

DAFTAR PUSTAKA

- Adegoke, H.I., Adekola, F.A., Olowookere, I.T., and Yaqub, A.L., 2017, Thermodynamic Studies on Adsorption of Lead(II) Ion from Aqueous Solution Using Magnetite, Activated Carbon and Composites, *J. Appl. Sci. Environ. Manag.*, 21(3), 440-452.
- Adamson, A.W., 1990, *Physical Chemistry of Surface*, 5th edition, John Wiley and Sons Inc, New York.
- Ai, L., and Jiang, J., 2010, Fast removal of organic dyes from aqueous solutions by AC/ferrospinel composite, *Desalination*, 262(1), 134-140.
- Anonim, 1990, *Peraturan Pemerintah No. 20 Tahun 1990 Tentang Pengendalian Pencemaran Air*, Jakarta
- Apriliani, A., 2010, Pemanfaatan Arang Ampas Tebu Sebagai Adsorben Ion Logam Cd, Cr, Cu dan Pb Dalam Air Limbah, *Skripsi*, Program Studi Kimia, Fakultas Sains dan Teknologi, UIN Syarif Hidayatullah Jakarta.
- Azaman, S.A.H., Afandi, A., Hameed, B.H., and Din, A.T.M., 2018, Removal of Malachite Green from Aqueous Phase Using Coconut Shell Activated Carbon: Adsorption, Desorption, and Reusability Studies, *J. Appl. Sci. Eng.*, 21(3), 317-330.
- Buasri, A., Chaiyut, V., Loryuenyong, V., Phakdeeparaphan, E., Watpathomsub, S., and Kunakemakorn, V., 2013, Synthesis of Activated Carbon Using Agricultural Wastes from Biodiesel Production, *Int. J. Chem. Mol. Nucl. Mater. Metall. Eng.*, 7(1), 106-110.
- Cazetta, A. L., Pezoti, O., Bedin, K.C., Silva, T.L., Junior, A.P., Asefa, T., and Almeida, V.C., 2016, Magnetic Activated Carbon Derived from Biomass Waste by Concurrent Synthesis: Efficient Adsorbent for Toxic Dyes, *Sustain. Chem. Eng.*, 4, 1058-1068.
- Chen, H., 2014, *Biotechnology of Lignocellulose: Theory and Practice*, Springer, New York.
- Chi, Y., Geng, W., Zhao, L., Yan, X., Yuan, Q., Li, N., and Li, X., 2012, Comprehensive study of mesoporous carbon functionalized with carboxylate groups and magnetic nanoparticles as a promising adsorbent, *J. Colloid Interf. Sci.*, 369, 366-372.
- Cotton, F.A. and Wilkinson, G., 1989, *Kimia Anorganik Dasar*, (diterjemahkan oleh: Suharto, S., dari *Basic Inorganic Chemistry*), Universitas Indonesia Press, Jakarta.
- Darezereshki, E., Darban, A. K., Abdollahy, M., and Zanjani, A. J., 2018, Influence of Heavy Metals on The Adsorption of Arsenate by Magnetite Nanoparticles: Kinetics and Thermodynamic, *Environ. Nanotech. Monit. Manag.* 10, 51-62.

- Demirbas, E., 2003, Adsorption of Cobalt(II) Ions from Aqueous Solution onto Activated Carbon Prepared from Hazelnut Shells, *Adsorpt.. Sci. Technol.*, 21(10), 951-963.
- Deng, J., Xiong, T., Wang, H., Zheng, A., and Wang, Y., 2016, Effects of Cellulose, Hemicellulose, and Lignin on the Structure and Morphology of Porous Carbons, *Sustain. Chem. Eng.*, 4(7), 3750–3756.
- Deshpande, M.R., Kalvankar, N.V., and Joshi, U.D., 2013, Synthesis of MCM-41 From Rice Husk and Its Application As a Potential Adsorbent For The Removal of Dyes From Aqueous Solution, *Indian Stream Research Journal*, 3(3), 1-5.
- Garcia, P. G., 2018, Activated Carbon from Lignocellulosics Precursors: A Review of The Synthesis Methods, Characterization Techniques and Applications, *Renew. Sust. Energ. Rev.*, 82, 1393-1414.
