

DAFTAR PUSTAKA

- Abewaa, M., Mengistu, A., Takele, T., Fito, J., dan Nkambule, T., 2023, Adsorptive Removal of Malachite Green Dye from Aqueous Solution Using Rumex Abyssinicus Derived Activated Carbon, *Sci. Rep.*, 13 (1), 1–16.
- Adeyi, A.A., Jamil, S.N.A.M., Abdullah, L.C., dan Choong, T.S.Y., 2019, Adsorption of Malachite Green Dye from Liquid Phase Using Hydrophilic Thiourea-Modified Poly(Acrylonitrile-Co-Acrylic Acid): Kinetic and Isotherm studies, *J. Chem.*, 1–14.
- Agbovi, H.K., dan Wilson, L.D., 2021, Adsorption Processes in Biopolymer Systems: Fundamentals to Practical Applications,. In, *Natural Polymers-Based Green Adsorbents for Water Treatment*. Elsevier, pp. 1–51.
- Al-Maliky, E.A., Gzar, H.A., dan Al-Azawy, M.G., 2021, Determination of Point of Zero Charge (PZC) of Concrete Particles Adsorbents, *IOP Conf. Ser. Mater. Sci. Eng.*, 1184 (1), 012004.
- Alimano, M., dan Syafila, M., 2014, Reduksi Ukuran Adsorben untuk Memperbesar Diameter Pori dalam Upaya Meningkatkan Efisiensi Adsorpsi Minyak Jelantah, *J. Teh. Lingkung.*, 20 (2), 173–182.
- Aljeboree, A.M., Alkaim, A.F., dan Al-Dujaili, A.H., 2015, Adsorption Isotherm, Kinetic Modeling and Thermodynamics of Crystal Violet Dye on Coconut Husk-Based Activated Carbon, *Desalin. Water Treat.*, 53 (13), 3656–3667.
- Alnajrani, M.N., dan Alsager, O.A., 2020, Removal of Antibiotics from Water by Polymer of Intrinsic Microporosity: Isotherms, Kinetics, Thermodynamics, and Adsorption Mechanism, *Sci. Rep.*, 10 (1), 1–14.
- Alshameri, A., Yan, C., dan Lei, X., 2014, Enhancement of Phosphate Removal from Water by Tio₂/Yemeni Natural Zeolite: Preparation, Characterization and Thermodynamic, *Microporous Mesoporous Mater.*, 196 145–157.
- Alswat, A.A., Ahmad, M. Bin, dan Saleh, T.A., 2016, Zeolite Modified with Copper Oxide and Iron Oxide for Lead and Arsenic Adsorption from Aqueous Solutions, *J. Water Supply Res. Technol. - AQUA*, 65 (6), 465–479.
- Arellano-Cárdenas, S., López-Cortez, S., Cornejo-Mazón, M., dan Mares-Gutiérrez, J.C., 2013, Study of malachite Green Adsorption by organically Modified Clay Using a Batch Method, *Appl. Surf. Sci.*, 280, 74–78.
- Artioli, Y., 2008, Adsorption,. In, *Encyclopedia of Ecology*. Elsevier, pp. 60–65.
- Asgher, M., 2012, Biosorption of Reactive Dyes: A Review, *Water. Air. Soil Pollut.*, 223 (5), 2417–2435.
- Atkins, P.W., Trapp, C.A., dan Giunta, C., 2006, *Student's Solution Manual to Accompany Physical Chemistry*, Eight Edition, Oxford University Press,

New York.

- Barquist, K., dan Larsen, S.C., 2008, Chromate Adsorption on Amine-Functionalized Nanocrystalline Silicalite-1, *Microporous Mesoporous Mater.*, 116 (1–3), 365–369.
- Barquist, K., dan Larsen, S.C., 2010, Chromate Adsorption on Bifunctional, Magnetic Zeolite Composites, *Microporous Mesoporous Mater.*, 130 (1–3), 197–202.
