

DAFTAR PUSTAKA

- Abou Oualid, H., Abdellaoui, Y., Laabd, M., El Ouardi, M., Brahmi, Y., Iazza, M., & Abou Oualid, J. (2020). Eco-efficient green seaweed *codium decorticatum* biosorbent for textile dyes: Characterization, mechanism, recyclability, and rsm optimization. *ACS Omega*, 5(35), 22192–22207. <https://doi.org/10.1021/acsomega.0c02311>
- Agarwal, A., Upadhyay, U., Sreedhar, I., Singh, S. A., & Patel, C. M. (2020). A review on valorization of biomass in heavy metal removal from wastewater. *Journal of Water Process Engineering*, 38(July), 101602. <https://doi.org/10.1016/j.jwpe.2020.101602>
- Ahmad, R., Kumar, R., & Haseeb, S. (2012). Adsorption of Cu²⁺ from aqueous solution onto iron oxide coated eggshell powder: Evaluation of equilibrium, isotherms, kinetics, and regeneration capacity. *Arabian Journal of Chemistry*, 5(3), 353–359. <https://doi.org/10.1016/j.arabjc.2010.09.003>
- Al-Maliky, E. A., Gzar, H. A., & Al-Azawy, M. G. (2021). Determination of Point of Zero Charge (PZC) of Concrete Particles Adsorbents. *IOP Conference Series: Materials Science and Engineering*, 1184(1), 012004. <https://doi.org/10.1088/1757-899x/1184/1/012004>
- Alver, E., Metin, A. Ü., & Brouers, F. (2020). Methylene blue adsorption on magnetic alginate/rice husk bio-composite. *International Journal of Biological Macromolecules*, 154, 104–113. <https://doi.org/10.1016/j.ijbiomac.2020.02.330>
- Amoo, T. E., Amoo, K. O., Adeeyo, O. A., & Ogidi, C. O. (2022). Kinetics and Equilibrium Studies of the Adsorption of Copper(II) Ions from Industrial Wastewater Using Activated Carbons Derived from Sugarcane Bagasse. *International Journal of Chemical Engineering*, 2022. <https://doi.org/10.1155/2022/6928568>
- Angumeenal, A. R., & Venkappayya, D. (2013). An overview of citric acid production. *LWT - Food Science and Technology*, 50(2), 367–370. <https://doi.org/10.1016/j.lwt.2012.05.016>
- Azizian, S. (2004). Kinetic models of sorption: A theoretical analysis. *Journal of Colloid and Interface Science*, 276(1), 47–52. <https://doi.org/10.1016/j.jcis.2004.03.048>
- Benkhaya, S., & Harfi, A. El. (2018). A critical review of surface water contaminated with dyes from textile industry effluent : Possible approaches. 1, 1–12.
- Bhatti, H. N., Safa, Y., Yakout, S. M., Shair, O. H., Iqbal, M., & Nazir, A. (2020). Efficient removal of dyes using carboxymethyl cellulose / alginate / polyvinyl alcohol / rice husk composite : Adsorption / desorption , kinetics and recycling studies. *International*