- Gautam, R.K., Mudhoo, A., Lofrano, G., and Chattopadhyaya, M.C., 2014, Biomass-derived biosorbents for metal ions sequestration: Adsorbent modification and activation methods and adsorbent regeneration, *J. Environ. Chem. Eng.*, 2, 239–259.
- Ghazi, M., Weng, C. N., Rahman, H. A., and Zakaria, N. A., 2013, Freundlich Isotherm Equilibrium Equations in Determining Effectiveness a Low Cost Absorbent to Heavy Metal Removal In Wastewater (Leachate) At Teluk Kitang Landfill, Pengkalan Chepa, Kelantan, Malaysia, *Journal of Geography and Earth Science*, 1(1), 1-8.
- Guibal, E., Touraud, E., and Roussy, J., 2005, Chitosan Interactions with Metal Ions and Dyes: Dissolved-state vs Solid-state Application, *World. J. Microb. Biot.*, 21, 913-920.
- Guo, Z., Li, Y., Zhang, S., Niu, H., Chen, Z., and Xu, J., 2011, Enhanced Sorption of Radiocobalt from Water by Bi(III) Modified Monmorillonite: A Novel Adsorbent, *J. Hazard. Mater.*, 192, 168-175.
- Habib, A., Islam, N., Islam, A., and Alam, A. M. S., 2007, Removal of Copper from Aqueous Solution Using Orange Peel, Sawdust and Bagasse, *Pak. J. Anal. Environ. Chem.*, 8(1), 21-25.
- Ho, Y.S., Mc Kay, G., Wase, D.A.J., and Foster, C.F., 2000, Study of the Sorption of Divalent Metal Ions onto Peat, *Adsorpt. Sci. Technol.*, 18, 639-650.
- Hritcu, D., Dodi, G., and Popa, M.I., 2012, Heavy Metal Ions Adsorption on Chitosan-Magnetite Microspheres, *I. Re. Chem. Eng.*, 4(3), 364-368.
- Jin, X., Bailey, G.W., Yu, Y.S., and Lynch, A.T., 1996, Kinetics of Single and Multiple Ion Sorption Process on Humic Substances, *Soil Sci.*, 161(8), 509-520.
- Juang, R.S., Yei, C.Y., Liao, C.S., Lin, K.S., Lu, H.C., Wang, S.F., and Sun, A.C., 2018, Synthesis of Magnetic Fe₃O₄/Activated Carbon Nanocomposites with

- High Surface Area as Recoverable Adsorbents, *J. Taiwan Inst. Chem. E.*, 90, 51-60
- Kahani, S., Hamadani, M., and Vandadi, O., 2007, Deposition of Magnetite Nanoparticles in Activated Carbons and Preparation of Magnetic Activated Carbon, *AIP Conf. Proc.*, 929, 183-188.
- Khah, A. M., and Ansari, R., 2009, Activated Charcoal: Preparation, Characterization and Application: A Review Article, *Int. J. ChemTech. Res.*, 1(4), 859-864.
- Klemm, D., Schmauder, H.P., and Heinze, T., 2002, Cellulose, *Biopolimer*, 6, 275-319.
- Kordialik-Bogacka, E., 2011, Cadmium and Lead Recovery from Yeast Biomass, *Cent. Eur. J. Chem.*, 9, 320-325.
- Kusharharyati, T. Y., Deddy, K. W. dan Fahmi, A., 2012, Pengolahan Limbah Pewarna Konveksi dengan Bantuan Adsorben Ampas Tebu dan Activated Sludge, *Simposium Nasional RAPI XI FT UMS*, 51-54.
- Kwaggher, A., and Ibrahim J.S., 2013, Optimization of Conditions for the Preparation of Activated Carbon from Mango Nuts using HCl, *Am. J. Eng. Res. (AJER)*, 2(7), 74-85.
- Lagergren, S., 1989, Zur Theorie der Sogenannten Adsorption Geloster Stoffe. Kungliga Svenska Vetenskapsakademiens, *Handlingar*, 24, 1-39.
- Legrouri, K., Harti, K. M. E., Oummam, M., Khouya, E., Wahbi, R., Hannache, H., and Zarrouk, A., Characterization and Evaluation Performance of Activated Carbon Prepared from Coconut Shell Argan, *J. Chem. Pharm. Res.*, 4(2), 121.