- Başkan, G., Açikel, Ü., dan Levent, M., 2022, Investigation of Adsorption Properties of Oxytetracycline Hydrochloride on Magnetic Zeolite/Fe₃O₄ Particles, *Adv. Powder Technol.*, 33 (6), 103600.
- Bateman, A.M., dan Jensen, M.L., 1981, *Economic mineral Deposits*, John Willey & Sons Inc., New York.
- Brahma, D., Nath, H., Borah, D., Debnath, M., dan Saikia, H., 2022, Coconut Husk Ash Fabricated CoAl-Layered Double Hydroxide Composite for the Enhanced Sorption of Malachite Green Dye: Isotherm, kinetics and thermodynamic studies, *Inorg. Chem. Commun.*, 144 (August), 109878.
- Castro, C.S., Guerreiro, M.C., Gonçalves, M., Oliveira, L.C.A., dan Anastácio, A.S., 2009, Activated Carbon/Iron Oxide Composites for the Removal of Atrazine from Aqueous Medium, *J. Hazard. Mater.*, 164 (2–3), 609–614.
- Chesworth, W., Perez-Alberti, A., Arnaud, E., Morel-Seytoux, H.J., Morel-Seytoux, H.J., dan Schwertmann, U., 2008, Iron oxides, In: Chesworth, W (eds) *Encyclopedia of Soil Science, Encyclopedia of Earth Sciences Series, Springer*, pp. 363–369.
- Chiou, M.S., dan Li, H.Y., 2002, Equilibrium and Kinetic Modeling of Adsorption of Reactive Dye on Cross-Linked Chitosan Beads, *J. Hazard. Mater.*, 93 (2), 233–248.
- Crini, G., Peindy, H.N., Gimbert, F., dan Robert, C., 2007, Removal of C.I. Basic Green 4 (Malachite Green) from Aqueous Solutions by Adsorption Using Cyclodextrin-Based Adsorbent: Kinetic and Equilibrium Studies, *Sep. Purif. Technol.*, 53 (1), 97–110.
- Dar, M.I., dan Shivashankar, S.A., 2014, Single Crystalline Magnetite, Maghemite, and Hematite Nanoparticles with Rich Coercivity, *RSC Adv.*, 4 (8), 4105–4113.
- Dil, A.A., Vafaei, A., Ghaedi, A.M., Ghaedi, M., dan Dil, E.A., 2018, Multi-responses Optimization of Simultaneous Adsorption of Methylene Blue and Malachite Green Dyes in Binary Aqueous System onto Ni:FeO(OH)-NWs-AC Using Experimental Design: Derivative Spectrophotometry Method, *Appl. Organomet. Chem.*, 32 (3), 1–13.
- Doğan, M., Özdemir, Y., dan Alkan, M., 2007, Adsorption Kinetics and Mechanism of Cationic Methyl Violet and Methylene Blue Dyes onto Sepiolite, *Dye. Pigment.*, 75 (3), 701–713.

- Fahmiati, Nuryono, dan Suyanta, 2017, Characteristics of Iron Sand Magnetic Material from Bugel Beach, Kulon Progo, Yogyakarta, *IOP Conf. Ser. Mater. Sci. Eng.*, 172, 012020.
- Fan, X., Deng, L., Li, K., Lu, H., Wang, R., dan Li, W., 2021, Adsorption of Malachite Green in Aqueous Solution Using Sugarcane Bagasse-Barium Carbonate Composite, *Colloids Interface Sci. Commun.*, 44 (May), 100485.
- Foo, K.Y., dan Hameed, B.H., 2010, Insights into the Modeling of Adsorption Isotherm Systems, *Chem. Eng. J.*, 156 (1), 2–10.
- Gessner, T., dan Mayer, U., 2000, Triarylmethane and Diarylmethane Dyes., In, *Ullmann's Encyclopedia of Industrial Chemistry*. Wiley.
