

DAFTAR PUSTAKA

- Abbaszadeh, S., Alwi, S.R.W., Webb, C., Ghasemi, N., and Muhamad, I.I., 2016, Treatment of Lead-Contaminated Water Using Activated Carbon Adsorbent From Locally Available Papaya Peel Biowaste, *J. Clean. Prod.*, 9021.
- Abhirami, C.B., Amrutha Priya, K.T., Ardra, M.S., Sandra, M.K., and Beula, C., 2023, Oil Separation Using Modified Kapok Fiber From Different Sources of Waste Water- A Review Paper,. In, *ICETET.*, pp. 292–295.
- Aisyah, F.N., Darajat, Z., Sabara, Z., and Syarif, T., 2016, Penurunan Konsentrasi Dodecyl Benzene Sulfonate (DBS) dari Limbah Deterjen Menggunakan Arang Ampas Kelapa, *J. Chem. Process Eng.*, 1, 14–19.
- Akbulut, C. and Yön, D.N., 2019, Histological Effects of Linear Alkyl Benzene Sulfonic Acid Exposure on Primordial Germ Cell Migration and Gonad Formation in Zebrafish (*Danio Rerio*), *Arch. Biol. Sci.*, 1–11.
- Alaqarbeh, M., 2021, Adsorption Phenomena: Definition, Mechanisms, and Adsorption Types: Short Review, *Green Appl. Chem.*, 13, 43–51.
- Ali, R.M., Hamad, H.A., Hussein, M.M., and Malash, G.F., 2016, Potential of Using Green Adsorbent of Heavy Metal Removal From Aqueous Solutions: Adsorption Kinetics, Isotherm, Thermodynamic, Mechanism, and Economic Analysis, *Ecol. Eng.*, 91, 317–332.
- Alipoyo, J.C., Magoncia, V.E.B., Perido, A.A.M., Gapusan, R.B., and Balela, M.D.L., 2021, Optimization of Hydrolysis of Polyacrylonitrile-Kapok Fiber Composite for the Adsorption of Lead Ions in Aqueous Solution, *Environ. Nanotechnology, Monit. Manag.*, 16, 100566.
- Astuti, W., 2018, Adsorpsi Menggunakan Material Berbasis Lignoselulosa, Unnes Press.
- Baunsele, A.B. and Missa, H., 2020, Kajian Kinetika Adsorpsi Metilen Biru Menggunakan Adsorben Sabut Kelapa, *Akta Kim.*, 5, 76–85.
- Bayer, R.J., Aquino, C.L.E., and Balela, M.D.L., 2022, Synthesis of Poly(O-Anisidine)-Coated Kapok Fibers for Removal of Methylene Blue Dye, *Key Eng. Mater.*, 931, 117–124.
- Bhandari, P.S. and Gogate, P.R., 2018, Kinetic and Thermodynamic Study of Adsorptive Removal of Sodium Dodecyl Benzene Sulfonate Using Adsorbent Based on Thermo-Chemical Activation of Coconut Shell, *J. Mol. Liq.*, 252, 495–505.
- Bhandari, V.M. and Ranade, V. V, 2014, Advanced Physico-Chemical Methods of Treatment for Industrial Wastewaters, Elsevier Ltd.
- Bhernama, B.G., Saputra, S.A., and Amalia, J., 2023, Karakterisasi Selulosa dan Selulosa Asetat dari Limbah Cangkang Biji Pala (*Myristica Fragransi*) Aceh Selatan, *J. Ris. Kim.*, 14, 81–93.

- Chen, Y., Chen, Q., Zhao, H., Dang, J., Jin, R., Zhao, W., and Li, Y., 2020, Wheat Straws and Corn Straws as Adsorbents for the Removal of Cr(VI) and Cr(III) From Aqueous Solution: Kinetics, Isotherm, and Mechanism, *ACS Omega*, 5, 6003–6009.
- Corona, R.R.B., Sad, C.M.S., Lopes, D.L., Leite, D., Viegas, G.M.D.F., Gonçalves, G.R., Filgueiras, P.R., and Eust, V., 2021, Adsorption of Anionic Surfactant in Graphite Oxide: A Study for Treatment of Laundry Wastewater, *J. Environ. Chem. Eng.*, 9, 1–9.
