

DAFTAR PUSTAKA

- Aadland, R.C., Jacobsen, T.D., Heggset, E.B., Sanouiller, H.L., Simon, S., Paso, K.G., Syverud, K. and Torsæter, O., 2019, High-Temperature Core Flood Investigation of Nanocellulose as a Green Additive for Enhanced Oil Recovery, *Nanomaterials*, 9(665), 1-26.
- Abdelaziz, O.Y., Li, K., Tuna, P. and Hulteberg, C.P., 2018, Continuous Catalytic Depolymerisation and Conversion of Industrial Kraft Lignin into Low-Molecular-Weight Aromatics, *Biomass Convers. Biorefin.*, 8, 455–470.
- Abraham, A., Mathew, A.K., Sindhu, R., Pandey, A., and Binod, P., 2016, Potential of Rice Straw For Bio-refining: An Overview, *Bioresour. Technol.*, 215, 29–36.
- Al-Saadi, A., Mathan, B. and He, Y., 2020, Esterification and Transesterification Over SrOeZnO/Al₂O₃ as a Novel Bifunctional Catalyst for Biodiesel Production, *Renew. Energy*, 158, 388-399.
- Anonim, 2017, *World Population Prospect*, United Nations, New York.
- Anonim, 2018, *Statistik Pertambangan Minyak dan Gas Bumi*, Badan Pusat Statistik, Jakarta.
- Ballotin, F.C., Silva, M.J., Lago, R.M. and Teixeira, A.P.C., 2020, Solid Acid Catalysts Based on Sulfonated Carbon Nanostructures Embedded in an Amorphous Matrix Produced from Bio-Oil: Esterification of Oleic Acid with Methanol, *J. Environ. Chem.*, 8, 1-8.
- Bhatt, N., Gupta, P.K., and Naithani, S., 2008, Preparation of Cellulose Sulfate from a-Cellulose Isolated from Lantana camara by the Direct Esterification Method, *J. Appl. Polym. Sci.*, 108, 2895–2901.
- Bhattacharyya, P., Bhaduri, D., Adak, T., Munda, S., Satapathy, B.S., Dash, P.K., Padhy, S.R., Pattanayak, A., Routray, S., Chakraborti, M., Baig, M.J., Mukherjee, A.K., Nayak, A.K., dan Pathak, H., 2020, Characterization of Rice Straw from Major Cultivars for Best Alternative Industrial Uses to Cutoff the Menace of Straw Burning, *Ind. Crops. Prod.*, 143, 1-12.
- Borjesson, M., Sahlin, K., Bernin, D. and Westman, D., 2018, Increased Thermal Stability of Nanocellulose Composites by Functionalization of the Sulfate Groups on Cellulose Nanocrystals with Azetidinium Ions, *J. APPL. POLYM. SCI.*, 45963-45973.
- Cardoso, C.M.M., Zavarize, D.G. and Vieira, G.E.M., 2019, Transesterification of Pequi (*Caryocar brasiliensis* Camb.) Bio-Oil via Heterogeneous Acid Catalysis: Catalyst Preparation, Process Optimization and Kinetics, *Ind. Crops. Prod.*, 139, 1-7.