- Ghodbane, H., dan Hamdaoui, O., 2010, Decolorization of Antraquinonic Dye, C.I. Acid Blue 25, in Aqueous Solution by Direct UV Irradiation, UV/H₂O₂ and UV/Fe(II) Processes, *Chem. Eng. J.*, 160 (1), 226–231.
- Gulicovski, J.J., Čerović, L.S., dan Milonjić, S.K., 2008, Point of Zero Charge and Isoelectric Point of Alumina, *Mater. Manuf. Process.*, 23 (6), 615–619.
- Habila, M.A., ALOthman, Z.A., El-Toni, A.M., Labis, J.P., Li, X., Zhang, F., dan Soylak, M., 2016, Mercaptobenzothiazole-Functionalized Magnetic Carbon Nanospheres of Type Fe₃O₄@SiO₂@C for the Preconcentration of Nickel, Copper and Lead Prior to their Determination by ICP-MS, *Microchim. Acta*, 183 (8), 2377–2384.
- Hashem, A.A., Mahmoud, S.A., Geioushy, R.A., dan Fouad, O.A., 2023, Adsorption of Malachite Green Dye over Synthesized Calcium Silicate Nanopowders from waste Materials, *Mater. Sci. Eng. B*, 295 (May), 116605.
- Hidayat, A.E., Moersidik, S.S., dan Adityosulindro, S., 2019, Sintesis dan Karakterisasi Zeolit Hidroksi Sodalit dari Limbah Padat Abu Layang PLTU Batubara, *Reka Buana J. Ilm. Tek. Sipil dan Tek. Kim.*, 4 (2), 9.
- Ho, Y.S., dan Mckay, G., 1999, Pseudo-Second Order Model for Sorption Processes, *Process Biochemistry*, 34, 451–465.
- Istiningrum, R.B., Udin Pamungkas, F.L., Saniosa, S.J., dan Nuryono, 2020, Ultrasound-Assisted Extraction of Magnetic Material from Natural Iron Sand, *AIP Conf. Proc.*, 2296.
- Jiang, J., Song, W., Zhang, M., Feng, Y., Bai, H., Zhang, H., Yu, K., Kan, G., Liu, B., dan Jiang, Y., 2023, Magnetic Nitrogen-Doped Carbon Composites Decorated with Carbon Nanotubes for Adsorption of Malachite Green, *ACS Appl. Nano Mater.*, 6 (14), 12882–12892.
- Kalam, S., Abu-Khamsin, S.A., Kamal, M.S., dan Patil, S., 2021, Surfactant Adsorption Isotherms: A Review, *ACS Omega*, 6 (48), 32342–32348.

- Karbeka, M., Koly, F.V.L., dan Tellu, N.M., 2020, Karakterisasi Sifat Magnetik Kemagnetan Pasir Besi Pantai Aru Kabupaten Alor-NTT, *Lantanida J.*, 8 (2), 96–188.
- Karelius, K., dan Asi, N.B., 2018, Sintesis dan Karakterisasi Komposit Magnetik Lempung Putih Asal Kalimantan Tengah sebagai Adsorben Zat Warna pada Limbah Cair, *J. Ilm. Kanderang Tingang*, 9 (1), 51–66.
- Krstić, V., 2021, Role of Zeolite Adsorbent in Water Treatment,. In, *Handbook of Nanomaterials for Wastewater Treatment*. Elsevier, pp. 417–481.
- Kumar, K.V., Porkodi, K., dan Rocha, F., 2008, Langmuir-Hinshelwood Kinetics - A Theoretical Study, *Catal. Commun.*, 9 (1), 82–84.
- Li, L., Liu, X.L., Geng, H.Y., Hu, B., Song, G.W., dan Xu, Z.S., 2013, A MOF/Graphite Oxide Hybrid (MOF:HKUST-1) Material for the Adsorption of Methylene Blue from Aqueous Solution, *J. Mater. Chem. A*, 1 (35), 10292–10299.