- Journal of Biological Macromolecules*, 150, 861–870.
<https://doi.org/10.1016/j.ijbiomac.2020.02.093>
- Borborah, K., Borthakur, S. K., & Tanti, B. (2016). Musa balbisiana colla-taxonomy, traditional knowledge and economic potentialities of the plant in Assam, India. *Indian Journal of Traditional Knowledge*, 15(1), 116–120.
- Çatlıoğlu, F., Akay, S., Turunç, E., Gözmen, B., Anastopoulos, I., Kayan, B., & Kalderis, D. (2021). Preparation and application of Fe-modified banana peel in the adsorption of methylene blue: Process optimization using response surface methodology. *Environmental Nanotechnology, Monitoring and Management*, 16(July). <https://doi.org/10.1016/j.enmm.2021.100517>
- Chaidir, Z., Sagita, D. T., Zein, R., & Munaf, E. (2015). Bioremoval of methyl orange dye using durian fruit (Durio zibethinus) Murr seeds as biosorbent. *Journal of Chemical and Pharmaceutical Research*, 7(1), 589–599.
- Chen, L., Ramadan, A., Lü, L., Shao, W., Luo, F., & Chen, J. (2011). Biosorption of methylene blue from aqueous solution using lawn grass modified with citric acid. *Journal of Chemical and Engineering Data*, 56(8), 3392–3399. <https://doi.org/10.1021/je200366n>
- Christian, D., Roberta, del sole, Francesca, S., Sannino, A., Vasapollo, G., Maffezzoli, A., Nicolais, L., & Ambrosio, L. (2008). Novel superabsorbent cellulose-based hydrogels crosslinked with citric acid. *Journal of Applied Polymer Science*, 110(4), 2453–2460. <https://doi.org/10.1002/app>
- Corbett, J. F. (1972). Pseudo first-order kinetics. *Journal of Chemical Education*, 49(10), 663. <https://doi.org/10.1021/ed049p663>
- Dahiru, M., Zango, Z. U., & Haruna, M. A. (2018). Cationic Dyes Removal Using Low-Cost Banana Peel Biosorbent. *American Journal of Materials Science*, 8(2), 32–38. <https://doi.org/10.5923/j.materials.20180802.02>
- Dalvand, A., Ehrampoush, M. H., Ghaneian, M. T., Mokhtari, M., Ebrahimi, A. A., Ahmadi, R. M., & Mahvi, A. H. (2017). Application of Chemical Coagulation Process for Direct Dye Removal from Textile Wastewater. *Journal of Environmental Health and Sustainable Development*, 2(3), 333–339.
- Danish, M., Ahmad, T., Majeed, S., Ahmad, M., Ziyang, L., Pin, Z., & Shakeel Iqbal, S. M. (2018). Use of banana trunk waste as activated carbon in scavenging methylene blue dye: Kinetic, thermodynamic, and isotherm studies. *Bioresource Technology Reports*, 3(June), 127–137. <https://doi.org/10.1016/j.biteb.2018.07.007>
- de Luna, M. D. G., Flores, E. D., Genuino, D. A. D., Futralan, C. M., & Wan, M. W. (2013). Adsorption of Eriochrome Black T (EBT) dye using activated carbon prepared from waste rice hulls-Optimization, isotherm and kinetic studies. *Journal of the Taiwan Institute of Chemical Engineers*, 44(4), 646–653.

<https://doi.org/10.1016/j.jtice.2013.01.010>

- Deborah Cristina Crominski, D. S., & Pietrobelli, J. M. T. D. A. (2019). Residual biomass of chia seeds (*Salvia hispanica*) oil extraction as low cost and eco-friendly biosorbent for effective reactive yellow B2R textile dye removal: Characterization, kinetic, thermodynamic and isotherm studies. *Journal of Environmental Chemical Engineering*, 7(2), 103008. <https://doi.org/10.1016/j.jece.2019.103008>
- Dissanayake, D. G. K., Weerasinghe, D. U., Thebuwanage, L. M., & Bandara, U. A. A. N. (2021). An environmentally friendly sound insulation material from post-industrial textile waste and natural rubber. *Journal of Building Engineering*, 33(June 2020), 101606. <https://doi.org/10.1016/j.jobe.2020.101606>
- Du, J., Wu, Y., Dong, Z., Zhang, M., Yang, X., Xiong, H., & Zhao, L. (2022). Single and competitive adsorption between Indigo Carmine and Methyl orange dyes on quaternized kapok fiber adsorbent prepared by radiation technique. *Separation and Purification Technology*, 292(April), 121103. <https://doi.org/10.1016/j.seppur.2022.121103>
- Eletta, O., Ighalo, J. O., & A Eletta, O. A. (2019). A Review of Fish Scales as a Source of Biosorbent for the Removal of Pollutants from Industrial Effluents Solid Waste Management and Recycling View project Process Modeling and Biofuels Production View project A Review of Fish Scales as a Source of Biosor. *Journal of Research Information in Civil Engineering*, 16(1), 2479–2510. <https://doi.org/10.13140/RG.2.2.20511.61604>
- Faisal, A. A. H., Ramadhan, Z. K., Al-Ansari, N., Sharma, G., Naushad, M., & Bathula, C. (2022). Precipitation of (Mg/Fe-CTAB) - Layered double hydroxide nanoparticles onto sewage sludge for producing novel sorbent to remove Congo red and methylene blue dyes from aqueous environment. *Chemosphere*, 291(P1), 132693. <https://doi.org/10.1016/j.chemosphere.2021.132693>
- Ferreira, R. M., de Oliveira, N. M., Lima, L. L. S., Campista, A. L. D. M., & Stapelfeldt, D. M. A. (2019). Adsorption of indigo carmine on *Pistia stratiotes* dry biomass chemically modified. *Environmental Science and Pollution Research*, 26(28), 28614–28621. <https://doi.org/10.1007/s11356-018-3752-x>
- Fiol, N., & Villaescusa, I. (2009). Determination of sorbent point zero charge: Usefulness in sorption studies. *Environmental Chemistry Letters*, 7(1), 79–84. <https://doi.org/10.1007/s10311-008-0139-0>
- Gebrezgiher, M., & Kiflie, Z. (2020). Utilization of Cactus Peel as Biosorbent for the Removal of Reactive Dyes from Textile Dye Effluents. *Journal of Environmental and Public Health*, 2020. <https://doi.org/10.1155/2020/5383842>
- Ghosh, S. K., & Bandyopadhyay, A. (2017). Adsorption of methylene blue onto citric acid treated carbonized bamboo leaves powder: Equilibrium, kinetics,

