

DAFTAR PUSTAKA

- Abd El-Lateef, H.M., Khalaf Ali, M.M., and Saleh, M.M., 2018, Adsorption and removal of cationic and anionic surfactants using zero-valent iron nanoparticles, *J. Mol. Liq.*, 268, 497–505.
- Apriyani, N., 2017, Penurunan Kadar Surfaktan dan Sulfat dalam Limbah Laundry, *Media Ilm. Tek. Lingkung.*, 2, 37–44.
- Aslam, R., Mobin, M., Aslam, J., Aslam, A., Zehra, S., and Masroor, S., 2021, Application of surfactants as anticorrosive materials: A comprehensive review, *Adv. Colloid Interface Sci.*, 295, 102481.
- Azmiyawati, C., 2006, Kajian Kinetika Adsorpsi Mg(II) pada Silika Gel Termodifikasi Gugus Sulfonat, *J. Kim. Sains dan Apl.*, 9, 35–39.
- Boujemaoui, A., Cobo Sanchez, C., Engström, J., Bruce, C., Fogelström, L., Carlmark, A., and Malmström, E., 2017, Polycaprolactone Nanocomposites Reinforced with Cellulose Nanocrystals Surface-Modified via Covalent Grafting or Physisorption: A Comparative Study, *ACS Appl. Mater. Interfaces*, 9, 35305–35318.
- Bouklah, M., Hammouti, B., Lagrenée, M., and Bentiss, F., 2006, Thermodynamic properties of 2,5-bis(4-methoxyphenyl)-1,3,4-oxadiazole as a corrosion inhibitor for mild steel in normal sulfuric acid medium, *Corros. Sci.*, 48, 2831–2842.
- Delaila Tumin, N., Chuah, A.L., Zawani, Z., and Rashid, S.A., 2008, Adsorption of copper from aqueous solution by elais guineensis kernel activated carbon, *J. Eng. Sci. Technol.*, 3, 180–189.
- Doan, T.H.Y., Le, T.T., Nguyen, T.M.T., Chu, T.H., Pham, T.N.M., Nguyen, T.A.H., and Pham, T.D., 2021, Simultaneous adsorption of anionic alkyl sulfate surfactants onto alpha alumina particles: Experimental consideration and modeling, *Environ. Technol. Innov.*, 24, 101920.
- Garg, V.K., Gupta, R., Yadav, A.B., and Kumar, R., 2003, Dye removal from aqueous solution by adsorption on treated sawdust, *Bioresour. Technol.*, 89, 121–124.
- Giagnorio, M., Amelio, A., Grüttner, H., and Tiraferri, A., 2017, Environmental impacts of detergents and benefits of their recovery in the laundering industry, *J. Clean. Prod.*, 154, 593–601.
- Hamadi, N.K., Chen, X.D., Farid, M.M., and Lu, M.G.Q., 2001, Adsorption kinetics for the removal of chromium(VI) from aqueous solution by adsorbents derived from used tyres and sawdust, *Chem. Eng. J.*, 84, 95–105.
- Hampel, M., Mauffret, A., Pazdro, K., and Blasco, J., 2011, Anionic surfactant linear alkylbenzene sulfonates (LAS) in sediments from the Gulf of Gdańsk (southern Baltic Sea, Poland) and its environmental implications, *Env. monit assess*, 184, 6013–6023.

