



DAFTAR PUSTAKA

- Abioye, A. M., Noorden, Z. A., and Ani, F. N, 2017, Synthesis and Characterizations of Electroless Oil Palm Shell Based-Activated Carbon/Nickel Oxide Nanocomposite Electrodes for Supercapacitor Applications, *Electrochim. Acta*, 225, 493-502.
- Alisha, G.D., Trisunaryanti, W., and Syoufian, A., 2022, Hydrocracking of Waste Palm Cooking Oil into Hydrocarbon Compounds over Mo Catalyst Impregnated on SBA-15, *Silicon*, 14(5), 2309-2315.
- Ameen, M., Azizan, M.T., Yusup, S., Ramli, A., and Yasir, M., 2017, Catalytic Hydrodeoxygenation of Triglycerides: An Approach to Clean Diesel Fuel Production, *Renew. Sustain. Energy Rev*, 80, 1072-1088.
- Aziz, M.A., Jalil, A.A., Hamid, M.Y.S., Hassan, N.S., Khusnun, N.F., Bahari, M.B., Hatta, A.H., Aziz, M.A.H., Matmin, J., Zein, S.H., and Saravanan, R., 2023, Lamellar-Structured Fibrous Silica as a New Engineered Catalyst for Enhancing CO₂ Methanation, *Fuel*, 352, 129113.
- Azni, M. A., Md Khalid, R., Hasran, U.A., and Kamarudin, S.K., 2023, Review of the Effects of Fossil Fuels and the Need for a Hydrogen Fuel Cell Policy in Malaysia, *Sustainability*, 15(5), 4033.
- Bakti, A.I, and Gareso, P.L, 2018, Characterization of Active Carbon Prepared from Coconuts Shells Using FTIR, XRD and SEM Techniques, *Jurnal ilmiah Pendidikan Fisika Al-Biruni*, 7, 33-39.
- Bangjang, T., Kaewchada, A., and Jaree, A., 2021, Hydroprocessing of Palm Oil using Rh/HZSM-5 for the Production of Biojet Fuel in a Fixed Bed Reactor, *Can. J. Chem. Eng*, 99(2), 435-446.
- Benavides, A., Benjumea, P., Cortés, F.B., and Ruiz, M.A., 2021, Chemical Composition and Low-Temperature Fluidity Properties of Jet Fuels, *Processes*, 9, 1-13.
- Cheng, S., Wei, L., Zhao, X., Kadis, E., Cao, Y., Julson, J., and Gu, Z., 2016, Hydrodeoxygenation of Prairie Cordgrass Bio-Oil over Ni Based Activated Carbon Synergistic Catalysts Combined with Different Metals, *New Biotechnol*, 33(4), 440-448.
- Chintakanan, P., Vitidsant, T., Reubroycharoen, P., Kuchonthara, P., Kida, T., and Hincharanan, N., 2021, Bio-Jet Fuel Range in Biofuels Derived from Hydroconversion of Palm Olein over Ni/Zeolite Catalysts and Freezing Point of Biofuels/Jet A-1 Blends, *Fuel*, 293, 120472.



- Corma, A., and Orchillés, A.V., 2000, Current Views on the Mechanism of Catalytic Cracking, *Microporous Mesoporous Mater*, 35, 21-30.
- Dai, Y., Lu, P., Cao, Z., Campbell, C.T., and Xia, Y., 2018, The Physical Chemistry and Materials Science Behind Sinter-Resistant Catalysts, *Chem. Soc. Rev.*, 47(12), 4314-4331.
- Dian, N.L.H.M., Hamid, R.A., Kanagaratnam, S., Isa, W.A., Hassim, N.A.M., Ismail, N.H., Omar, Z., and Sahri, M.M., 2017, Palm Oil and Palm Kernel Oil: Versatile Ingredients for Food Applications. *J. Oil Palm Res*, 29(4), 487-511.
- Ding, S., Li, F., Li, Z., Yu, H., Song, C., Xiong, D., and Lin, H., 2021, Catalytic Hydrodeoxygenation of Waste Cooking Oil and Stearic Acid over Reduced Nickel Based Catalyst, *Catal. Commun.*, 149, 106235.