- thermodynamics analyses. *Journal of Molecular Liquids*, 248, 413–424. <https://doi.org/10.1016/j.molliq.2017.10.086>
- Girish, C. R. (2018). Various impregnation methods used for the surface modification of the adsorbent: A review. *International Journal of Engineering and Technology(UAE)*, 7(4.7 Special Issue 7), 330–334. <https://doi.org/10.14419/ijet.v7i4.7.20571>
- Gourieroux, A. C., Monfort, A., & Trognon, A. (1984). *Pseudo Maximum Likelihood Methods: Theory*. 52(3), 681–700.
- Guilhen, S. N., Watanabe, T., Silva, T. T., Rovani, S., Marumo, J. T., Tenório, J. A. S., Mašek, O., & Araujo, L. G. de. (2022). Role of Point of Zero Charge in the Adsorption of Cationic Textile Dye on Standard Biochars from Aqueous Solutions: Selection Criteria and Performance Assessment. *Recent Progress in Materials*, 4(2), 1–1. <https://doi.org/10.21926/rpm.2202010>
- Gupta, N., Kushwaha, A. K., & Chattopadhyaya, M. C. (2016). Application of potato (*Solanum tuberosum*) plant wastes for the removal of methylene blue and malachite green dye from aqueous solution. *Arabian Journal of Chemistry*, 9, S707–S716. <https://doi.org/10.1016/j.arabjc.2011.07.021>
- Harrelkas, F., Azizi, A., Yaacoubi, A., Benhammou, A., & Pons, M. N. (2009). Treatment of textile dye effluents using coagulation-flocculation coupled with membrane processes or adsorption on powdered activated carbon. *Desalination*, 235(1–3), 330–339. <https://doi.org/10.1016/j.desal.2008.02.012>
- Hastuti. (2021). Pisang Batu Musa Balbisana Colla: Kajian Botani dan Pemanfaatannya. *Jurnal Pendidikan, Matematika Dan Sains*, 5(2), 249–262.
- Hevira, L., Zilfa, Rahmayeni, Ighalo, J. O., Aziz, H., & Zein, R. (2021). Terminalia catappa shell as low-cost biosorbent for the removal of methylene blue from aqueous solutions. *Journal of Industrial and Engineering Chemistry*, 97(January), 188–199. <https://doi.org/10.1016/j.jiec.2021.01.028>
- Hevira, L., Zilfa, Rahmayeni, Ighalo, J. O., & Zein, R. (2020). Biosorption of indigo carmine from aqueous solution by Terminalia Catappa shell. *Journal of Environmental Chemical Engineering*, 8(5), 104290. <https://doi.org/10.1016/j.jece.2020.104290>
- Ho, Y. ., & McKay, G. (1999). Pseudo-second order model for sorption processes. *Process Biochemistry*, 34(5), 451–465. [https://doi.org/10.1016/S0032-9592\(98\)00112-5](https://doi.org/10.1016/S0032-9592(98)00112-5)
- Hong, S., Wen, C., He, J., Gan, F., & Ho, Y. S. (2009). Adsorption thermodynamics of Methylene Blue onto bentonite. *Journal of Hazardous Materials*, 167(1–3), 630–633. <https://doi.org/10.1016/j.jhazmat.2009.01.014>
- Hujian, C., Zheng, K., Zhu, A., Meng, Z., Li, W., & Qin, C. (2020). Preparation of bentonite/chitosan composite for bleaching of deteriorating transformer oil.