- Ding, J., Li, C., Liu, J., Lu, Y., Qin, G., Gan, L., and Long, M., 2017, Time and Energy-Efficient Homogeneous Transesterification of Cellulose Under Mild Reaction Conditions, *Carbohydr. Polym.*, 157, 1785–1793.
- 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.
- El-naas, M.H. and Alhaija, M.A., 2013, Modelling of Adsorption Processes,. In, Brennan, C.R. (ed), *Mathematical Modelling*. Nova Publishers, Inc.
- Freundlich, H., 1907, Über die Adsorption in Lösungen, *Zeitschrift f. Phys. Chemie.*, 57, 385–470.
- Futalan, C.M., Choi, A.E.S., Soriano, H.G.O., Cabacungan, M.K.B., and Millare, J.C., 2022, Modification Strategies of Kapok Fiber Composites and Its Application in the Adsorption of Heavy Metal Ions and Dyes From Aqueous Solutions: A Systematic Review, *Int. J. Environ. Res. Public Health*, 19, 1–26.
- Gapusan, R.B. and Balela, M.D.L., 2020, Adsorption of Anionic Methyl Orange Dye and Lead(II) Heavy Metal Ion by Polyaniline-Kapok Fiber Nanocomposite, *Mater. Chem. Phys.*, 243, 122682.
- Granström, M., Kavakka, J., King, A., Majoinen, J., Mäkelä, V., Helaja, J., Hietala, S., Virtanen, T., Maunu, S.L., Argyropoulos, D.S., and Kilpeläinen, I., 2008, Tosylation and Acylation of Cellulose in 1-Allyl-3-Methylimidazolium Chloride, *Cellulose*, 15, 481–488.
- Güzel, F., Saygılı, H., Akkaya Saygılı, G., Koyuncu, F., and Yılmaz, C., 2017, Optimal Oxidation with Nitric Acid of Biochar Derived From Pyrolysis of Weeds and Its Application in Removal of Hazardous Dye Methylene Blue From Aqueous Solution, *J. Clean. Prod.*, 144, 260–265.
- 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.

- He, Z., Li, Y., and Qi, B., 2023, A New and Low-Cost Surface-Functionalized Corn Straw Adsorbent for Adsorptive Removal of Sodium Dodecylbenzene Sulfonate: Adsorbent Preparation and Adsorption Performance, *Sep. Purif. Technol.*, 309, 122999.
- Heravi, M.M., Ghavidel, M., and Mohammadkhani, L., 2018, Beyond a Solvent: Triple Roles of Dimethylformamide in Organic Chemistry, *RSC Adv.*, 8, 27832–27862.
- Ismail, H.T.H. and Mahboub, H.H.H., 2016, Effect of Acute Exposure to Nonylphenol on Biochemical, Hormonal, and Hematological Parameters and Muscle Tissues Residues of Nile Tilapia; *Oreochromis Niloticus*, *Vet. World*, 9, 616–625.
- Jakovljevic, V., Milicevic, J., and Stojanovic, J., 2014, Detergent-Like Stressor and Nutrient in Metabolism of *Penicillium Chrysogenum*, *Biotechnol. Biotechnol. Equip.*, 28, 43–51.
- Kim, J., Kim, D., Gwon, Y.J., Lee, K., and Lee, T.S., 2018, Removal of Sodium Dodecylbenzenesulfonate by Macroporous Adsorbent Resins, *Materials (Basel)*, 11, 1–11.
- Kushwaha, J. and Singh, R., 2023, Cellulose Hydrogel and Its Derivatives: A Review of Application in Heavy Metal Adsorption, *Inorg. Chem. Commun.*, 152, 110721.
- Langmuir, I., 1918, The Adsorption of Gases on Plane Surfaces of Glass, Mica, and Platinum, *J. Am. Chem. Soc.*, 40, 1361–1403.