- Liu. M., Chen, C., Hu, J., Wu, X., and Wang, X., 2011, Synthesis of Magnetite/Graphene Poxide Composite and Application for Cobalt (II) Removal, *J. Phys. Chem. C*, 115, 25234-25240.
- McDougall, G.J., 1991, The Physical Nature and Manufacture of Activated Carbon, *J. S. Afr. Inst. Min. Metall.*, 91(4), 109-120.
- Musapatika, E.T., Singh, R., Moodley, K., Nzila, C., Oyango, M.S., and Ochieng, A., 2012, Cobalt Removal From Wastewater Using Pine Sawdust, *Afr. J. Biotechnol.*, 11(39), 9407-9415.
- Okeola, O.F., Odebunmi, E.O., and Ameen, O.M., 2012, Comparison of Sorption Capacity and Surface Area of Activated Carbon Prepared From *Jatropha Curcas* Fruit Pericarp and Seed Coat, *Bull. Chem. Soc. Ethiop.*, 26(2), 137-142.
- Pehlivan, E., 2017, Production and Characterization of Activated Carbon From Pomegranate Pulp By Phosphoric Acid, *J. Turkish chem. soc. sect. chem.*, 5(1), 1-8.

- Petrova, T.M., Fachikov, L., and Hristov, J., 2011, The Magnetite as Adsorbent for Some Hazardous Species from Aqueous Solutions: A Review, *Int. Rev. Chem. Eng.*, 3(2), 134-152.
- Prahas, D., Kartika, Y., Indraswati, N., Ismadji, S., 2008, Activated Carbon from Jackfruit Peel Waste by H₃PO₄ Chemical Activation: Pore Structure and Surface Chemistry Characterization, *J. Chem. Eng.*, 140, 32–42.
- Ramachandran, P., Vairamuthu, R., and Ponnusamy, S., 2011, Adsorption Isotherms, Kinetics, Thermodynamics and Desorption Studies of Reactive Orange16 on Activated Carbon Derived from *Ananas comosus* (L.) Carbon, *J. Eng. Appl. Sci.*, 6(11), 15-26.
- Rangaraj, S., and Moon, S.H., 2002, Kinetics of Adsorption of Co(II) Removal from Water and Wastewater by Ion Exchange Resins, *J. Water Res.*, 36, 1783-1793.
- Rao, G.B., Prasad, M.K., and Murthy, C.V.R., 2015, Cobalt (II) Removal From Aqueous Solutions By Adsorption Onto Molecular Sieves, *Int. J. Chem. Sci.*, 13(4), 1893-1910.
- Samsuri, M., Gozam, M., Mardias, R., Baiquni, M., Hermansyah, H., Wijanarko, A., Prasetya, B., dan Nasikin, M., 2007, Pemanfaatan Selulosa Bagas Untuk Produksi Ethanol Melalui Sakarifikasi dan Fermentasi Serentak dengan Enzim Xilanase, *Makara Teknologi*, 11(1), 17-24.
- Sari, M.F.P., Loekitowati, P., dan Mohadi, R., 2017, Penggunaan Karbon Aktif dari Ampas Tebu Sebagai Adsorben Zat Warna Procion Merah Limbah Cair Industri Songket, *Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan*, 7(1), 37-40.
- Santosa, S.J., Siswanta, D., Kurniawan, A., and Rahmanto, W.H., 2007, Hybrid of Chitin and Humic Acid as High Performance Sorbent for Ni(II), *J. Surface Sci.*, 601, 5155–5161.
- Sivasakthi, P., and Sathaiyan, N., 2012, Cobalt Recovery from Waste Catalysts (Petroleum Refining Industry from Gujarat), *O. J. Metal*, 2, 24-30.
- Sivaprakash, S., Kumar, P.S., and Krishna, S.K., 2017, Synthesis & Characteristic Study of Agricultural Waste Activated Carbon/Fe₃O₄–Nano Particles, *Int. J. Mat. Sci.*, 12(1), 97-105.