- Polymers*, 12(1). <https://doi.org/10.3390/polym12010060>
- Hussain, M. S., Rehman, R., & Imran, M. (2021). Isothermal and Kinetic Investigation of Exploring the Potential of Citric Acid-Treated *Trapa natans* and *Citrullus lanatus* Peels for Biosorptive Removal of Brilliant Green Dye from Water. *Journal of Chemistry*, 2021. <https://doi.org/10.1155/2021/6051116>
- Ighalo, J. O., & Adeniyi, A. G. (2020). A mini-review of the morphological properties of biosorbents derived from plant leaves. *SN Applied Sciences*, 2(3), 1–16. <https://doi.org/10.1007/s42452-020-2335-x>
- Igwegbe, C. A., Onukwuli, O. D., Ighalo, J. O., & Okoye, P. U. (2020). Adsorption of Cationic Dyes on *Dacryodes edulis* Seeds Activated Carbon Modified Using Phosphoric Acid and Sodium Chloride. *Environmental Processes*, 7(4), 1151–1171. <https://doi.org/10.1007/s40710-020-00467-y>
- Jaafarzadeh, N., Takdastan, A., Jorfi, S., Ghanbari, F., Ahmadi, M., & Barzegar, G. (2018). The performance study on ultrasonic/ $\text{Fe}_3\text{O}_4/\text{H}_2\text{O}_2$ for degradation of azo dye and real textile wastewater treatment. *Journal of Molecular Liquids*, 256, 462–470. <https://doi.org/10.1016/j.molliq.2018.02.047>
- Jain, B., & Singh, A. K. (2020). *Surfactant-assisted cerium oxide and its catalytic activity towards Fenton process for non-degradable dye.*
- Jamali, M., & Akbari, A. (2021). Facile fabrication of magnetic chitosan hydrogel beads and modified by interfacial polymerization method and study of adsorption of cationic/anionic dyes from aqueous solution. *Journal of Environmental Chemical Engineering*, 9(3), 105175. <https://doi.org/10.1016/j.jece.2021.105175>
- Jawad, A. H., Abdulhameed, A. S., & Mastuli, M. S. (2020). Acid-fractionalized biomass material for methylene blue dye removal: a comprehensive adsorption and mechanism study. *Journal of Taibah University for Science*, 14(1), 305–313. <https://doi.org/10.1080/16583655.2020.1736767>
- Jawad, A. H., Kadhum, A. M., & Ngoh, Y. S. (2018). Applicability of dragon fruit (*Hylocereus polyrhizus*) peels as low-cost biosorbent for adsorption of methylene blue from aqueous solution: Kinetics, equilibrium and thermodynamics studies. *Desalination and Water Treatment*, 109(May), 231–240. <https://doi.org/10.5004/dwt.2018.21976>
- Jawad, A. H., Razuan, R., Appaturi, J. N., & Wilson, L. D. (2019). Adsorption and mechanism study for methylene blue dye removal with carbonized watermelon (*Citrullus lanatus*) rind prepared via one-step liquid phase H_2SO_4 activation. *Surfaces and Interfaces*, 16(April), 76–84. <https://doi.org/10.1016/j.surfin.2019.04.012>
- Jiaqi, Z., Yimin, D., Danyang, L., Shengyun, W., Liling, Z., & Yi, Z. (2019). Synthesis of carboxyl-functionalized magnetic nanoparticle for the removal of methylene blue. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*,

- 572(April), 58–66. <https://doi.org/10.1016/j.colsurfa.2019.03.095>
- Jin, Y., Zhang, Y., Lü, Q., & Cheng, X. (2014). Biosorption of methylene blue by chemically modified cellulose waste. *Journal Wuhan University of Technology, Materials Science Edition*, 29(4), 817–823. <https://doi.org/10.1007/s11595-014-1003-7>
- Jorfi, S., Pourfadakari, S., & Kakavandi, B. (2018). A new approach in sonophotocatalytic degradation of recalcitrant textile wastewater using MgO@Zeolite nanostructure under UVA irradiation. *Chemical Engineering Journal*, 343(February), 95–107. <https://doi.org/10.1016/j.cej.2018.02.067>
- Khorasani, A. C., & Shojaosadati, S. A. (2019). Magnetic pectin-*Chlorella vulgaris* biosorbent for the adsorption of dyes. *Journal of Environmental Chemical Engineering*, 7(3), 103062. <https://doi.org/10.1016/j.jece.2019.103062>
- Kumar, A., Singh, R., Kumar Upadhyay Sanjay Kumar, S., & Charaya, M. U. (2021). Biosorption: the Removal of Toxic Dyes From Industrial Effluent Using Phytobiomass- a Review. *Plant Archives*, 21(Suppliment-1), 1320–1325. <https://doi.org/10.51470/plantarchives.2021.v21.s1.207>
- Kurniawati, D., Bahrizal, Sari, T. K., Adella, F., & Sy, S. (2021). Effect of Contact Time Adsorption of Rhodamine B, Methyl Orange and Methylene Blue Colours on Langsat Shell with Batch Methods. *Journal of Physics: Conference Series*, 1788(1). <https://doi.org/10.1088/1742-6596/1788/1/012008>
- Labaran, A. N., Zango, Z. U., Armaya'u, U., & Garba, Z. N. (2019). Rice Husk as Biosorbent for the Adsorption of Methylene Blue. *Science World Journal*, 14(2), 66–70.
- Langmuir, I. (1918). THE ADSORPTION OF GASES ON PLANE SURFACES OF GLASS, MICA AND PLATINUM. *Journal of the American Chemical Society*, 40(9), 1361–1403. <https://doi.org/10.1021/ja02242a004>
- Li, H., Dong, X., da Silva, E. B., de Oliveira, L. M., Chen, Y., & Ma, L. Q. (2017). Mechanisms of metal sorption by biochars: Biochar characteristics and modifications. *Chemosphere*, 178, 466–478. <https://doi.org/10.1016/j.chemosphere.2017.03.072>
- Li, L., Fan, S., & Li, Y. (2018). Removal behavior of methylene blue from aqueous solution by tea waste: Kinetics, isotherms and mechanism. *International Journal of Environmental Research and Public Health*, 15(7). <https://doi.org/10.3390/ijerph15071321>
- Lima, H. de P., & Asencios, Y. J. O. (2021). *Eichhornia crassipes* (Mart.) Solms (natural or carbonized) as biosorbent to remove pollutants in water. *SN Applied Sciences*, 3(8). <https://doi.org/10.1007/s42452-021-04736-9>
- Liu, Q., Liu, Y., Zhang, Z., Wang, X., & Shen, J. (2020). Adsorption of cationic dyes from aqueous solution using hydrophilic silica aerogel via ambient pressure

