020. Efektivitas Adsorben dari Ampas Kopi dalam Pengolahan Limbah Cair Berwarna. (Tesis Magister, Institut Teknologi Nasional Bandung)
- Nurmayasari. (2022). Fabrikasi Dan Karakterisasi Beads Kitosan Dengan Penambahan Ampas Kopi Dalam Adsorpsi Metilen Biru. (Tesis Magister, Universitas Gadjah Mada).
- Oladoye, P. O., Ajiboye, T. O., Omotola, E. O., & Oyewola, O. J. (2022). Methylene blue dye: Toxicity and potential elimination technology from wastewater. *Results in Engineering*, 16(August), 100678. <https://doi.org/10.1016/j.rineng.2022.100678>
- Olalekan A.P. dkk.,. 2016. Langmuir , Freundlich , temkin and dubinin – radushkevich isotherms studies of equilibrium sorption of Zn 2 + onto phosphoric acid modified rice husk, January , <https://doi.org/10.9790/5736-0313845>
- Pagalan, E., Sebron, M., Gomez, S., Jane, S., Ampusta, R., Joy, A., Joyno, C., Ido, A., & Arazo, R. (2020). Activated carbon from spent coffee grounds as an adsorbent for treatment of water contaminated by aniline yellow dye. *Industrial Crops & Products*, 145(November 2019), 111953. <https://doi.org/10.1016/j.indcrop.2019.111953>

- Pambudi, A., Farid, M., & Nurdiansah, H. (2017). Analisis Morfologi dan Spektroskopi Infra Merah Serat Bambu Betung (*Dendrocalamus Asper*) Hasil Proses Alkalisasi Sebagai Penguat Komposit Absorpsi Suara. *Jurnal Teknik ITS*, 6(2), 441–444.
- Quedhrhiri, A., Himi, M. A., Youbi, B., Lghazi, Y., Bahar, J., Haimer, C. E., Aynaou, A., & Bimaghra, I. (2022). Biochar material derived from natural waste with superior dye adsorption performance. *Materials*, 1-9.
- Rahmawati A., & Robbika F., (2022). Sintetis Karbon Aktif dari Limbah Ampas Tebu dengan Aktivasi Kimia menggunakan $ZnCl_2$. Berkala Penelitian Teknologi Kuit, Sepatu, dan Prodk Kulit. *Politeknik ATK Yogyakarta*, VOL. 21, Edisi 1.
- Sarasati, Y., Thohari, I. & Bambang, S. 2018. Perbedaan Ketebalan Filter Arang Aktif Ampas Kopi dalam Menurunkan Kadar Besi (Fe) pada Air Bersih. *Jurnal Penelitian Kesehatan Suara Forikes* 9(4): 231-237.
- Sembiring dkk., (2019). Alat Penguji Material. Bogor: Guepedia.
- Septiano, A.F., Sutanto, H., & Susilo. (2021). Synthesis and characterization of resin lead acetatecomposites and ability test of X-ray protection. *Journal Of Physics: Conf Series*, 1918.
- Sumadewi NLU, Puspaningrum DHD, & Adisanjaya NN. 2020. PKM pemanfaatan limbah kopi di Desa Catur Kabupaten Bangli. 3(2):130-132.
- Setiyoningsih. (2018). Pembuatan dan Karakterisasi Arang Aktif Kulit SIngkong Menggunakan Aktivator $ZnCl_2$. *Jurnal Kimia Riset*, 3(1), 13– 19.
- Takarani, P., Findia, N, S., & Fathoni, R. (2019). Pengaruh Massa dan Waktu Adsorben Selulosa Dari Kulit Jagung Terhadap Konsentrasi Penjerapan. *Prosiding Seminar Nasional Teknologi* V. pp. 117-121.
- Teixeira, Y. N., de Paula Filho, F. J., Bacurau, V. P., Menezes, J. M. C., Zhong Fan, A., & Melo, R. P. F. (2022). Removal of Methylene Blue from a synthetic effluent by ionic flocculation. *Heliyon*, 8(10). <https://doi.org/10.1016/j.heliyon.2022.e10868>
- Tushar C. Sarker, Ahmed Abd El-Gawad, Shah Md. Golam Gousul Azam, & Salvatore A. Gaglione. 2017. Sugarcane bagasse: a potential low-cost biosorbent for the removal of hazardous materials. *Clean Techn Environ Policy*. DOI: 10.1007/s10098-017-1429-7

- Üner, O., Geçgel, Ü., & Bayrak, Y. (2016). Adsorption of Methylene Blue by an Efficient Activated Carbon Prepared from Citrullus lanatus Rind: Kinetic, Isotherm, Thermodynamic, and Mechanism Analysis. *Water, Air, and Soil Pollution*, 227(7). <https://doi.org/10.1007/s11270-016-2949-1>
- Wang, S., Nam, H., Lee, D., & Nam, H. (2022). H₂S gas adsorption study using copper impregnated on KOH activated carbon from coffee residue for indoor air purification. *Journal of Environmental Chemical Engineering*, 10(6), 108797. <https://doi.org/10.1016/j.jece.2022.108797>
- Yahya, R. (2018). Pengolahan Limbah Kromium Industri Elektroplating Menggunakan Teknologi Filtrasi, Absorpsi, Adsorpsi, Sedimentasi (Faas). *Mathematics Education Journal*, 1(1), 75. <https://doi.org/10.29333/aje.2019.423a>.
- Yasri, B., Hikmah, K. N., Meilandari, O., Program, R., Diii, S., Dan Instrumentasi, M., Metrologi, A., Instrumentasi, D., Perdagangan, K., Daeng, J., & Ardiwinata Km, M. (2019). Perancangan Alat Uji Kandungan Peroksida (H₂O₂) pada Minyak Goreng Menggunakan Light Dependent Resistor The Design of Instrument of Peroxide: *Vol. VI* (Issue 1).
- Yuliusman, 2016. Pembuatan Karbon Aktif dari Tempurung Kelapa melalui Aktivasi Kimia dengan KOH dan Fisika dengan CO₂. *Seminar Nasional Teknik Kimia Soebardjo Brotohardjono XII*, (June), pp. 1–6.
- Yuliusman dkk., (2017). Production of activated carbon from coffee grounds using chemical and physical activation method. *Advanced Science Letters*, 23(6), 5751–5755. <https://doi.org/10.1166/asl.2017.8822>
- Zhou, Q.; Jhon Z. Wen; Pei Zhao; & William A.A.: Synthesis of Vertically-Aligned Zinc Oxide Nanowires and Their Application as a Photocatalyst. *Nanomaterials* 2017,7(9)