- Dionizio, D.G., Forrer, L., Berhault, G., de Souza, P.M., and Henriques, C.A., 2023, Enhancement of Hydrodeoxygenation Catalytic Performance Through the Addition of Copper to Molybdenum Oxide-Based Catalysts, *Mol. Catal.*, 536, 112882.
- Esy, N.P., Jamarun, N., and Wellia, D.V., 2015, Pengaruh Penambahan Gliserol dan Variasi Berat Pati Terhadap Sifat Mekanik Bioplastik dari Pati Umbi Talas, *Jurnal Kimia Unand*, 4(4), 116.
- Ferreira, R.S.B., dos Passos, R.M., Sampaio, K.A., and Batista, E.A.C., 2019, Heterogeneous Catalysts for Biodiesel Production: A Review, *Food Public Health*, 9, 125-137.
- Fitriarsari, E.I., Won, W., and Liu, J.J., 2023, Sustainability Assessment of Biojet Fuel Produced from Pyrolysis Oil of Woody Biomass, *Sustain. Energy Fuels*, 7, 3625-3636.
- Heidarinejad, Z., Dehghani, M. H., Heidari, M., Javedan, G., Ali, I., and Sillanpää, M., 2020, Methods for Preparation and Activation of Activated Carbon: a Review, *Environ. Chem. Lett.*, 18, 393-415.
- Huang, J., Xu, Z., Cao, L., Zhang, Q., Ouyang, H., and Li, J., 2015, Tailoring MoO₂/Graphene Oxide Nanostructures for Stable High-Density Sodium-Ion Battery Anodes. *Energy Technol*, 3(11), 1108-1114.
- Ishaq, M., Ghose, G., Fernandez-Gonzalez, R., Puime-Guillen, F., Tandir, N., and Santos de Oliveira, H.M., 2022, From Fossil Energy to Renewable Energy: Why is Circular Economy Needed in the Energy Transition?, *Front. Environ. Sci*, 10, 941791.



- Itthibenchapong, V., Srifa, A., Kaewmeesri, R., Kidkhunthod, P. and Faungnawakij, K., 2017, Deoxygenation of Palm Kernel Oil to Jet Fuel-like Hydrocarbons using Ni-MoS₂/γ-Al₂O₃ Catalysts, *Energi Convers. Manag.*, 134, 188-196.
- Iwanow, M., Gärtner, T., Sieber, V., and König, B., 2020, Activated Carbon as Catalyst Support: Precursors, Preparation, Modification and Characterization, *Beilstein J. Org. Chem.*, 16(1), 1188-1202.
- Jin, C., Liu, X., Sun, T., Ampah, J.D., Geng, Z., Ikram, M., Ji, J., Wang, G., and Liu, H., 2021, Preparation of Ethanol and Palm Oil/Palm Kernel Oil Alternative Biofuels Based on Property Improvement and Particle Size Analysis, *Fuel*, 305, 121569.1-11.
- Kawigraha, A.D.H., Krisnandi, Y.K. and Abdullah, I., 2020, February. Synthesis of Impregnated Nickel-Mesoporous Carbon and its Application for Reaction of Acetylene with Carbon Dioxide, *IOP Conf. Ser.: Mater. Sci. Eng*, 763(1).
- Kumar, R., Kumar, A., Rao, B.K., Srivastava, A.K., Verma, M.L., and Misra, N., 2021, Structural and Electronic Properties of 2D-Activated Carbon Sheet, *Carbon Lett*, 31, 483-488.
- Kurnia, D., Asri, R., Dinata, D.I., and Nurachman, Z., 2018, Analisis Asam Lemak Mikroalga Laut Chlorella sp. Pada Medium Modifikasi Dengan Kromatografi Gas Spektrometri Massa (KG-SM), *Journal of Pharmacopolium*, 1(1), 1-8.
- Li, J., Han, D., and Xia, S., 2023, Highly Efficient Catalytic Hydrodeoxygenation for Aliphatic Acid to Liquid Alkane: The Role of Molybdenum, *Catalysts*, 13(10), 1329.
- Liew, R.K., Chong, M.Y., Osazuwa, O.U., Nam, W.L., Phang, X.Y., Su, M.H., Cheng, C.K., Chong, C.T., and Lam, S.S., 2018, Production of Activated Carbon as Catalyst support by Microwave Pyrolysis of Palm Kernel Shell: a Comparative Study of Chemical Versus Physical Activation, *Res. Chem. Intermed.*, 44, 3849-3865.