- drying. *Chinese Journal of Chemical Engineering*, 28(9), 2467–2473. <https://doi.org/10.1016/j.cjche.2020.04.023>
- Mahmoud, M. S., Mostafa, M. K., Mohamed, S. A., Sobhy, N. A., & Nasr, M. (2017). Bioremediation of red azo dye from aqueous solutions by *Aspergillus niger* strain isolated from textile wastewater. *Journal of Environmental Chemical Engineering*, 5(1), 547–554. <https://doi.org/10.1016/j.jece.2016.12.030>
- Malakootian, M., & Heidari, M. R. (2018). Reactive orange 16 dye adsorption from aqueous solutions by psyllium seed powder as a low-cost biosorbent: kinetic and equilibrium studies. *Applied Water Science*, 8(7), 1–9. <https://doi.org/10.1007/s13201-018-0851-2>
- Meili, L., Lins, P. V. S., Costa, M. T., Almeida, R. L., Abud, A. K. S., Soletti, J. I., Dotto, G. L., Tanabe, E. H., Sellaoui, L., Carvalho, S. H. V., & Erto, A. (2019). Adsorption of methylene blue on agroindustrial wastes: Experimental investigation and phenomenological modelling. *Progress in Biophysics and Molecular Biology*, 141, 60–71. <https://doi.org/10.1016/j.pbiomolbio.2018.07.011>
- Mikati, F., & El Jamal, M. (2013). Biosorption of methylene blue on chemically modified *Chaetophora Elegans* algae by carboxylic acids. *Journal of Scientific and Industrial Research*, 72(7), 428–434.
- Misran, E., Bani, O., Situmeang, E. M., & Purba, A. S. (2022). Banana stem based activated carbon as a low-cost adsorbent for methylene blue removal: Isotherm, kinetics, and reusability. *Alexandria Engineering Journal*, 61(3), 1946–1955. <https://doi.org/10.1016/j.aej.2021.07.022>
- Mohan, C. (2007). *A guide for the preparation and use of buffers in biological systems*. EDM Biosciences, Inc.
- Mohebbali, S., Bastani, D., & Shayesteh, H. (2018). Methylene blue removal using modified celery (*Apium graveolens*) as a low-cost biosorbent in batch mode: Kinetic, equilibrium, and thermodynamic studies. *Journal of Molecular Structure*, 1173, 541–551. <https://doi.org/10.1016/j.molstruc.2018.07.016>
- Mpatani, F. M., Aryee, A. A., Kani, A. N., Wen, K., Dovi, E., Qu, L., Li, Z., & Han, R. (2020). Removal of methylene blue from aqueous medium by citrate modified bagasse: Kinetic, Equilibrium and Thermodynamic study. *Bioresource Technology Reports*, 11(May), 100463. <https://doi.org/10.1016/j.biteb.2020.100463>
- Mukti, N. I. F., & Hidayat, A. (2019). Characterization of coffee grounds as biosorbent for removal dyes from aqueous solutions. *IOP Conference Series: Materials Science and Engineering*, 625(1), 6–11. <https://doi.org/10.1088/1757-899X/625/1/012031>
- Narvekar, A. A., Fernandes, J. B., & Tilve, S. G. (2018). Adsorption behavior of