- Lavanya, S., Ramesh, M., Kavitha, C., and Malarvizhi, A., 2011, Hematological, Biochemical, and Ionoregulatory Responses of Indian Major Carp *Catla Catla* During Chronic Sublethal Exposure to Inorganic Arsenic, *Chemosphere*, 82, 977–985.
- 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, X., Xu, J., Zhu, Y., Ke, W., Deng, Z., and Tang, X., 2022, Sound Absorption Characteristics of Agro-Sourced Kapok Fibrous Materials, *Ind. Crop. Prod.*, 188, 115661.
- Liu, Z., Zhao, G., Brewer, M., Lv, Q., and Sudh, E.J.R., 2021, Comprehensive Review on Surfactant Adsorption on Mineral Surfaces in Chemical Enhanced Oil Recovery, *Adv. Colloid Interface Sci.*, 294, 102467.
- 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.

- Luong, H.V.T., Le, T.P., Le, T.L.T., Dang, H.G., and Tran, T.B.Q., 2024, A Graphene Oxide Based Composite Granule for Methylene Blue Separation From Aqueous Solution: Adsorption, Kinetics, and Thermodynamic Studies, *Heliyon*, 10, e28648.
- Mahadeva, S.K., Yun, S., and Kim, J., 2011, Flexible Humidity and Temperature Sensor Based on Cellulose–Polypyrrole Nanocomposite, *Sensors Actuators A. Phys.*, 165, 194–199.
- Mahmoudi, A., Mousavi, S.A., and Darvishi, P., 2021, Greywater as a Sustainable Source for Development of Green Roofs: Characteristics, Treatment Technologies, Reuse, Case Studies, and Future Developments, *J. Environ. Manage.*, 295, 112991.
- Maretta, A., Studi, P., and Lingkungan, T., 2015, Degradasi Surfaktan Sodium Lauryl Sulfat dengan Proses Fotokatalisis Menggunakan Nano Partikel ZnO, *J. Tek. Lingkungan*, 21, 1–8.
- Mi'rajunnisa and Lestari, Y.P.I., 2022, Biodelignifikasi Kulit Buah Kapuk (Ceiba Pentandra (L.) Gaertn) Menggunakan Trametes Versicolor, *J. Inov. Penelit.*, 3, 4547–4554.
- Nagtode, V.S., Cardoza, C., Yasin, H.K.A., Mali, S.N., Tambe, S.M., Roy, P., Singh, K., Goel, A., Amin, P.D., Thorat, B.R., Cruz, J.N., and Pratap, A.P., 2023, Green Surfactants (Biosurfactants): A Petroleum-Free Substitute for Sustainability—Comparison, Applications, Market, and Future Prospects, *ACS Omega*, 8, 11674–11699.
- Nora, M., Bhagaskara, A., Agustisari, V., and Lim, A., 2023, Fabrication of Polystyrene Sulfonate-Chitosan (PSS-Chitosan) Membrane as Dodecyl Benzene Sulfonate (DBS) Adsorbent in Laundry Wastewater, *J. Kim. Sains dan Apl.*, 26, 19–27.
- Nurlaili, T., Laeli, K., and Dwi, R.R., 2017, Pemanfaatan Limbah Cangkang Telur Ayam sebagai Adsorben Zat Warna Methyl Orange dalam Larutan, *Inov. Tek. Kim.*, 2, 11–14.
- Ogawa, T. and Kawase, Y., 2021, Effect of Solution pH on Removal of Anionic Surfactant Sodium Dodecylbenzenesulfonate (SDBS) From Model Wastewater Using Nanoscale Zero-Valent Iron (nZVI), *J. Environ. Chem. Eng.*, 9, 105928.
- Okoro, A.I. and Okoro, S.O., 2011, Agricultural by Products as Green Chemistry Absorbents for the Removal and Recovery of Metal Ions From Waste-Water Environments, *Cont. J. Water, Air Soil Pollut.*, 2, 15–22.
- Opier, R.D.A. and Siswanta, D., 2020, Synthesis of Polyelectrolyte Complex (PEC) Membrane Chitosan-Polystyrene Sulfonate (PSS) From Styrofoam Waste as Adsorbents of Cd(II) and Pb(II) Ions, *IOP Conf. Ser. Earth Environ. Sci.*, 483, 1–10.