- Conceicao, L.R.V., Carneiro, L.M., Rivaldi, J.D. and Castro, H.F., 2016, Solid Acid as Catalyst for Biodiesel Production via Simultaneous Esterification and Transesterification of Macaw Palm Oil, *Ind. Crops. Prod.*, 89, 416–424.
- Dechakhumwat, S., Hongmanorom, P., Thunyaratchatanon, C., Smith, S.M., Boonyuen, S. and Luengnaruemitchai, A., 2020, Catalytic Activity of Heterogeneous Acid Catalysts Derived from Corncob in the Esterification of Oleic Acid with Methanol, *Renew. Energy*, 148, 897-906.
- Deeba, F., Kumar, B., Arora, N., Singh, S., Kumar, A., Han, S. S. and Negi, Y. S., 2020, Novel Bio-Based Solid Acid Catalyst Derived from Waste Yeast Residue for Biodiesel Production, *Renew. Energy*, 159, 127-139.
- Feng, Y., Qiu, T., Yang, J., Li, L., Wang, X. and Wang, H., 2017, Transesterification of Palm Oil to Biodiesel Using Brønsted Acidic Ionic Liquid as High-Efficient and Eco-Friendly Catalyst, *Chin. J. Chem. Eng.*, 25, 1222–1229.
- Fengel, D., dan Wegeneer. 1995. Kayu: Kimia, Ultrastruktur, Reaksi-Reaksi. Terjemahan oleh Sastrohamidjojo, H. Yogyakarta: Gadjah Mada University Press.
- Gaurav, A., Dumas, S., Mai, C.T.Q. and Flora T.T.N., 2019, A Kinetic Model for a Single Step Biodiesel Production from a High Free Fatty Acid (FFA) Biodiesel Feedstock Over a Solid Heteropolyacid Catalyst, *Green Energy Environ.*, 4, 328-341.
- George, J., and Sabapathi, S.N., 2015, Cellulose Nanocrystals: Synthesis, Functional Properties, and Applications, *Nanotechnol. Sci. Appl.*, 8, 45–54.
- Gnanaserkhar, S., Mijan, N.A., Asultan, G.A.K., Seenivasagam, S., Izham, S.M. and Yap, Y.H.T., 2020, Biodiesel Production via Simultaneous Esterification and Transesterification of Chicken Fat Oil by Mesoporous Sulfated Ce Supported Activated Carbon, *Biomass. bioenerg.*, 141, 1-13.
- Gupta, J., Agarwal, M. and Dalai, A.K., 2020, An Overview on the Recent Advancements of Sustainable Heterogeneous Catalysts and Prominent Continuous Reactor for Biodiesel Production, *J. Ind. Eng. Chem.*, 88, 58–77.
- Han, Y.J., Lim, H.K., Park, S.Y., Hahm, M.S. and Hwang, I.T., 2020, Oleic Acid Formation from Stearoyl-CoA and NADH in Vitro with a Δ -9-Desaturase KRICT Rt9 Recombinant Protein, *Bioresour. Technol. Rep.*, 11, 1-8.
- Hansen, R.B., Agerbaek, M.A., Nielsen, P.M., Madsen, A.R. and Woodley, J.M., 2020, Esterification Using a Liquid Lipase to Remove Residual Free Fatty Acids in Biodiesel, *Process. Biochem.*, 97, 213–221.

- Hettrich, K., Wagenknech, W., Volkert, B., and Fischer, S., 2008, New Possibilities of the Acetosulfation of Cellulose, *Macromol. Symp.*, 262 (1), 162-169.
- Jin, X., Song, J., dan Liu, G.Q., 2020, Bioethanol Production from Rice Straw Through an Enzymatic Route Mediated by Enzymes Developed In-House from *Aspergillus fumigatus*, *Energy*, 190, 1-10.
- Joonobi, M., Oladi, R., Davoudpour, Y., Oksman, K., Dufsrne, A., Hamzeh, Y., and Davoodi, R., 2015, Different Preparation Methods and Properties of Nanostructured Cellulose from Various Natural Resources and Residues: A Review, *Cellulose*, 22, 935–969.
- Jose, J., Thomas, V., Vinod, V., Abraham, R., and Abraham, S., 2019, Nanocellulose Based Functional Materials for Supercapacitor Applications, *J. Sci.: Adv. Mater. Devices.*, 4, 333-340.
- Klapiszewski, Ł., Szalaty, T.J., and Jesionowski, T., 2018, Depolymerization and Activation of Lignin: Current State of Knowledge and Perspectives, *Lignin - Trends and Applications*, 1-27.
- Krishania, M., Kumar, V., and Sanggwan, R.,S., 2018, Integrated Approach for Extraction of Xylose, Cellulose, Lignin and Silica from Rice Straw, *Bioresour. Technol. Rep.*, 1, 89–93.
- Lee, M., Zheng, Y., Chen, Y., and Zhu, X., 2014, Biodiesel Production from Waste Cooking Oil Using a Heterogeneous Catalyst from Pyrolyzed Rice Husk, *Bioresour. Technol.*, 154, 345–348.
- Leung, D.Y.C., Wu, X., and Leung, M.K.H., 2010, A Review on Biodiesel Production Using Catalyzed Transesterification, *Appl. Energy.*, 87, 1083–1095.
- Mahmud, M.M., Perveen, A., Jahan, R.A., Matin, M.A., Wong, S.Y., Li, X., and Arafat, M.T., 2019. Preparation of Different Polymorphs of Cellulose from Different Acid Hydrolysis Medium, *Int. J. Biol. Macromol.*, 130, 969-976.
- McMurry, J.E., 2012. *Organic Chemistry*, 8th Ed., International Edition, Brooks/Cole Cengage Learning, Canada.
- Molnes, S.N., Paso, K.G., Strand, S. and Syverud, K., 2017, The Effects of pH, Time and Temperature on the Stability and Viscosity of Cellulose Nanocrystal (CNC) Dispersions: Implications for Use in Enhanced Oil Recovery, *Cellulose*, 24, 4479–4491.
- Mukherjee, A., Banerjee, S., and Halder, G., 2018, Parametric Optimization of Delignification of Rice Straw Through Central Composite Design Approach Towards Application in Grafting, *J. Adv. Res.*, 14, 11-23.