- Haque, M.M.U., Errico, M.E., Gentile, G., Avella, M., and Pracella, M., 2012, Functionalization and Compatibilization of Poly(ϵ -caprolactone) Composites with Cellulose Microfibres: Morphology, Thermal and Mechanical Properties, *Macromol. Mater. Eng.*, 297, 985–993.
- He, Y., Dietrich, A.M., Jin, Q., Lin, T., Yu, D., and Huang, H., 2022, Cellulose adsorbent produced from the processing waste of brewer's spent grain for efficient removal of Mn and Pb from contaminated water, *Food Bioprod. Process.*, 135, 227–237.
- Heravi, M.M., Ghavidel, M., and Mohammadkhani, L., 2018, Beyond a solvent: triple roles of dimethylformamide in organic chemistry, *R. Soc. Chem.*, 8, 27832–27862.
- Hokkanen, S., Bhatnagar, A., and Sillanpää, M., 2016, A review on modification methods to cellulose-based adsorbents to improve adsorption capacity, *Water Res.*, 91, 156–173.
- Holle, R.B., Wuntu, A.D., and Sangi, M.S., 2013, Kinetika Adsorpsi Gas Benzena Pada Karbon Aktif Tempurung Kelapa, *Jurnal Mipa Unsrat Online*, 2, (2), 100-104.
- Hu, Z., Berry, R.M., Pelton, R.H., Cranston, E.D., and Pelton, R., 2017, One-Pot Water-Based Hydrophobic Surface Modification of Cellulose Nanocrystals Using Plant Polyphenols, *ACS Sustain. Chem. Eng.*, 5, 5018–5026.
- Ioelovich, M., 2021, Adjustment of hydrophobic properties of cellulose materials, *Polymers (Basel)*, 13, 1241.
- Jardak, K., Drogui, P., and Daghrir, R., 2016, Surfactants in aquatic and terrestrial environment: occurrence, behavior, and treatment processes, *Environ. Sci. Pollut. Res.*, 23, 3195–3216.
- Jeppu, G.P. and Clement, T.P., 2012, A modified Langmuir-Freundlich isotherm model for simulating pH-dependent adsorption effects, *J. Contam. Hydrol.*, 129–130, 46–53.
- Jurado, E., Fernández-Serrano, M., Núñez-Olea, J., Luzón, G., and Lechuga, M., 2006, Simplified spectrophotometric method using methylene blue for determining anionic surfactants: Applications to the study of primary biodegradation in aerobic screening tests, *Chemosphere*, 65, 278–285.
- Koga, M., Yamamichi, Y., Nomoto, Y., Irie, M., Tanimura, T., and Yoshinaga, T., 1999, Rapid determination of anionic surfactants by improved spectrophotometric method using methylene blue, *Anal. Sci.*, 15, 563–568.
- Kontturi, E., Suchy, M., Penttilä, P., Jean, B., Pirkkalainen, K., Torkkeli, M., and Serimaa, R., 2011, Amorphous characteristics of an ultrathin cellulose film, *Biomacromolecules*, 12, 770–777.
- Kumari, S. and Chauhan, G.S., 2014, New cellulose-lysine Schiff-base-based sensor-adsorbent for mercury ions, *ACS Appl. Mater. Interfaces*, 6, 5908–5917.

- Li, Q., Guo, S., Cheng, Y., Chen, X., and Tang, Z., 2022, Adsorption performance and mechanism of methyl orange by layered zinc hydroxide nitrate improved through flame spray pyrolysis method, *Mater. Des.*, 224, 111296.
- Liu, S., Zhang, Q., Gou, S., Zhang, L., and Wang, Z., 2021, Esterification of cellulose using carboxylic acid-based deep eutectic solvents to produce high-yield cellulose nanofibers, *Carbohydr. Polym.*, 251, 117018.
- Liu, Z., Zhao, G., Brewer, M., Lv, Q., and Sudhölter, E.J.R., 2021, Comprehensive review on surfactant adsorption on mineral surfaces in chemical enhanced oil recovery, *Adv. Colloid Interface Sci.*, 294, 102467.
- Livingstone, R.A., Nagata, Y., Bonn, M., and Backus, E.H.G., 2015, Two Types of Water at the Water-Surfactant Interface Revealed by Time-Resolved Vibrational Spectroscopy, *J. Am. Chem. Soc.*, 137, 14912–14919.
- Long, S., Zhong, L., Lin, X., Chang, X., Wu, F., Wu, R., and Xie, F., 2021, Preparation of formyl cellulose and its enhancement effect on the mechanical and barrier properties of polylactic acid films, *Int. J. Biol. Macromol.*, 172, 82–92.
- Malkoç, E. and Nuhoglu, Y., 2003, The removal of chromium(VI) from synthetic wastewater by *Ulothrix zonata*, *Fresenius Environ. Bull.*, 12, 376–381.
- Marczewski, A.W., 2010, Analysis of kinetic langmuir model. Part I: Integrated kinetic langmuir equation (IKL): A new complete analytical solution of the langmuir rate equation, *Langmuir*, 26, 15229–15238.
- Medronho, B., Romano, A., Miguel, M.G., Stigsson, L., and Lindman, B., 2012, Rationalizing cellulose (in)solubility: Reviewing basic physicochemical aspects and role of hydrophobic interactions, *Cellulose*, 19, 581–587.
- Motaghian, M., van der Linden, E., and Habibi, M., 2022, Surfactant-surfactant interactions govern unusual Marangoni spreading on a soap film, *Colloids Surfaces A Physicochem. Eng. Asp.*, 653, 129747.
- Mulyadi, I., 2019, Isolasi dan karakterisasi selulosa, *J. Saintika Unpam J. Sains dan Mat. Unpam*, 1, 177–182.
- Nafi'ah, R., 2016, Kinetika Adsorpsi Pb (II) dengan Adsorben Arang Aktif Dari Sabut Siwalan, *J. Farm. Sains dan Prakt.*, 1, 28–35.
- Nunes, R.F. and Teixeira, A.C.S.C., 2022, An overview on surfactants as pollutants of concern: Occurrence, impacts and persulfate-based remediation technologies, *Chemosphere*, 300, 134507.
- Parra, J.G., Iza, P., Dominguez, H., Schott, E., and Zarate, X., 2020, Effect of Triton X-100 surfactant on the interfacial activity of ionic surfactants SDS, CTAB and SDBS at the air/water interface: A study using molecular dynamic simulations, *Colloids Surfaces A Physicochem. Eng. Asp.*, 603, 125284.
- Rahaman, M.H., Islam, M.A., Islam, M.M., Rahman, M.A., and Alam, S.M.N.,