- Lim, J.H.K., Gan, Y.Y., Ong, H.C., Lau, B.F., Chen, W.H., Chong, C.T., Ling, T.C., and Klemeš, J.J., 2021, Utilization of Microalgae for Bio-Jet Fuel Production in the Aviation Sector: Challenges and Perspective. *Renew. Sustain. Energy. Rev*, 149, 111396.



- Lim, Y.L., Tenorio, F.A., Monzon, J.P., Sugianto, H., Donough, C.R., Rahutomo, S., Agus, F., Slingerland, M.A., Darlan, N.H., Dwiyahreni, A.A., and Farrasati, R., 2023, Too little, too mbalanced: Nutrient Supply in Smallholder Oil Palm Fields in Indonesia, *Agric. Syst.*, 210, 103729.
- Lin, C.H., Chen, Y.K., and Wang, W.C., 2020, The Production of Bio-Jet Fuel from Palm Oil Derived Alkanes, *Fuel*, 260, 116345.
- Lin, M., Yan, Y., Li, X., Li, R. and Wu, Y., 2024. Hydrothermal Hydrogenation/Deoxygenation of Palmitic Acid to Alkanes over Ni/Activated Carbon Catalyst, *Chin. J. Chem. Eng.*, 66, 8-18.
- Liu, L., and Corma, A., 2018, Metal Catalysts for Heterogeneous Catalysis: from Single Atoms to Nanoclusters and Nanoparticles, *Chem. Rev.*, 118(10), 4981-5079.
- Mahene, W.L., Kivevele, T. and Machunda, R., 2023. The role of textural properties and surface chemistry of activated carbon support in catalytic deoxygenation of triglycerides into renewable diesel, *Catal. Commun.*, 106737.
- Makcharoen, M., Kaewchada, A., Akkarawatkhoosith, N., and Jaree, A., 2021, Biojet Fuel Production via Deoxygenation of Crude Palm Kernel Oil using Pt/C as Catalyst in a Continuous Fixed Bed Reactor. *Energy Convers. Manag.: X*, 12, 100125.
- Munnik, P., De Jongh, P.E., and De Jong, K.P., 2015, Recent Developments in the Synthesis of Supported Catalysts, *Chem. Rev.*, 115(14), 6687-6718.
- Muzarpar, M.S., Leman, A.M., Rahman, K.A., Shayfull, Z., and Irfan, A.R., 2020, May. Exploration Sustainable Base Material for Activated Carbon Production Using Agriculture Waste as Raw Materials: a Review, *IOP Conf. Ser.: Mater. Sci. Eng.*, 864(1).
- Nainggolan, M., and Sinaga, A.G.S., 2021, Characteristics of Fatty Acid Composition and Minor Constituents of Red Palm Olein and Palm Kernel Oil Combination. *J. Adv. Pharm. Technol. Res.*, 12(1), 22.
- Nugraha, R.E., Sunarti, A.R., Tehubijuluw, H., and Mumtazah, Z., 2022, Effect of Catalyst Properties on the Deoxygenation Reaction of Vegetable Oil and Model Compound to Produce Diesel Range Hydrocarbon Fuels: A Review, *Jurnal Kimia Riset*, 7(1).
- Nurulain, S., Aziz, N. A., Najib, M.S., Salim, M.R., and Manap, H., 2021, A Review of Free Fatty Acid Determination Methods for Palm Cooking Oil, *J. Phys. Conf. Ser.*, 1921(1).



- Pan, Z., Wang, R., Li, M., Chu, Y., and Chen, J., 2015, Deoxygenation of Methyl Laurate to Hydrocarbons on Silica-Supported Ni-Mo Phosphides: Effect of Calcination Temperatures of Precursor, *J. Energy. Chem.*, 24(1), 77-86.
- Peters, M.A., Alves, C.T., and Onwudili, J.A., 2023, A Review of Current and Emerging Production Technologies for Biomass-Derived Sustainable Aviation Fuels, *Energies*, 16(16), 6100.