- methylene blue on glycerol based carbon materials. *Journal of Environmental Chemical Engineering*, 6(2), 1714–1725. <https://doi.org/10.1016/j.jece.2018.02.016>
- Natarajan, R., & Manivasagan, R. (2020). Effect of operating parameters on dye wastewater treatment using prosopis cineraria and kinetic modeling. *Environmental Engineering Research*, 25(5), 788–793. <https://doi.org/10.4491/eer.2019.308>
- Nayak, A. K., & Pal, A. (2017). Green and efficient biosorptive removal of methylene blue by *Abelmoschus esculentus* seed: Process optimization and multi-variate modeling. *Journal of Environmental Management*, 200, 145–159. <https://doi.org/10.1016/j.jenvman.2017.05.045>
- Ngulube, T., Gumbo, J. R., Masindi, V., & Maity, A. (2017). An update on synthetic dyes adsorption onto clay based minerals: A state-of-art review. *Journal of Environmental Management*, 191, 35–57. <https://doi.org/10.1016/j.jenvman.2016.12.031>
- Omodele A.A, E., Adeniyi, A. G., Ighalo, J. O., Onifade, D. V., & Ayandele, F. O. (2020). Valorisation of Cocoa (*Theobroma cacao*) pod husk as precursors for the production of adsorbents for water treatment. *Environmental Technology Reviews*, 9(1), 20–36. <https://doi.org/10.1080/21622515.2020.1730983>
- Osasona, I. (2013). Kinetic, Equilibrium and Thermodynamic Studies of the Adsorption of Methylene Blue from Synthetic Wastewater Using Cow Hooves. *British Journal of Applied Science & Technology*, 3(4), 1006–1021. <https://doi.org/10.9734/bjast/2014/3695>
- Panchuk, V., Yaroshenko, I., Legin, A., Semenov, V., & Kirsanov, D. (2018). Application of chemometric methods to XRF-data – A tutorial review. *Analytica Chimica Acta*, 1040, 19–32. <https://doi.org/10.1016/j.aca.2018.05.023>
- Pathania, D., Sharma, S., & Singh, P. (2017). Removal of methylene blue by adsorption onto activated carbon developed from *Ficus carica* bast. *Arabian Journal of Chemistry*, 10, S1445–S1451. <https://doi.org/10.1016/j.arabjc.2013.04.021>
- Patil, S. A., Kumbhar, P. D., Satvekar, B. S., Harale, N. S., Bhise, S. C., Patil, S. K., Sartape, A. S., Kolekar, S. S., & Anuse, M. A. (2022). Adsorption of toxic crystal violet dye from aqueous solution by using waste sugarcane leaf-based activated carbon: isotherm, kinetic and thermodynamic study. *Journal of the Iranian Chemical Society*, 19(7), 2891–2906. <https://doi.org/10.1007/s13738-022-02500-3>
- Putri, R. A., Safni, S., Jamarun, N., Septiani, U., Kim, M. K., & Zoh, K. D. (2020). Degradation and mineralization of violet-3B dye using C-N-codoped TiO₂ photocatalyst. *Environmental Engineering Research*, 25(4), 529–535. <https://doi.org/10.4491/eer.2019.196>

- Qian, W. C., Luo, X. P., Wang, X., Guo, M., & Li, B. (2018). Removal of methylene blue from aqueous solution by modified bamboo hydrochar. *Ecotoxicology and Environmental Safety*, 157(April), 300–306. <https://doi.org/10.1016/j.ecoenv.2018.03.088>
- Qiu, H., Lv, L., Pan, B. C., Zhang, Q. J., Zhang, W. M., & Zhang, Q. X. (2009). Critical review in adsorption kinetic models. *Journal of Zhejiang University: Science A*, 10(5), 716–724. <https://doi.org/10.1631/jzus.A0820524>
- Rahman-Setayesh, M. R., Rahbar-Kelishami, A., & Shayesteh, H. (2019). Equilibrium, kinetic, thermodynamic applications for methylene blue removal using *Buxus sempervirens* leaf powder as a powerful low-cost adsorbent. *Journal of Particle Science & Technology*, 5(4), 161–170. <https://doi.org/10.22104/JPST.2020.3909.1160>
- Ramadhani, P., Chaidir, Z., Zilfa, Tomi, Z. B., Rahmiarti, D., & Zein, R. (2020). Shrimp shell (*Metapenaeus monoceros*) waste as a low-cost adsorbent for metanil yellow dye removal in aqueous solution. *Desalination and Water Treatment*, 197, 413–423. <https://doi.org/10.5004/dwt.2020.25963>
- Ruthiraan, M., Abdullah, E. C., Mubarak, N. M., & Noraini, M. N. (2017). A promising route of magnetic based materials for removal of cadmium and methylene blue from waste water. *Journal of Environmental Chemical Engineering*, 5(2), 1447–1455. <https://doi.org/10.1016/j.jece.2017.02.038>
- Sahinkaya, E., Sahin, A., Yurtsever, A., & Kitis, M. (2018). Concentrate minimization and water recovery enhancement using pellet precipitator in a reverse osmosis process treating textile wastewater. *Journal of Environmental Management*, 222(May), 420–427. <https://doi.org/10.1016/j.jenvman.2018.05.057>
- Sahu, S., Pahi, S., Tripathy, S., Singh, S. K., Behera, A., Sahu, U. K., & Patel, R. K. (2020). Adsorption of methylene blue on chemically modified lychee seed biochar: Dynamic, equilibrium, and thermodynamic study. *Journal of Molecular Liquids*, 315, 113743. <https://doi.org/10.1016/j.molliq.2020.113743>
- Salihu, R., Abd Razak, S. I., Ahmad Zawawi, N., Rafiq Abdul Kadir, M., Izzah Ismail, N., Jusoh, N., Riduan Mohamad, M., & Hasraf Mat Nayan, N. (2021). Citric acid: A green cross-linker of biomaterials for biomedical applications. *European Polymer Journal*, 146(January), 110271. <https://doi.org/10.1016/j.eurpolymj.2021.110271>
- Samchetshabam, G., Choudhury, T. G., & Gita, S. (2017). *Impact of Textile Dyes Waste on Aquatic Environments and its Treatment Hilsa Project View project Northeast Development Activities View project*. 22.
- Sen, L., Li, J., Xu, S., Wang, M., Zhang, Y., & Xue, X. (2019). A modified method for enhancing adsorption capability of banana pseudostem biochar towards methylene blue at low temperature. *Bioresource Technology*, 282(February), 48–