- 2021, Biodegradable composite adsorbent of modified cellulose and chitosan to remove heavy metal ions from aqueous solution, *Curr. Res. Green Sustain. Chem.*, 4, 10019.
- Raissa, D.G. and Tangahu, B.V., 2017, Fitoremediasi Air yang Tercemar Limbah Laundry dengan Menggunakan Kayu apu (*Pistia stratiotes*), *J. Tek. ITS*, 6, 233–237.
- Ratri, M.C., Suratman, A., and Roto, R., 2017, Analitical method validation of anionic surfactant sodium dodecyl benzene sulfonate (SDBS) in catfish by uv-vis spectrophotometry using acridine orange, *Alchemy J. Penelit. Kim.*, 13, 145–165.
- Rey, C., Combes, C., Drouet, C., Grossin, D., Bertrand, G., and Soulié, J., 2017, 1.11 Bioactive Calcium Phosphate Compounds: Physical Chemistry, *Compr. Biomater. II*, 244–290.
- Rodrigues, A.E. and Silva, C.M., 2016, What's wrong with Lagergreen pseudo first order model for adsorption kinetics?, *Chem. Eng. J.*, 306, 1138–1142.
- Rosety, M., Ordonez, F., Rosety-Rodriguez, M., Rosety, J., Rosety, I., Carrasco, C., and Ribelles, A., 2001, Acute toxicity of anionic surfactants sodium dodecyl sulphate. (SOS) and linear alkylbenzene sulphonate (LAS) on the fertilizing capability of gilthead (*Sparus aurata* L.) sperm, *Histol Histopathol*, 16, 839–843.
- Salleh, M.A.M., Mahmoud, D.K., Karim, W.A.W.A., and Idris, A., 2011, Cationic and anionic dye adsorption by agricultural solid wastes: A comprehensive review, *Desalination*, 280, 1–13.
- Samarghandi, M.R., Mehralipour, J., Azarian, G., Godini, K., and Shabanlo, A., 2017, Decomposition of sodium dodecylbenzene sulfonate surfactant by Electro/Fe²⁺-activated Persulfate process from aqueous solutions, *Glob. Nest J.*, 19, 115–121.
- Sanjaya, A.S. and Agustine, R.P., 2015, Studi kinetika adsorpsi Pb menggunakan arang aktif dari kulit pisang, *Konversi*, 4, 17–24.
- Sapers, G.M., 2009, Disinfection of contaminated produce with conventional washing and sanitizing technology, *Prod. Contam. Probl. causes Solut. / Ed. by Gerald M. Sapers, Ethan B. Solomon, Karl R. Matthews.*
- Selambakkannu, S., Othman, N.A.F., Bakar, K.A., Thailan, K.M., and Karim, Z., 2021, Degradation of surfactants from domestic laundry effluent by electron beam irradiation, *Mater. Today Proc.*, 46, 1807–1812.
- Sembodo, B.S.T., 2021, Isoterm kesetimbangan adsorpsi timbal pada abu sekam padi, *Ekuilibrium*, 4, 100–105.
- Shojaeiarani, J., Bajwa, D.S., and Hartman, K., 2019, Esterified cellulose nanocrystals as reinforcement in poly(lactic acid) nanocomposites, *Cellulose*, 26, 2349–2362.