- Li, M., Ma, J., Pan, B., dan Wang, J., 2022, Cage-Based Covalent Organic Framework for the Effective and Efficient Removal of Malachite Green from Wastewater, *ACS Appl. Mater. Interfaces*, 14, 57180–57188.
- M. Cuong, N., Ishizaka, S., dan Kitamura, N., 2012, Donnan Electric Potential Dependence of Intraparticle Diffusion of Malachite Green in Single Cation Exchange Resin Particles: A Laser Trapping-Microspectroscopy Study, *Am. J. Anal. Chem.*, 03 (03), 188–194.
- Mondal, M., Biswas, B., Garai, S., Sarkar, S., Banerjee, H., Brahmachari, K., Bandyopadhyay, P.K., Maitra, S., Brestic, M., Skalicky, M., Ondrisik, P., dan Hossain, A., 2021, Zeolites Enhance Soil Health, Crop Productivity and Environmental Safety, *Agronomy*, 11, 448.
- Al Muttaqii, M., Birawidha, D.C., Isnugroho, K., Yamin, M., Hendronursito, Y., Istiqomah, A.D., dan Dewangga, D.P., 2019, Pengaruh Aktivasi secara Kimia menggunakan Larutan Asam dan Basa terhadap Karakteristik Zeolit Alam, *J. Ris. Teknol. Ind.*, 13 (2), 266.
- Ngapa, Y.D., 2017, Kajian Pengaruh Asam-Basa pada Aktivasi Zeolit dan Karakteristiknya sebagai Adsorben Pewarna Biru Metilena, *JKPK (Jurnal Kim. dan Pendidik. Kim.)*, 2 (2), 90–96.
- Ngapa, Y.D., dan Ika, Y.E., 2020, Potensi Zeolit Alam Ende sebagai Media Adsorben Kompetitif Pewarna Biru Metilena dan Metil Oranye, *Cakra Kim.*, 8 (2), 105–113.
- Oladoye, P.O., Ajiboye, T.O., Wanyonyi, W.C., Omotola, E.O., dan Oladipo, M.E., 2023, Insights into Remediation Technology for malachite Green Wastewater Treatment, *Water Sci. Eng.*, 16 (3), 261–270.
- Özer, A., dan Dursun, G., 2007, Removal of Methylene Blue from Aqueous Solution by Dehydrated Wheat Bran Carbon, *J. Hazard. Mater.*, 146 (1–2), 262–269.

- Pandey, D., Daverey, A., Dutta, K., dan Arunachalam, K., 2022, Bioremoval of toxic Malachite Green from Water Through Simultaneous Decolorization and Degradation Using Laccase Immobilized Biochar, *Chemosphere*, 297 134126.
- Pardoyo, P., Diponegoro, U., Darmawan, A., dan Diponegoro, U., 2015, Pengaruh Perlakuan HCl pada Kristalinitas dan Kemampuan Adsorpsi Zeolit Alam terhadap Ion Ca^{2+} , *J. Sains dan Matematika*, 17 (2), 100–104.
- Petrov, I., dan Michalev, T., 2012, Synthesis of Zeolite A: A Review, *Proceedings -Chem. Technol.*, (51, Book 9.1), 30–35.
- Praipipat, P., Jangkorn, S., dan Ngamsurach, P., 2023, Powdered and Beaded Zeolite A from Recycled Coal Fly Ash with Modified Iron(III) Oxide-Hydroxide for Lead Adsorptions, *Environ. Nanotechnology, Monit. Manag.*, 20 (March), 100812.
- Punzi, A., Martin-Gassin, G., Grilj, J., dan Vauthey, E., 2009, Effect of Salt on the Excited-State Dynamics of Malachite Green in Bulk Aqueous Solutions and at Air/Water Interfaces: A Femtosecond Transient Absorption and Surface Second Harmonic Generation Study, *J. Phys. Chem. C*, 113 (27), 11822–11829.