- Oraon, A., Prajapati, A.K., Ram, M., Saxena, V.K., Dutta, S., and Gupta, A.K., 2024, Synthesis, Characterization, and Application of Microporous Biochar Prepared From Pterospermum Acerifolium Plant Fruit Shell Waste for Methylene Blue Dye Adsorption: The Role of Surface Modification by SDS Surfactant, *Biomass Convers. Biorefinery*, 14, 931–953.
- Park, J. and Park, Y., 2022, Hydrolyzed Protein Treatment to Natural Cellulosic Lightweight and Scattering Fibers for Improving the Hydrophilicity, *Sustain. Chem. Pharm.*, 29, 100814.
- Pratama, T.N. and Hadiangoro, S., 2021, Aktivasi Serat Kapuk dengan Asam dan Basa pada Sintesis Biosorben untuk Menyerap Ion Logam Nikel dari Larutan NiSO₄, *DISTILAT J. Teknol. Separasi*, 7, 622–628.
- Sahu, R.L., Dash, R.R., and Pradhan, P.K., 2023, Laboratory and Field Studies on the Effect of Geoenvironmental Factors on the Removal of Linear Alkylbenzene Sulfonate During Riverbank Filtration, *Arab. J. Geosci.*, 16, 1–15.
- 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*. INC, pp. 173–203.
- Siyal, A.A., Shamsuddin, R., Low, A., and Hidayat, A., 2020, Adsorption Kinetics, Isotherms, and Thermodynamics of Removal of Anionic Surfactant From Aqueous Solution Using Fly Ash, *Water. Air. Soil Pollut.*, 231, 1–13.
- 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.
- Timhadjelt, L., Serier, A., Naceur, M., and Bras, J., 2015, Elaboration of Cellulose Based Nanobiocomposite: Effect of Cellulose Nanocrystals Surface Treatment and Interface “Melting”, *Ind. Crop. Prod.*, 72, 7–15.
- Tomasik, P., 2017, Chemical and Functional Properties Properties of Food Saccharides, In, Sikorski, Z.E. (ed), *Chemical and Functional Properties of Food Components Series*. CRC Press.
- Utomo, W.P., Nugraheni, Z. V, Rosyidah, A., Shafwah, O.M., Naashihah, L.K., Nurfitria, N., and Ulfindrayani, I.F., 2018, Penurunan Kadar Surfaktan Anionik dan Fosfat dalam Air Limbah Laundry di Kawasan Keputih, Surabaya Menggunakan Karbon Aktif, *Akta Kim.*, 3, 127–140.
- Valizadeh, S., Younesi, H., and Bahramifar, N., 2016, Highly Mesoporous K₂CO₃ and KOH/Activated Carbon for SDBS Removal From Water Samples: Batch and Fixed-Bed Column Adsorption Process, *Environ. Nanotechnology, Monit. Manag.*, 6, 1–13.
- Varank, G., Demir, A., Yetilmezsoy, K., Top, S., Sekman, E., and Bilgili, M.S., 2012, Removal of 4-Nitrophenol From Aqueous Solution by Natural Low-Cost Adsorbents, *Indian J. Chem. Technol.*, 19, 7–25.

- Wachap, R., Annune, P., and Solomon, S., 2019, Hematological Changes of *Oreochromis Niloticus* (Linne 1757) Juveniles Exposed to Kiln, *Int. J. Fish. Aquat. Stud.*, 7, 291–294.
- Wan, X., Yang, X., Wen, Q., Gang, J., and Gan, L., 2020, Sustainable Development of Industry–Environmental System Based on Resilience Perspective, *Int. J. Environ. Res. Public Heal.*, 17, 1–23.
- Wang, D., Yi, C., Xu, M., Park, J., Kim, D., Shin, C., Ryu, M., and Zhao, Y., 2021, Adsorption of As(III) and As(V) by Using the Fenton Reaction Modified Kapok Fiber, *J. Environ. Chem. Eng.*, 9, 105918.
