



## DAFTAR PUSTAKA

- Abasalizadeh, F., Moghaddam, S.V., Alizadeh, E., Akbari, E., Kashani, E., Fazljou, S.M.B., Torbati, M. and Akbarzadeh, A., 2020, Alginate-based Hydrogels as Drug Delivery Vehicles in Cancer Treatment and Their Applications in Wound Dressing And 3D Bioprinting, *J. Biol. Eng.*, 14, 1-22.
- Agüero, L., Zaldivar-Silva, D., Peña, L. and Dias, M.L., 2017, Alginate Microparticles as Oral Colon Drug Delivery Device: A Review, *Carbohydr. Polym.*, 168, 32-43.
- Ahmad, A.L., Chan, C.Y., Abd Shukor, S.R. and Mashitah, M.D., 2009, Adsorption Kinetics and Thermodynamics of B-Carotene on Silica-based Adsorbent, *Chem. Eng. J.*, 148(2-3), 378-384.
- Aljeboree, A.M., Alshirifi, A.N. and Alkaim, A.F., 2017, Kinetics and Equilibrium Study for the Adsorption of Textile Dyes on Coconut Shell Activated Carbon, *Arabian J. Chem.*, 10, S3381-S3393.
- Ayawei, N., Ebelegi, A.N. and Wankasi, D., 2017, Modelling and Interpretation of Adsorption Isotherms, *J. Chem.*, 2017.
- Bahrami, Z., Akbari, A. and Eftekhari-Sis, B., 2019, Double Network Hydrogel of Sodium Alginate/Polyacrylamide Cross-Linked with POSS: Swelling, Dye Removal and Mechanical Properties, *Int. J. Biol. Macromol.*, 129, 187-197.
- Bakatula, E.N., Richard, D., Neculita, C.M. and Zagury, G.J., 2018, Determination of Point of Zero Charge of Natural Organic Materials, *Environ. Sci. Pollut. Res.*, 25, 7823-7833.
- Bonetto, L.R., Ferrarini, F., De Marco, C., Crespo, J.S., Guégan, R., and Giovanelia, M., 2015, Removal of Methyl Violet 2B Dye from Aqueous Solution Using a Magnetic Composite as an Adsorbent, *J. Water Process Eng.*, 6, 11–20.
- Bonilla-Petriciolet, A., Mendoza-Castillo, D.I. and Reynel-Ávila, H.E., 2017, *Adsorption Processes for Water Treatment and Purification*, Springer International Publishing, Aguascalientes.
- Chen, Y.G., Liao, R.P., Yu, C. and Yu, X., 2020, Sorption of Pb (II) on Sodium Polyacrylate Modified Bentonite, *Adv. Powder Technol.*, 31(8), 3274-3286.
- Cheruiyot, G.K., Wanyonyi, W.C., Kiplimo, J.J., and Maina, E.N., 2019, Adsorption of Toxic Crystal Violet Dye Using Coffee Husks: Equilibrium, Kinetics and Thermodynamics Study, *Sci. Afr.*, 5, 1–11.