- Putranto, V., dan Jumaeri, E.K., 2015, Jurnal MIPA untuk Penurunan Kesadahan Air, *J. MIPA*, 38 (2), 150–159.
- Rahmayanti, M., 2020, Sintesis dan Karakterisasi Magnetit (Fe_3O_4): Studi Komparasi Metode Konvensional dan Metode Sonokimia, *Al Ulum J. Sains Dan Teknol.*, 6 (1), 26.
- Raval, A.R., Kohli, H.P., dan Mahadwad, O.K., 2022, Application of Emulsion Liquid Membrane for Removal of Malachite Green Dye from Aqueous Solution: Extraction and Stability Studies, *Chem. Eng. J. Adv.*, 12 (September), 100398.
- Renni, C.P., Mahatmanti, F.W., dan Widiarti, N., 2018, Pemanfaatan Zeolit Alam Teraktivasi sebagai Adsorben Ion Logam Fe(III) dan Cr(VI), *Indones. J. Chem. Sci.*, 7 (1), 65–70.
- Rettob, A.L., dan Karbeka, M., 2019, Pengaruh Konsentrasi Larutan HF pada Proses Preparasi terhadap Kadar Unsur Bahan Magnetik Pasir Besi, *Walisono J. Chem.*, 2 (1), 6–9.
- Roshanfekar Rad, L., dan Anbia, M., 2021, Zeolite-Based Composites for the Adsorption of Toxic Matters from Water: A Review, *J. Environ. Chem. Eng.*, 9 (5), 106088.
- Rosyidah, A.K., dan Suyanta, S., 2021, Sintesis dan Karakterisasi Komposit Zeolit Magnetit dan Aplikasinya sebagai Adsorben Ni(II), *J. Sains dan Terap. Kim.*, 15 (1), 37.
- Saadi, R., Saadi, Z., Fazaeli, R., dan Fard, N.E., 2015, Monolayer and Multilayer Adsorption Isotherm Models for Sorption from Aqueous Media, *Korean J.*

Chem. Eng., 32 (5), 787–799.

- Salleh, M.A.M., Mahmoud, D.K., Karim, W.A.W.A., dan Idris, A., 2011, Cationic and Anionic Dye Adsorption by Agricultural Solid Wastes: A Comprehensive Review, *Desalination*, 280 (1–3), 1–13.
- Santhi, T., Manonmani, S., Vasantha, V.S., dan Chang, Y.T., 2016, A New Alternative Adsorbent for the Removal of Cationic Dyes from Aqueous Solution, *Arab. J. Chem.*, 9, S466–S474.
- Sari, F.I.P., 2017, Sintesis, Karakterisasi Nanopartikel Magnetit, Mg/Al NO₃–Hidrotalsit dan Komposit Magnetit-Hidrotalsit, *J. Kim. Val.*, 3 (1), 44–49.
- Sartape, A.S., Mandhare, A.M., Jadhav, V. V., Raut, P.D., Anuse, M.A., dan Kolekar, S.S., 2017, Removal of Malachite Green Dye from Aqueous Solution with Adsorption Technique Using Limonia Acidissima (Wood Apple) Shell as Low Cost Adsorbent, *Arab. J. Chem.*, 10 (December), S3229–S3238.
- Sharma, J., Sharma, S., dan Soni, V., 2023, Toxicity of Malachite Green on Plants and its Phytoremediation: A Review, *Reg. Stud. Mar. Sci.*, 62 102911.
- Shi, Z., Xu, C., Guan, H., Li, L., Fan, L., Wang, Y., Liu, L., Meng, Q., dan Zhang, R., 2018, Magnetic Metal Organic Frameworks (MOFs) Composite for Removal of Lead and Malachite Green in Wastewater, *Colloids Surfaces A Physicochem. Eng. Asp.*, 539 (December 2017), 382–390.