- Mutlu, V.N., and Yilmaz, S., 2016, Esterification of Cetyl Alcohol with Palmitic Acid Over WO₃/Zr-SBA-15 and Zr-SBA-15 Catalysts, *Appl. Catal., A*, 522, 194–200.
- Naz, S., Ali, J.S. and Zi, M., 2019, Nanocellulose Isolation Characterization and Applications: A Journey from Non-remedial to Biomedical Claims, *Bio-Des. Manuf.*, 2, 187–212.
- Niu, F., Li, M., Huang, Q., Zhang, X., Pan, W., Yang, J., and Li, J., 2017, The Characteristic and Dispersion Stability of Nanocellulose Produced by Mixed Acid Hydrolysis and Ultrasonic Assistance, *Carbohydr. Polym.*, 165, 197-204.
- Nurchayani, M., Masyhuri, M., and Hartono, S., 2018, The Export Supply of Indonesian Crude Palm Oil (CPO) to India, *Agro Ekonomi*, 29 (1), 18-31.
- Nurhayati, Anita, S., Amri, T. A. and Linggawati, A., 2017, Esterification of Crude Palm Oil Using H₂SO₄ and Transesterification Using CaO Catalyst Derived from *Anadara granosa*, *Indones. J. Chem.*, 17 (2), 309 – 315.
- Prasanna, N. and Mitra, J., 2020, Isolation and Characterization of Cellulose Nanocrystals from *Cucumis sativus* Peels, *Carbohydr. Polym.*, 247, 1-10.
- Pratama, B. W., 2019, Sintesis Selulosa Sulfat dari Kayu Jati dan Uji Aktivitasnya sebagai Bahan *Enhanced Oil Recovery (EOR) Agent*, Skripsi, Departement Kimia, FMIPA, Universitas Gadjah Mada.
- Princi, E., Vicini, S., Proietti, N. and Capitani, D., 2005, Grafting Polymerization on Cellulose Based Textiles: A ¹³C Solid State NMR Characterization, *Eur. Polym. J.*, 41, 1196-1203.
- Qian, M., Liei, H., Villota, E., Mato, W., Zhao, Y., Huo, E., Zhang, Q., Lin, X., and Huang, Z., 2019, Optimization of Delignification from Douglas Fir Sawdust by Alkaline Pretreatment with Sodium Hydroxide and Its Effect on Structural and Chemical Properties of Lignin and Pyrolysis Products, *Bioresour. Technol.*, 8, 1-8.
- Rehman, N., Alam, S., Amin, N. U., Mian, I., and Ullah, H., 2018, Ecofriendly Isolation of Cellulose from *Eucalyptus lenceolata*: A Novel Approach, *Int. J. Polym. Sci.*, 2018, 1-7.
- Rehman, N., Miranda, M.I.G., Rosa, S.M.L., Pimentel, D.M., Nachtigall, S.M.B., and Bica, C.I.D., 2014, Cellulose and Nanocellulose from Maize Straw: An Insight on the Crystal Properties, *J. Polym. Environ.*, 22, 252–259.
- Rivai, H., Hamdani, A.S., Ramdani, R., Lalfari, R.S., Andayani, R., Armin, F., and Djamaan, A., 2018, Production and Characterization of Alpha Cellulose Derived From Rice Straw (*Oryza sativa L.*), *Int. J. Pharm. Sci. Rev. Res.*, 52 (1), 45-48.