- Sun, Y.K., Ming, M., Zhang, Y., and Ni, G., 2004, Synthesis of Nanometer-Size Maghemite Particles from Magnetite, *Colloid Surf. A Physicochem. Eng. Asp.*, 245(1-3), 15-19.
- Sutardi, Santosa, S.J. dan Suyanta, 2011, Kinetika Adsorpsi Hg(II) dengan Adsorben MCM-41 dan NH₂-MCM-41 Dalam Medium Air, *Prosiding Seminar Nasional Pendidikan dan Penerapan MIPA*, Fakultas MIPA, Universitas Negeri Yogyakarta, 14 Mei 2011.

- Taha, N.A., Abdelhafez, S.E., and El-Maghraby, A., 2016, Chemical and Physical Preparation of Activated Carbon Using Raw Bagasse Pith for Cationic Dye Adsorption, *Global NEST J.*, 18(2), 402-415.
- Teja, A.S., and Koh, P., 2009, Synthesis, Properties, and Application of Magnetic Iron Oxide Nanoparticles, *Prog. Cryst. Growth Charact. Mater.*, 55, 22-45.
- Tuna, A.O.A, Özdemir, E., Simsek, E.B., and Beker, U., 2013, Removal of As(V) from Aqueous Solution by Activated Carbon-based Hybrid Adsorbents: Impact of Experimental Conditions, *Chem. Eng. J.*, 223, 116-128.
- Thuan, T.V., Think, P.V., Quynh, B.T.P., Cong, H.T., Tam, D.T.T., Thuan, V.N., and Bach, L.G., 2016, Production of Activated Carbon From Sugarcane Bagasse by Chemical Activation with $ZnCl_2$: Preparation and Characterization Study, *Res. J. Chem. Sci.*, 6(5), 42-47.
- Umaningrum, D., Santoso, U.T., Nurmasari, R., dan Yunus, R., 2010, Kinetics of Pb(II), Cd (II) and Cr(III) on Adsorbent Produced by Protected-Crosslinking of Humic Acid-Chitosan, *Indo. J. Chem.*, 10(1), 80-87.
- Utomo, H.D., Phoon, R.Y.N., Shen, Z.S., Li, H.N., and Lim, Z.B., 2015, Removal of Methylene Blue Using Chemically Modified Sugarcane Bagasse, *Nat. Resour. J.*, 6, 209-220.
- Wannahari, R., Sannasi, P., Nordin, M.F.M., and Mukhtar, H., 2018, Sugarcane Bagasse Derived Nano Magnetic Adsorbent Composite (SBC-NMAC) for Removal of Cu^{2+} From Aqueous Solution, *J. Eng. Appl. Sci.*, 13(1), 1-9.
- Widhastu, K., 2016, Sintesis Komposit Zeolit-Magnetit sebagai Adsorben Logam Co(II), *Skripsi*, Departemen Kimia, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Gadjah Mada.
- Winaya, I.N.S., dan Susila, I.B.A.D., 2010, Co-Firing Sistem Fluidized Bed Berbahan Bakar Batubara dan Ampas Tebu, *Jurnal Ilmiah Teknik Mesin*, 4(2), 180-188.
- Yakout, S.M., and El-Deen, G.S., 2016, Characterization of Activated Carbon Prepared by Phosphoric Acid Activation of Olive Stones, *Arabian J. Chem.*, 9, 1155-1162.
- Yamaura, M., and Fungaro, D.A., 2013, Synthesis and Characterization of Magnetic Adsorbent Prepared by Magnetite Nanoparticles and Zeolite From Coal Fly Ash, *J. Mater. Sci.*, 48, 5093-5101.
- Yusoff, A.H.M., Salimi, M.N., and Jamlos, M.F., 2018, Synthesis and Characterization of Biocompatible Fe_3O_4 Nanoparticles at different pH, Advanced Material Engineering and Technology V, *AIP Conf. Proc.*, 1835, 020010-1 – 020010-4.
- Zhong, Z.Y., Qi Yanga, Li, X.M., Luo, K., Liua, Y. and Zeng, G. M., 2012, Preparation of Peanut Hill-Based Activated Carbon by Microwave-Induced Phosphoric Acid Activator and Its Application In Removal Brilliant Blue R Adsorption, *Ind. Crops Prod.*, 37(1), 178-183.