- Chu, K.H., 2021, Revisiting the Temkin Isotherm: Dimensional Inconsistency and Approximate Forms, *Ind. Eng. Chem. Res.*, 60(35), 13140-13147.
- Daoush, W.M., 2017, Co-Precipitation and Magnetic Properties of Magnetite Nanoparticles for Potential Biomedical Applications, *J. Nanomed. Res.*, 5(3), 00118.
- El Mouzdahir, Y., Elmchaouri, A., Mahboub, R., Gil, A. and Korili, S.A., 2010, Equilibrium Modeling for the Adsorption of Methylene Blue from Aqueous Solutions on Activated Clay Minerals, *Desalination*, 250(1), 335-338.
- El-Shamy, O.A., El-Azabawy, R.E. and El-Azabawy, O., 2019, Synthesis and Characterization of Magnetite-Alginate Nanoparticles for Enhancement of Nickel and Cobalt Ion Adsorption from Wastewater, *J. Nanomater.*, 2019.
- Faraji, M., Yamini, Y. and Rezaee, M., 2010, Magnetic Nanoparticles: Synthesis, Stabilization, Functionalization, Characterization, and Applications, *J. Iran. Chem. Soc.*, 7, 1-37.
- Fernando, I.P.S., Lee, W., Han, E.J. and Ahn, G., 2020, Alginic-based Nanomaterials: Fabrication Techniques, Properties, and Applications, *Chem. Eng. J.*, 391, 123823.
- Flores-Hernández, C.G., Cornejo-Villegas, M.D.L.A., Moreno-Martell, A. and Del Real, A., 2021, Synthesis of a Biodegradable Polymer of Poly (Sodium Alginate/Ethyl Acrylate), *Polym.*, 13(4), 504.
- Freundlich, H.M.F., 1906, Over the Adsorption in Solution, *J. Phys. Chem.*, 57(385471), 1100-1107.
- Fu, S., Thacker, A., Sperger, D.M., Boni, R.L., Buckner, I.S., Velankar, S., Munson, E.J. and Block, L.H., 2011, Relevance of Rheological Properties of Sodium Alginate in Solution to Calcium Alginate Gel Properties, *Aaps Pharmscitech*, 12, 453-460.
- Ganapathe, L.S., Mohamed, M.A., Mohamad Yunus, R. and Berhanuddin, D.D., 2020, Magnetite ( $\text{Fe}_3\text{O}_4$ ) Nanoparticles in Biomedical Application: from Synthesis to Surface Functionalisation, *Magnetochemistry*, 6(4), 68.
- Gong, X. L., Lu, H. Q., Li, K., and Li, W, 2022, Effective Adsorption of Crystal Violet Dye on Sugarcane Bagasse–Bentonite/Sodium Alginate Composite Aerogel: Characterisation, Experiments, and Advanced Modelling, *Sep. Purif. Technol.*, 286, 120478.
- Hecht, H. and Srebnik, S., 2016, Structural Characterization of Sodium Alginate and Calcium Alginate, *Biomacromolecules*, 17(6), 2160-2167.
- Ho, Y.S., Wase, D.A.J., and Forster, C.F., 1996, Removal of Lead Ions from Aqueous Solution Using Sphagnum Moss Peat as Absorbent, *Water SA*, 22, 219–224.



- Hu, Q. and Zhang, Z., 2019, Application of Dubinin–Radushkevich Isotherm Model at the Solid/Solution Interface: A Theoretical Analysis, *J. Mol. Liq.*, 277, 646-648.
- Jurayev, S.S., 2019, Analyse of the Permeability of Bentonite and Sand in Soil Structures, *Theor. Appl. Sci.*, (3), 437-440.
- Kandisa, R.V., Saibaba, K.N., Shaik, K.B. and Gopinath, R., 2016, Dye Removal by Adsorption: A Review, *J. Bioremediation Biodegradation*, 7(6).
- Katheresan, V., Kansedo, J. and Lau, S.Y., 2018, Efficiency of Various Recent Wastewater Dye Removal Methods: A Review, *J. Environ. Chem. Eng.*, 6(4), 4676-4697.
- Khaleghi, H., Jaafarzadeh, N., Esmaeili, H. and Ramavandi, B., 2023, Alginate@ $\text{Fe}_3\text{O}_4$ @ Bentonite nanocomposite for formaldehyde removal from synthetic and real effluent: optimization by central composite design, *Environ. Sci. Pollut. Res.*, 30(11), 29566-29580.
- Kong, Y., Wang, L., Ge, Y., Su, H. and Li, Z., 2019, Lignin Xanthate Resin–Bentonite Clay Composite as a Highly Effective and Low-Cost Adsorbent for the Removal of Doxycycline Hydrochloride Antibiotic and Mercury Ions in Water, *J. Hazard. Mater.*, 368, 33-41
- Kumar, B., Smita, K., Cumbal, L., Debut, A., Galeas, S. and Guerrero, V.H., 2016, Phytosynthesis and Photocatalytic Activity of Magnetite ( $\text{Fe}_3\text{O}_4$ ) Nanoparticles Using the Andean Blackberry Leaf, *Mater. Chem. Phys.*, 179, 310-315.
- Kumbhar, P., Narale, D., Bhosale, R., Jambhale, C., Kim, J.H. and Kolekar, S., 2022, Synthesis of Tea Waste/ $\text{Fe}_3\text{O}_4$  Magnetic Composite (TWMC) for Efficient Adsorption of Crystal Violet Dye: Isotherm, Kinetic and Thermodynamic Studies, *J. Environ. Chem. Eng.*, 10(3), 107893.
- Kuroki, V., Bosco, G.E., Fadini, P.S., Mozeto, A.A., Cestari, A.R. and Carvalho, W.A., 2014, Use of a La (III)-Modified Bentonite for Effective Phosphate Removal from Aqueous Media, *J. Hazard. Mater.*, 274, 124-131.
- Lagergren, S.K., 1898, About the Theory of So-Called Adsorption of Soluble Substances, *Sven. Vetensk. Handingar*, 24, 1-39.
- Lee, S.J., Jeong, J.R., Shin, S.C., Kim, J.C. and Kim, J.D., 2004, Synthesis and Characterization of Superparamagnetic Maghemite Nanoparticles Prepared by Coprecipitation Technique, *J. Magn. Magn. Mater.*, 282, 147-150.
- Lin, Y., Sun, Y., Dai, Y., Sun, W., Zhu, X., Liu, H., Han, R., Gao, D., Luo, C. and Wang, X., 2020, A “Signal-On” Chemiluminescence Biosensor for Thrombin Detection Based on DNA Functionalized Magnetic Sodium Alginate Hydrogel and Metalloporphyrinic Metal-Organic Framework Nanosheets, *Talanta*, 207, 120300.