55. <https://doi.org/10.1016/j.biortech.2019.02.092>
- Setiabudi, H. D., Jusoh, R., Suhaimi, S. F. R. M., & Masrur, S. F. (2016). Adsorption of methylene blue onto oil palm (*Elaeis guineensis*) leaves: Process optimization, isotherm, kinetics and thermodynamic studies. *Journal of the Taiwan Institute of Chemical Engineers*, *63*, 363–370. <https://doi.org/10.1016/j.jtice.2016.03.035>
- Shahnaz, T., Patra, C., Sharma, V., & Selvaraju, N. (2020). A comparative study of raw, acid-modified and EDTA-complexed *Acacia auriculiformis* biomass for the removal of hexavalent chromium. *Chemistry and Ecology*, *36*(4), 360–381. <https://doi.org/10.1080/02757540.2020.1723560>
- Shakoor, S., & Nasar, A. (2017). Adsorptive treatment of hazardous methylene blue dye from artificially contaminated water using *cucumis sativus* peel waste as a low-cost adsorbent. *Groundwater for Sustainable Development*, *5*(April), 152–159. <https://doi.org/10.1016/j.gsd.2017.06.005>
- Silva, M. C., Spessato, L., Silva, T. L., Lopes, G. K. P., Zanella, H. G., Yokoyama, J. T. C., Cazetta, A. L., & Almeida, V. C. (2021). H₃PO₄-activated carbon fibers of high surface area from banana tree pseudo-stem fibers: Adsorption studies of methylene blue dye in batch and fixed bed systems. *Journal of Molecular Liquids*, *324*. <https://doi.org/10.1016/j.molliq.2020.114771>
- Siswoyo, E., Adrian, A. R., & Tanaka, S. (2018). Bioadsorbent based on water hyacinth modified with citric acid for adsorption of methylene blue in water. *MATEC Web of Conferences*, *154*, 2–5. <https://doi.org/10.1051/mateconf/201815401012>
- Sposito, G. (1977). On the Use of the Langmuir Equation in the Interpretation of “Adsorption” Phenomena: II. The “Two-Surface” Langmuir Equation. *Soil Science Society of America Journal*, *41*(4), 697–702. <https://doi.org/10.2136/sssaj1982.03615995004600060006x>
- Sposito, G. (1980). DERIVATION OF THE FREUNDLICH EQUATION FOR ION EXCHANGE REACTIONS IN SOILS. *Soil Science Society of America Journal*, *44*(3), 652–654.
- Sun, C., Qiu, J., Zhang, Z., Marhaba, T. F., Zhang, Y., & Zhang, W. (2016). Characterization of Citric Acid-Modified Clam Shells and Application for Aqueous Lead (II) Removal. *Water, Air, and Soil Pollution*, *227*(9). <https://doi.org/10.1007/s11270-016-2975-z>
- Suyog N., J., & Gogate, P. R. (2018). Efficient removal of Acid Green 25 dye from wastewater using activated *Prunus Dulcis* as biosorbent: Batch and column studies. *Journal of Environmental Management*, *210*, 226–238. <https://doi.org/10.1016/j.jenvman.2018.01.008>
- Tehrim, A., Dai, M., Wu, X., Umair, M. M., Ali, I., Amjed, M. A., Rong, R., Javaid, S. F., & Peng, C. (2021). Citric acid modified waste cigarette filters for adsorptive removal of methylene blue dye from aqueous solution. *Journal of Applied*