- Prasomsri, T., Nimmanwudipong, T., and Román-Leshkov, Y., 2013, Effective Hydrodeoxygenation of Biomass-Derived Oxygenates into Unsaturated Hydrocarbons by MoO₃ using Low H₂ Pressures, *Energi Environ. Sci.*, 6(6), 1732-1738.
- Rasyid, R., 2015, Efektifitas Katalis Co/Mo Pada Hydrocracking Minyak Nyamplung, *Reaktor*, 15(2), 268-273.
- Riahi, K.Z., Sdiri, N., Ennigrou, D.J., and Horchani-Naifer, K., 2020, Investigations on Electrical Conductivity and Dielectric Properties of Graphene Oxide Nanosheets Synthesized from Modified Hummer's Method, *J. Mol. Struct.*, 1216, 128304.
- Riyanto, T., Istadi, I., Jongsomjit, B., Anggoro, D.D., Pratama, A.A., and Faris, M.A.A., 2021, Improved Brønsted to Lewis (B/L) ratio of Co-and Mo-Impregnated ZSM-5 Catalysts for Palm Oil Conversion to Hydrocarbon-Rich Biofuels, *Catalysts*, 11(11), 1286.
- Ruangudomsakul, M., Osakoo, N., Keawkumay, C., Kongmanklang, C., Butburee, T., Kiatphuengporn, S., Faungnawakij, K., Chanlek, N., Wittayakun, J., and Khemthong, P., 2021, Influential Properties of Activated Carbon on Dispersion of Nickel Phosphides and Catalytic Performance in Hydrodeoxygenation of Palm Oil, *Catal. Today*, 367, 153-164.
- Ruhul, A.M., Kalam, M.A., Masjuki, H.H., Fattah, I.R., Reham, S.S., and Rashed, M.M., 2015, State of the Art of Biodiesel Production Processes: a Review of the Heterogeneous Catalyst, *RSC Adv.*, 5(122), 101023-101044.
- Sasaki, T., Kasai, H., and Nishibori, E., 2019, Aspherical and Covalent Bonding Character of d Electrons of Molybdenum From Synchrotron X-Ray Diffraction, *J.Phys. Commun.*, 3(9), 095009.
- She, H., Sun, Y., Li, S., Huang, J., Wang, L., Zhu, G., and Wang, Q., 2019, Synthesis of non-Noble Metal Nickel Doped Sulfide Solid Solution for Improved Photocatalytic Performance. *Appl. Catal. B*, 245, 439-447.



- Sher, F., Raore, D., Klemeš, J.J., Rafi-ul-Shan, P.M., Khzouz, M., Marintseva, K., and Razmkhah, O., 2021, Unprecedented Impacts of Aviation Emissions on Global Environmental and Climate Change Scenario, *Curr.Pollut.Rep.*, 1-16.
- Srihanun, N., Dujjanutat, P., Muanruksa, P., and Kaewkannetra, P., 2020, Biofuels of Green Diesel–Kerosene–Gasoline Production from Palm Oil: Effect of Palladium Cooperated with Second Metal on Hydrocracking Reaction, *Catalysts*, 10(2), 241.
- Sugianto, D.J., Wijaya, K., and Tahir, I., 2014, Karakterisasi dan Aplikasi Katalis Nikel-Molibdenum Teremban Pada Zeolit Alam Aktif untuk Hidrorengkah Tir Batubara. *Jurnal Natur Indonesia*, 16(1), 10-22.
- Susi, E.P., Wijaya, K., Pratika, R.A., and Hariani, P.L., 2020, Effect of Nickel Concentration in Natural Zeolite as Catalyst in Hydrocracking Process of Used Cooking Oil, *Asian J. Chem*, 32, 2773-2777.
- Tabandeh, M., Cheng, C.K., Centi, G., Show, P.L., Chen, W.H., Ling, T.C., Ong, H.C., Ng, E.P., Juan, J.C., and Lam, S.S., 2022, Recent Advancement in Deoxygenation of Fatty Acids via Homogeneous Catalysis for Biofuel Production, *Mol. Catal.*, 523, 111207.
- Trisunaryanti, W., Triyono, T., Purwono, S., Purwanti, A.S., and Sumbogo, S.D., 2022, Synthesis of Mesoporous Carbon from Merbau Sawdust as a Nickel Metal Catalyst Support for Castor Oil Hydrocracking, *Bull. Chem. React. Eng. Catal.*, 17(1), 216-224.