- Martău, G.A., Mihai, M. and Vodnar, D.C., 2019, The Use of Chitosan, Alginate, and Pectin in the Biomedical and Food Sector—Biocompatibility, Bioadhesiveness, and Biodegradability, *Polym.*, 11(11), 1837.
- Mittal, A., Mittal, J., Malviya, A., Kaur, D., and Gupta, V. K., 2009, Adsorption of Hazardous Dye Crystal Violet from Wastewater by Waste Materials, *J. Colloid Interface Sci.*, 343(2), 463-473.
- Mittal, J., Ahmad, R., Ejaz, M.O., Mariyam, A., and Mittal, A., 2022, A Novel, Eco-friendly Bio-nanocomposite (Alg-Cst/Kal) for the Adsorptive Removal of Crystal Violet Dye from its Aqueous Solutions, *Int. J. Phytoremediation*, 24, 796–807.
- Nafiah, R., 2016, Kinetika Adsorpsi Pb (II) dengan Adsorben Arang Aktif dari Sabut Siwalan, *J. Farm. Sains Prakt.*, 1(2), 28-35.
- Nofitasari, A.F. and Cahyaningrum, S.E., Uji Disolusi Pirazinamid Terenkapsulasi pada Alginat-Kitosan-Tween 80, 2015, *J. Chem.*, 4(3), 12-19
- Oladipo, A. A., and Gazi, M., 2014, Enhanced Removal of Crystal Violet by Low Cost Alginate/Acid Activated Bentonite Composite Beads: Optimization and Modelling Using Non-Linear Regression Technique, *J. Water Process Eng.*, 2, 43–52.
- Omer, M., Khan, B., Khan, I., Alamzeb, M., Zada, F.M., Ullah, I., Shah, R., Alqarni, M. and Simal-Gandara, J., 2022, Equilibrium, Kinetic and Thermodynamic Studies for the Adsorption of Metanil Yellow Using Carbonized Pistachio Shell-Magnetic Nanoparticles, *Water*, 14(24), 4139.
- Omer, O.S., Hussein, M.A., Hussein, B.H. and Mgaidi, A., 2018, Adsorption Thermodynamics of Cationic Dyes (Methylene Blue and Crystal Violet) to A Natural Clay Mineral from Aqueous Solution Between 293.15 and 323.15 K. *Arabian J. Chem.*, 11(5), 615-623.
- Özcan, A.S., Gök, Ö. and Özcan, A., 2009, Adsorption of Lead (II) Ions onto 8-Hydroxy Quinoline-Immobilized Bentonite, *J. Hazard. Mater.*, 161(1), 499-509.
- Pawar, R.R., Ingole, P.G. and Lee, S.M., 2020, Use of Activated Bentonite-Alginate Composite Beads for Efficient Removal of Toxic Cu<sup>2+</sup> and Pb<sup>2+</sup> Ions from Aquatic Environment, *Int. J. Biol. Macromol.*, 164, 3145-3154.
- Rápó, E. and Tonk, S., 2021, Factors Affecting Synthetic Dye Adsorption; Desorption Studies: A Review of Results from the Last Five Years (2017–2021), *Mol.*, 26(17), 5419.
- Sadiana, I.M., Fatah, A.H. and Karelius, K., 2017, Synthesis of Natural Clay Magnetite Composite as Adsorbent of Methylene Blue, *J. Berk. Ilm. Sains Terap. Kim.*, 11(2), 90-102.