- Singh, S., Wasewar, K.L., and Kansal, S.K., 2020, Low-cost adsorbents for removal of inorganic impurities from wastewater,. In, *Inorganic Pollutants in Water*. Elsevier, pp. 173–203.
- Sodeinde, K.O., Ojo, A.M., Olusanya, S.O., Ayanda, O.S., Adeoye, A.O., Dada, T.M., and Lawal, O.S., 2021, Cellulose isolated from Delonixregia pods: Characterisation and application in the encapsulation of vitamin A, *Ind. Crops Prod.*, 160, 113138.
- Taffarel, S.R. and Rubio, J., 2010, Adsorption of sodium dodecyl benzene sulfonate from aqueous solution using a modified natural zeolite with CTAB, *Miner. Eng.*, 23, 771–779.
- Tangio, J.S., 2013, Adsorpsi Logam Timbal (Pb) Dengan Menggunakan Biomassa Enceng Gondok (Eichhorniacrassipes), *J. Entropi*, 8, 501–506.
- Tian, D., Shen, Feiyue, Hu, J., Huang, M., Zhao, L., He, J., Li, Q., Zhang, S., and Shen, Fei, 2022, Complete conversion of lignocellulosic biomass into three high-value nanomaterials through a versatile integrated technical platform, *Chem. Eng. J.*, 428, 131373.
- Timhadjelt, L., Serier, A., Belgacem, M.N., and Bras, J., 2015, Elaboration of cellulose based nanobiocomposite: Effect of cellulose nanocrystals surface treatment and interface “melting,” *Ind. Crops Prod.*, 72, 7–15.
- Tomasik, P., 2013, Chemical modifications of polysaccharides,. In, *Chemical and Functional Properties of Food Saccharides*. CRC Press, pp. 123–130.
- Trinh, B.M. and Mekonnen, T., 2018, Hydrophobic esterification of cellulose nanocrystals for epoxy reinforcement, *Polymer (Guildf)*., 155, 64–74.
- Utari, N., Chumaidiyah, E., Abdulbasah, A., Studi, P., Industri, T., and Industri, F.R., 2019, Analisis Kelayakan Pengembangan Bisnis Start Up My Fresh Laundry Di Kota Solok Secara Online Dan Offline, *eProceedings Eng.*, 6, 5968.
- Vollick, B., Kuo, P.Y., Thérien-Aubin, H., Yan, N., and Kumacheva, E., 2017, Composite Cholesteric Nanocellulose Films with Enhanced Mechanical Properties, *Chem. Mater.*, 29, 789–795.
- Wijayanti, A., Susatyo, E.B., Sukarjo, S., and Kurniawan, C., 2018, Adsorpsi Logam Cr(VI) Dan Cu(II) Pada Tanah Dan Pengaruh Penambahan Pupuk Organik, *Indones. J. Chem. Sci.*, 7, 242–248.
- Wu, Y.L., Xu, S., Wang, T., and Wang, C.F., 2018, Enhanced Metal Ion Rejection by a Low-Pressure Microfiltration System Using Cellulose Filter Papers Modified with Citric Acid, *ACS Appl. Mater. Interfaces*, 10, 32736–32746.
- Wulandari, W.T. and Dewi, R., 2018, Selulosa dari ampas tebu sebagai adsorben pada minyak bekas penggorengan, *Kovalen J. Ris. Kim.*, 4, 332–339.
- Xue, F., He, H., Zhu, H., Huang, H., Wu, Q., and Wang, S., 2019, Structural Design of a Cellulose-Based Solid Amine Adsorbent for the Complete

- Removal and Colorimetric Detection of Cr(VI), *Langmuir*, 35, 12636–12646.
- Yang, X. and Al-Duri, B., 2005, Kinetic modeling of liquid-phase adsorption of reactive dyes on activated carbon, *J. Colloid Interface Sci.*, 287, 25–34.
- Yang, X., Jiang, Y., Su, R., Yang, G., Xue, B., and Li, F., 2016, Effects of cellulose carbonization on biomass carbon and diatomite composite, *Colloids Surfaces A Physicochem. Eng. Asp.*, 509, 314–322.
- Yin, Y., Zhao, L., Jiang, X., Wang, H., and Gao, W., 2017, Poly(lactic acid)-based biocomposites reinforced with modified cellulose nanocrystals, *Cellulose*, 24, 4773–4784.
- Ying, G.G., 2006, Fate, behavior and effects of surfactants and their degradation products in the environment, *Environ. Int.*, 32, 417–431.
- Yuan, C.L., Xu, Z.Z., Fan, M.X., Liu, H.Y., Xie, Y.H., and Zhu, T., 2014, Study on characteristics and harm of surfactants, *J. Chem. Pharm. Res.*, 6, 2233–2237.
- Yustinah, Y., Hudzaifah, H., Aprilia, M., and Ab, S., 2020, Kesetimbangan adsorpsi tanah diatomit secara batch, *J. Konversi*, 9, 12.
- Zhang, R. and Somasundaran, P., 2006, Advances in adsorption of surfactants and their mixtures at solid/solution interfaces, *Adv. Colloid Interface Sci.*, 123–126, 213–229.
- Zhang, Y., Ma, J., Zhou, S., and Ma, F., 2015, Concentration-dependent toxicity effect of SDBS on swimming behavior of freshwater fishes, *Environ. Toxicol. Pharmacol.*, 40, 77–85.
- Zhou, L., Ke, K., Yang, M.-B., and Yang, W., 2021, Recent progress on chemical modification of cellulose for high mechanical-performance Poly(lactic acid)/Cellulose composite: A review, *Compos. Commun.*, 23, 100548.