- Trisunaryanti, W., Wijaya, K., Kartini, I., Purwono, S., Mara, A., and Budiyansah, A., 2023, Preparation of Mo-Impregnated Mordenite Catalysts for the Conversion of Refined Kernel Palm Oil into Bioavtur, *Commun. Sci. Technol.*, 8(2), 226-234.
- Trisunaryanti, W., Wijaya, K., Kartini, I., Purwono, S., Rodiansono, Mara, A., and Rahma, A.S., 2024, Hydrodeoxygenation of Refined Palm Kernel Oil (RPKO) into Bio-Jet Fuel using Mo/H-ZSM-5 Catalysts, *Reaction Kinetics, Mech. Catal.*, 1-36.
- Triyono, Trisunaryanti, W., Purbonegoro, J., and Aksanti, S.I., 2024, Effect of Cobalt Impregnation Methods on Parangtritis Sand towards Catalysts Activity in Hydrocracking of Degummed Low-Quality Ujung Kulon Malapari Oil into Biohydrocarbons, *React. Kinet. Mech. Catal.*, 137(1), 303-321.
- Wang, W.C., and Tao, L., 2016, Bio-Jet Fuel Conversion Technologies, *Renew. Sustain. Energy. Rev*, 53, 801-822.



- Wang, W., Zhang, X., Jiang, Z., Cui, Y., Kang, Q., Zhao, X., Zhang, Q., and Ma, L., 2022, Controllably Produce Renewable Jet Fuel with High-Density and Low - Freezing Points from Lignocellulose - Derived Cyclopentanone, *Fuel*, 321, 124114.
- Wei, H., Liu, W., Chen, X., Yang, Q., Li, J., and Chen, H., 2019, Renewable Bio-Jet Fuel Production for Aviation: A review, *Fuel*, 254, 115599.
- Why, E.S.K., Ong, H.C., Lee, H.V., Chen, W.H., Asikin-Mijan, N., Varman, M., and Loh, W.J., 2022, Single-Step Catalytic Deoxygenation of Palm Feedstocks for the Production of Sustainable Bio-Jet Fuel, *Energy*, 239, 122017.
- Wijaya, K., Kurniawan, M.A., Saputri, W.D., Trisunaryanti, W., Mirzan, M., Hariani, P.L., and Tikoalu, A.D., 2021, Synthesis of Nickel Catalyst Supported on ZrO₂/SO₄ Pillared Bentonite and its Application for Conversion of Coconut Oil into Gasoline via Hydrocracking Process, *J. Environ. Chem. Eng.*, 9(4), 105399.
- Wijaya, K., Nadia, A., Dinana, A., Pratiwi, A.F., Tikoalu, A.D., and Wibowo, A.C., 2021, Catalytic Hydrocracking of Fresh and Waste Frying Oil Over Ni- and Mo-Based Catalysts Supported on Sulfated Silica for Biogasoline Production, *Catalysts*, 11(10), 1150
- Yang, C., Wang, W., Wang, D., Gong, M., Xin, Y., Xiao, L., Kikhtyanin, O. V., Kubicka, D., and Wu, W., 2022, The Promotion Effects of MoO_x Species in the Highly Effective NiMo/MgAl₂O₄ Catalysts for the Hydrodeoxygenation of Methyl Palmitate, *J. Environ. Chem. Eng.*, 10, 107761.
- Zhang, J., Fidalgo, B., Shen, D., Zhang, X., and Gu, S., 2018, Mechanism of Hydrodeoxygenation (HDO) in Anisole Decomposition over Metal Loaded Brønsted Acid Sites: Density Functional Theory (DFT) Study, *Mol. Catal.*, 454, 30-37.
- Zha, X.H., Ma, X., Ren, J.C., Luo, J.T., and Fu, C., 2023, Alloying Aluminum Nitride with Molybdenum Could Significantly Enhance its Electromechanical Coupling Constant, *J. Alloy. Compd.*, 968, 171857.
- Zhukovskiy, Y.L., Batueva, D.E., Buldysko, A.D., Gil, B., and Starshaia, V.V., 2021, Fossil Energy in the Framework of Sustainable Development: Analysis of Prospects and Development of Forecast Scenarios, *Energies*, 14(17), 5268.