- Saeed, A., Akhter, M.W. and Iqbal, M., 2005, Removal and Recovery of Heavy Metals from Aqueous Solution Using Papaya Wood as A New Biosorbent, *Sep. Purif. Technol.*, 45(1), 25-31.
- Sarma, G.K., Sen Gupta, S., and Bhattacharyya, K.G., 2016, Adsorption of Crystal Violet on Raw and Acid-Treated Montmorillonite, K10, in Aqueous Suspension, *J. Environ. Manag.*, 171, 1–10.
- Shaikh, S.M., Nasser, M.S., Hussein, I.A. and Benamor, A., 2017, Investigation of the Effect of Polyelectrolyte Structure and Type on the Electrokinetics and Flocculation Behavior of Bentonite Dispersions, *Chem. Eng. J.*, 311, 265-276.
- Silva, V.A.J., Andrade, P.L., Silva, M.P.C., Valladares, L.D.L.S. and Aguiar, J.A., 2013, Synthesis and Characterization of Fe<sub>3</sub>O<sub>4</sub> Nanoparticles Coated with Fucan Polysaccharides, *J. Magn. Magn. Mater.*, 343, 138-143.
- Somsesta, N., Sricharoenchaikul, V., and Aht-Ong, D., 2020, Adsorption Removal of Methylene Blue onto Activated Carbon/Cellulose Biocomposite Films: Equilibrium and Kinetic Studies, *Mater. Chem. Phys.*, 240, 122221.
- Spadari, C.D.C., Lopes, L.B. and Ishida, K., 2017, Potential Use of Alginate-Based Carriers as Antifungal Delivery System, *Front. Microbiol.*, 8, 97.
- Sultana, S., Islam, K., Hasan, M.A., Khan, H.J., Khan, M.A.R., Deb, A., Al Raihan, M. and Rahman, M.W., 2022, Adsorption of Crystal Violet Dye by Coconut Husk Powder: Isotherm, Kinetics and Thermodynamics Perspectives, Environment Nanotechnology, *Monit. Manag.*, 17, 100651.
- Talbot, D., Abramson, S., Griffete, N. and Bee, A., 2018, Ph-Sensitive Magnetic Alginate/γ-Fe<sub>2</sub>O<sub>3</sub> Nanoparticles for Adsorption/Desorption of a Cationic Dye from Water, *J. Water Process Eng.*, 25, 301-308.
- Tang, J., Su, M., Wu, Q., Wei, L., Wang, N., Xiao, E., Zhang, H., Wei, Y., Liu, Y., Ekberg, C. and Steenari, B.M., 2019, Highly Efficient Recovery and Clean-Up of Four Heavy Metals from MSWI Fly Ash by Integrating Leaching, Selective Extraction and Adsorption, *J. Clean. Prod.*, 234, 139-149.
- Wang, B., Wan, Y., Zheng, Y., Lee, X., Liu, T., Yu, Z., Huang, J., Ok, Y.S., Chen, J. and Gao, B., 2019, Alginate-Based Composites for Environmental Applications: A Critical Review, *Crit. Rev. Environ. Sci. Technol.*, 49(4), 318-356.
- Wang, J. and Guo, X., 2020, Adsorption Kinetic Models: Physical Meanings, Applications, and Solving Methods, *J. Hazard. Mater.*, 390, 122156.
- Wang, Q., Chang, X., Li, D., Hu, Z., Li, R. and He, Q., 2011, Adsorption of Chromium (III), Mercury (II) and Lead (II) Ions onto 4-Aminoantipyrine Immobilized Bentonite, *J. Hazard. Mater.*, 186(2-3), 1076-1081.
- Yousef, N.S., Farouq, R. and Hazzaa, R., 2016, Adsorption Kinetics and Isotherms for the Removal of Nickel Ions from Aqueous Solutions by An Ion-Exchange



Resin: Application of Two and Three Parameter Isotherm Models,  
*Desalination Water Treat.*, 57(46), 21925-21938.

Yulvianti, M., Ernayati, W. and Tarsono, T., 2015, Pemanfaatan Ampas Kelapa sebagai Bahan Baku Tepung Kelapa Tinggi Serat dengan Metode Freeze Drying, *J. Integr. Proses*, 5(2).

Zamouche, M., Habib, A., Saaidia, K., and Bencheikh Lehocine, M., 2020, Batch Mode for Adsorption of Crystal Violet by Cedar Cone Forest Waste, *SN Appl. Sci.*, 2(2).