- Polymer Science*, 138(27), 1–12. <https://doi.org/10.1002/app.50655>
- Thamaraiselvan, C., Lerman, S., Weinfeld-Cohen, K., & Dosoretz, C. G. (2018). Characterization of a support-free carbon nanotube-microporous membrane for water and wastewater filtration. *Separation and Purification Technology*, 202(December 2017), 1–8. <https://doi.org/10.1016/j.seppur.2018.03.038>
- Wang, P., Ma, Q., Hu, D., & Wang, L. (2016). Adsorption of methylene blue by a low-cost biosorbent: citric acid modified peanut shell. *Desalination and Water Treatment*, 57(22), 10261–10269. <https://doi.org/10.1080/19443994.2015.1033651>
- Xia, X., Zou, J., Zhao, X. R., Jiang, X. Y., Jiao, F. P., Yu, J. G., Liu, Q., & Teng, J. (2019). Facile assembly of three-dimensional cylindrical egg white embedded graphene oxide composite with good reusability for aqueous adsorption of rare earth elements. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 570(January), 127–140. <https://doi.org/10.1016/j.colsurfa.2019.03.022>
- Xu, Y., Liu, Y., Liu, S., Tan, X., Zeng, G., Zeng, W., Ding, Y., Cao, W., & Zheng, B. (2016). Enhanced adsorption of methylene blue by citric acid modification of biochar derived from water hyacinth (*Eichornia crassipes*). *Environmental Science and Pollution Research*, 23(23), 23606–23618. <https://doi.org/10.1007/s11356-016-7572-6>
- Zein, R., Purnomo, J. S., Ramadhani, P., Alif, M. F., & Safni, S. (2022). Lemongrass (*Cymbopogon nardus*) leaves biowaste as an effective and low-cost adsorbent for methylene blue dyes removal: isotherms, kinetics, and thermodynamics studies. *Separation Science and Technology (Philadelphia)*, 00(00), 1–17. <https://doi.org/10.1080/01496395.2022.2058549>
- Zein, R., Ramadhani, P., Aziz, H., & Suhaili, R. (2019). Pensi shell (*Corbicula moltkiana*) as a biosorbent for metanil yellow dyes removal: pH and equilibrium model evaluation. *Jurnal Litbang Industri*, 15–22.
- Zein, R., Satrio Purnomo, J., Ramadhani, P., Safni, Alif, M. F., & Putri, C. N. (2023). Enhancing sorption capacity of methylene blue dye using solid waste of lemongrass biosorbent by modification method. *Arabian Journal of Chemistry*, 16(2), 104480. <https://doi.org/10.1016/j.arabjc.2022.104480>
- Zein, R., Suciandica, M., & Fauzia, S. (2022). MODIFICATION LEAF DREGS OF LEMONGRASS WITH CITRIC. *Jurnal Katalisator*, 7(1), 63–81.
- Zein, R., Tomi, Z. B., Fauzia, S., & Zilfa, Z. (2020). Modification of rice husk silica with bovine serum albumin (BSA) for improvement in adsorption of metanil yellow dye. *Journal of the Iranian Chemical Society*, 17(10), 2599–2612. <https://doi.org/10.1007/s13738-020-01955-6>
- Zhao, Y., Chen, T., Song, X. F., Yang, J. Y., Wang, Y. Y., Li, Y. S., & Liu, Y. (2022). Green synthesis of loofah-based biosorbent via radiation grafting for effective

removal of methylene blue. *Arabian Journal of Chemistry*, 15(12), 104382.
<https://doi.org/10.1016/j.arabjc.2022.104382>

Zhou, Y., Zhang, R., Gu, X., & Lu, J. (2015). Adsorption of Divalent Heavy Metal Ions from Aqueous Solution by Citric Acid Modified Pine Sawdust. *Separation Science and Technology (Philadelphia)*, 50(2), 245–252.
<https://doi.org/10.1080/01496395.2014.956223>

Zulaekha, R., Nawafil, S. A., Harianti, S. F., & Muhammad Mujiburohman, N. H. (2018). Isolasi alfa selulosa batang pisang klutuk (*Musa balbisiana colla*) menggunakan pengadukan magnetik dengan ultrasonik. *Jurnal Teknologi Bahan Alam*, 2(2), 129–134.