- Robiger, B., Unkelbach, G., and Heinrich, D.P., 2018, *Base-Catalyzed Deolymmerization of Lignin: History, Challenges and Perspective*, chapter 4, 99-120.
- Shimizu, F.L., Azevedo, G.O., Coelho, L.F., Pagnoca, F.C. and Brienzo, M., 2020, Minimum Lignin and Xylan Removal to Improve Cellulose Accessibility, *Bioenergy. Res.*, 13, 775–785.
- Singh, D., Sharma, D., Soni, S.L., Sharma, S., Sharma, P.K., and Jhalani, A., 2020, A Review on Feedstocks, Production Processes, and Yield for Different Generations of Biodiesel, *Fuel*, 262, 1-15.
- Singh, H.K., Patil, T., Vineeth, S.K., Das, S., Pramanik, A. and Mhaske, S.T., 2020, Isolation of Microcrystalline Cellulose from Corn Stover with Emphasis on Its Constituents: Corn Cover and Corn Cob, *Materials Today: Proceedings*, 27, 589–594.
- Talaghat, M.R., Mokhtari, S., and Saadat, M., 2020, Modeling and Optimization of Biodiesel Production from Microalgae in a Batch Reactor, *Fuel*, 280, 1-9.
- Thakur, M., Sharma, A., Ahlawat, V., Bhattacharya, M. and Goswami, S., 2020, Process Optimization for the Production of Cellulose Nanocrystals from Rice Straw Derived A-Cellulose, *Mater. Sci. Energy. Technol.*, 3, 328–334.
- Tsegaye, B., Balomajumder, C., and Roy, P., 2019, Alkali Delignification and Bacillus sp. BMP01 Hydrolysis of Rice Straw for Enhancing Biofuel Yields, *Doc. Bull. Natl. Res. Cent.*, 43 (136), 1-10.
- Tshikovhi, A., Mishra, S.B. and Mishra, A.K., 2020, Nanocellulose-Based Composites for the Removal of Contaminants from Wastewater, *Int. J. Biol. Macromol.*, 152, 616–632.
- Wang, J., Liu, X., Jin, T., He, H., and Liu, L., 2019, Preparation of Nanocellulose and Its Potential in Reinforced Composites: A review, *J. Biomater. Sci. Polym. Ed.*, 30 (11), 919-946.
- Wong, W.Y., Lim, S., Pang, Y.L., Shuit, S.H., Chen, W.H., and Lee, K.T., 2020, Synthesis of Renewable Heterogeneous Acid Catalyst from Oil Palm Empty Fruit Bunch for Glycerol-Free Biodiesel Production, *Sci. Total. Environ.*, 727, 1-12.
- Yang, M., Zhang, X., and Cheng, G., 2019, A Two-Stage Pretreatment Using Dilute Sodium Hydroxide Solution Followed by An Ionic Liquid at Low Temperature: Toward Construction of Lignin-First Biomass Pretreatment, *Bioresour. Technol. Rep.*, 7, 1-6.
- Zahan, K.A. and Kano, M., 2018, Biodiesel Production from Palm Oil, Its By-Products, and Mill Effluent: A Review, *Energies*, 11 (2132), 1-25.

- Zhang, K., Peschel, D., Klinger, T., Gebauer, K., Grothb, T., and Fischer, S., 2010, Synthesis of Carboxyl Cellulose Sulfate with Various Contents of Regioselectively Introduced Sulfate and Carboxyl Groups, *Carbohydr. Polym.*, 82, 92–99.
- Zhang, Q., Lin, D., and Yao, S., 2015, Review on Biomedical and Bioengineering Applications of Cellulose Sulfate, *Carbohydr. Polym.*, 132,311-322.
- Zhao, S., Cheng, F., and Wei, Y., 2016, The Interactions Between Cationic Cellulose and Gemini Surfactant Inaqueous Solution, *Carbohydr. Polym.*, 141, 68–74.