- Shrivastava, V., Ali, I., Marjub, M.M., Rene, E.R., dan Soto, A.M.F., 2022, Wastewater in the Food Industry: Treatment Technologies and Reuse Potential, *Chemosphere*, 293 (December 2021), 133553.
- Sriatun, Darmawan, A., dan Sriyanti, 2017, Synthesis and Characterization of Zeolite/Magnetite Composite from Iron Sand of Marina Beach, *Adv. Sci. Lett.*, 23 (7), 6524–6526.
- Sriatun, Darmawan, A., Sriyanti, Cahyani, W., dan Widyandari, H., 2018, Zeolite/magnetite composites as catalysts on the Synthesis of Methyl Esters (MES) from cooking oil, *J. Phys. Conf. Ser.*, 1025 (1), 012135.
- Sriningsih, W., Saerodji, M.G., Trisunaryanti, W., Triyono, Armunanto, R., dan Falah, I.I., 2014, Fuel Production from LDPE Plastic Waste over Natural Zeolite Supported Ni, Ni-Mo, Co and Co-Mo Metals, *Procedia Environ. Sci.*, 20 215–224.
- Susarla, S.M., Mulliken, J.B., Kaban, L.B., Manson, P.N., dan Dodson, T.B., 2017, The Colourful History of Malachite Green: from Ancient Egypt to Modern Surgery, *Int. J. Oral Maxillofac. Surg.*, 46 (3), 401–403.
- Suyanta, S., Sudiono, S., dan Santosa, S.J., 2010, Determination of Rate Constant and Stability of Adsorption in Competitive Adsorption of Cr(III) And Cd(II) on Humic Acid by Using the New Model of Kinetic Formulation, *Indones. J. Chem.*, 4 (3), 161–167.



- Wang, C., Yu, J., Feng, K., Wang, L., dan Huang, J., 2022, Synthesis of Porous Magnetic Zeolite-Based Material and its Performance on Removal of Cd^{2+} Ion and Methylene Blue from Aqueous Solution, *Microporous Mesoporous Mater.*, 345 (July), 112256.
- Wang, J., dan Guo, X., 2020, Adsorption Isotherm Models: Classification, Physical Meaning, Application and Solving Method, *Chemosphere*, 258, 127279.
- Wang, Y.H., Lin, S.H., dan Juang, R.S., 2003, Removal of Heavy Metal Ions from Aqueous Solutions Using Various Low-Cost Adsorbents, *J. Hazard. Mater.*, 102 (2–3), 291–302.
- Wirawan, S.K., Sudibyo, H., Setiaji, M.F., Warmada, I.W., dan Wahyuni, E.T., 2015, Development of Natural Zeolites Adsorbent: Chemical Analysis and Preliminary TPD Adsorption Study, *J. Eng. Sci. Technol.*, 10, 87–95.
- Wu, Z., Wu, J., Xiang, H., Chun, M.-S., dan Lee, K., 2006, Organosilane-Functionalized Fe_3O_4 Composite Particles as Effective Magnetic Assisted Adsorbents, *Colloids Surfaces A Physicochem. Eng. Asp.*, 279 (1–3), 167–174.
- Zhang, B., Wu, D., Wang, C., He, S., Zhang, Z., dan Kong, H., 2007, Simultaneous Removal of Ammonium and Phosphate by Zeolite Synthesized from Coal Fly Ash as Influenced by Acid Treatment, *J. Environ. Sci.*, 19 (5), 540–545.
- Zhang, X., Yu, H., Yang, H., Wan, Y., Hu, H., Zhai, Z., dan Qin, J., 2015, Graphene Oxide Caged in Cellulose Microbeads for Removal of Malachite Green Dye from Aqueous Solution, *J. Colloid Interface Sci.*, 437, 277–282.