- Wang, F., Pan, Y., Cai, P., Guo, T., and Xiao, H., 2017, Single and Binary Adsorption of Heavy Metal Ions From Aqueous Solutions Using Sugarcane Cellulose-Based Adsorbent, *Bioresour. Technol.*, 241, 482–490.
- Wang, J. and Wang, A., 2013, Acetylated Modification of Kapok Fiber and Application for Oil Absorption, *Fibers Polym.*, 14, 1834–1840.
- Willberg-Keyriläinen, P. and Ropponen, J., 2019, Evaluation of Esterification Routes for Long Chain Cellulose Esters, *Heliyon*, 5, e02898.
- Willberg-Keyriläinen, P., Talja, R., Asikainen, S., Harlin, A., and Ropponen, J., 2016, The Effect of Cellulose Molar Mass on the Properties of Palmitate Esters, *Carbohydr. Polym.*, 151, 988–995.
- Wu, Y., Si, H., Yu, X., Fu, F., Wang, Z., and Yao, J., 2023, Enhancing the Solubility and Antimicrobial Activity of Cellulose Through Esterification Modification Using Amino Acid Hydrochlorides, *Int. J. Biol. Macromol.*, 226, 793–802.
- Wu, Y., Xu, S., Wang, T., and Wang, C., 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.
- Yang, J., Zhang, L., Wang, P., and Zhou, J., 2022, Cellulose Nanofibers Prepared From Pulp Through Ultrasound Treatment Followed Semi-Dry Esterification and Their Application for Transparent and Anti-Fingerprint Coating, *Prog. Org. Coatings*, 167, 106844.
- Yang, K., Zhu, L., and Xing, B., 2007, Sorption of Sodium Dodecylbenzene Sulfonate by Montmorillonite, *Environ. Pollut.*, 145, 571–576.
- Yang, N., Ho, C., Daeik, S., Joon, K., Park, S., Rao, P., and Wang, R., 2020, Synthesis, Characterization, and Mercury Removal Application of Surface Modified Kapok Fibers with Dopamine (DA): Investigation of Bidentate Adsorption, *Environ. Earth Sci.*, 79, 1–8.
- Yoesoef, A. and Rosariawari, F., 2018, Penggunaan Zeolit Alam untuk Adsorpsi Ion Fe(III) dalam Air Tanah dengan Aktivasi Asam Nitrat, *J. Envirotek*, 9, 1–5.

- Zhang, L., Li, Y., Wang, W., Zhang, W., Zuo, Q., Abdelkader, A., Xi, K., Heynderickx, P.M., and Kim, K., 2021, The Potential of Microplastics as Adsorbents of Sodium Dodecyl Benzene Sulfonate and Chromium In an Aqueous Environment, *Environ. Res.*, 197, 111057.
- 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, X., Zhang, Q., Cheng, X., Yu, J., Zhang, L., and Wang, Z., 2023, One-Pot Strategy to Enhance Nanofibrillation and Esterification of Cellulose Using Ternary Deep Eutectic Solvent, *Ind. Crop. Prod.*, 206, 117631.
- Zhao, N., Yang, X., Zhang, J., Zhu, L., and Lv, Y., 2017, Adsorption Mechanisms of Dodecylbenzene Sulfonic Acid by Corn Straw and Poplar Leaf Biochars, *Materials (Basel)*, 10, 1–15.
- Zheng, Y., Wang, J., Zhu, Y., and Wang, A., 2015, Research and Application of Kapok Fiber as an Absorbing Material: A Mini Review, *JES*, 27, 21–32.
- 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.
- Zhou, Y., Zhao, S., He, S., and Zhang, Y., 2022, Adsorption of Sodium Dodecyl Benzene Sulfonate on Zeolitic Imidazolate Framework-8 Synthesized Using Surfactant-Free Microemulsion as Template, *Colloids Surfaces A Physicochem. Eng. Asp.*, 650, 129620.
- Zhu, T., Li, Y., Yang, H., Liu, J., Tao, Y., and Gan, W., 2021, Preparation of an Amphoteric Adsorbent From Cellulose for Wastewater Treatment, *React. Funct. Polym.*, 169, 105086.