

DAFTAR PUSTAKA

- Abrobi. (2024). *PT. Selago Makmur Plantation*. Abrobi.
<https://www.abrobi.or.id/id/member/pt-selago-makmur-plantation/>
- Ahmad, A. L. bin, Sumathi, S., & Hameed, B. H. (2004). Coagulation-Adsorption of Suspended Solids and Residual Oil from Palm Oil Mill Effluent Using Chitosan. *Asean Journal of Chemical Engineering*, 4(2), 48–57.
- Ali, S. M., & Aziz, S. Q. (2023). Dissolved Air Flotation (DAF) operational parameters and limitations for wastewaters treatment with cost study. *Recycling and Sustainable Development*, 16(1), 91–97. <https://doi.org/10.5937/ror2301091a>
- Amiri, S., Vatanpour, V., & He, T. (2022). Optimization of Coagulation-Flocculation Process in Efficient Arsenic Removal from Highly Contaminated Groundwater by Response Surface Methodology. *Molecules*, 27(22).
<https://doi.org/10.3390/molecules27227953>
- Ardhianto, R., & Hermawan, F. (2025). Sistem Pengolahan Air Limbah Hybrid (Koagulasi, Moving Bed Biofilm Reactor, Elektrokoagulasi dan Ultrafiltrasi) dalam Pemenuhan Baku Mutu Air Limbah Industri Farmasi Berbasis Non-Beta-Laktamase. *Jpii*, 2(6), 379–387. <https://doi.org/10.14710/jpii.2024.25119>
- Atamaleki, A., Mostafaii, G., Miranzadeh, M. B., Akbari, H., Iranshahi, L., & Salem, A. (2017). Application of dissolved air flotation process for industrial sludge thickening: A laboratory-scale study. *International Archives of Health Sciences*, 4(1), 22–26.
https://doi.org/10.4103/iahs.iahs_11_17
- Bansod, Y., Ghasemzadeh, K., & D'Agostino, C. (2025). Techno-economic assessment of biodiesel-derived crude glycerol purification processes. *RSC Sustainability*, 3, 2605–2618. <https://doi.org/10.1039/d4su00599f>
- Barus, L., & Masra, F. (2022). Kajian Pengolahan Limbah Cair CPO (Minyak Sawit Mentah) dengan Air Laut dan PAC (Poly Aluminium Chlorida) dalam Menurunkan Kadar Minyak/ Lemak, BOD, COD, TSS dan Menstabilkan Nilai pH. *Jurnal Kesehatan*, 13(1), 192–198. <https://doi.org/10.26630/jk.v13i1.2985>
- Bengtson, H. H. (2017). *Biological Wastewater Treatment Processes I: Activated Sludge Credit: 2 PDH* (Issue 877).
- BPS. (2024). *Produksi Tanaman Perkebunan*. Badan Pusat Statistik.
<https://www.bps.go.id/id/statistics-table/2/MTMyIzI=/produksi-tanaman->

- Buasri, A., Chaikut, N., Loryuenyong, V., Phakdeepataraphan, E., Watpathomsub, S., & Kunakemakorn, V. (2013). Utilization of Biodiesel Wastes as a Bioresource for the Preparation of Activated Carbon. *International Journal of Applied Physics and Mathematics*, 3(3), 173–177. <https://doi.org/10.7763/ijapm.2013.v3.200>
- Chen, Y., Jiang, X., Yang, M., & Wang, Z. (2025). Biotechnology revival: in situ sludge minimization in wastewater. *Frontiers in Microbiology*, 16(May), 1–16. <https://doi.org/10.3389/fmicb.2025.1603215>
- Darmadi, Lubis, M. R., Hizir, Chairunnisak, A., & Arifin, B. (2018). Comparison of Palm Oil Mill Effluent Electrocoagulation by Using Fe-Fe and Al-Al Electrodes : Box-Behnken Design. *Asean Journal of Chemical Engineering*, 18(1), 30–43.
- Daud, Z., Tajarudin, H. A., Gomesh, N., Santiagoo, R., Awang, H., Nasir, N., Detho, A., & Ridzuan, M. B. (2020). Coagulation and flocculation treatment of biodiesel wastewater using ferric chloride. *IOP Conference Series: Earth and Environmental Science*, 616(1). <https://doi.org/10.1088/1755-1315/616/1/012066>
- Falatehan, A. F., & Siswanto, A. D. (2014). Pengembangan Biodiesel Kelapa Sawit di Indonesia. *Jurnal Manajemen Pembangunan Daerah*, 6(1), 97–104.
- Febriani, A. V., Idris, M., & Hakim, L. (2024). Transformasi Minyak Jelantah menjadi Renewable Energy Dalam Perspektif Al Islam dan Kemuhammadiyah. *Jurnal Kemuhammadiyah Dan Integrasi Ilmu*, 2(2), 193–202. <https://jurnal.umj.ac.id/index.php/JKII/article/view/25656/11722>
- Fikri, M. (2021). Penggunaan Teknologi Clarifier Tank pada Pengolahan Air Limbah Industri Kelapa Sawit. *Prosiding Seminar Nasional Lahan Suboptimal*, 803–810.
- Gebreegziabher, B. W., Dubale, A. A., Adaramola, M. S., & Morken, J. (2025). Advancing Anaerobic Digestion of Biodiesel Byproducts: A Comprehensive Review. *Bioenergy Research*, 18(1), 1–25. <https://doi.org/10.1007/s12155-025-10820-4>
- Gebremariam, S. N., Hvoslef-eide, T., Terfa, M. T., & Marchetti, J. M. (2019). energies Techno-Economic Performance of Different Technological Based Bio-Refineries for. *Energies*, 12(3916), 1–21. <https://doi.org/10.3390/en12203916>
- Gholami, A., Pourfayaz, F., & Maleki, A. (2021). Techno-economic assessment of biodiesel production from canola oil through ultrasonic cavitation. *Energy Reports*, 7, 266–277. <https://doi.org/10.1016/j.egyr.2020.12.022>
- Glisic, S. B., Pajnik, J. M., & Orlović, A. M. (2016). Process and techno-economic analysis of green diesel production from waste vegetable oil and the comparison with ester type

- biodiesel production. *Applied Energy*, 170, 176–185.
<https://doi.org/10.1016/j.apenergy.2016.02.102>
- Govindaraju, R., Chen, S. S., Wang, L. P., Chang, H. M., & Pasawan, M. (2021). Significance of Membrane Applications for High-Quality Biodiesel and Byproduct (Glycerol) in Biofuel Industries—Review. *Current Pollution Reports*, 7(2), 128–145.
<https://doi.org/10.1007/s40726-021-00182-8>
- Grobbelaar, L. (2019). Treatment of biodiesel wastewater in a hybrid anaerobic baffled reactor microbial fuel cell (ABR-MFC) system [thesis]. *Chemical Engineering in the Faculty of Engineering., March*.
- Guyer, J. P., Asce, F., & Aei, F. (2011). An Introduction to Sludge Handling , Treatment and Disposal. *Continuing Education*, 13(877), 709–716.
<http://www.ncbi.nlm.nih.gov/pubmed/18347599>
- Hakim, L., Rahayu, A., Jamilatun, S., Sisca, V., & Fajri, J. A. (2025). Integrating ammonium-based polymer with phytoremediation for phosphate and chemical oxygen demand reduction in palm oil mill effluent. *Journal of Ecological Engineering*, 26(1), 46–58. <https://doi.org/10.12911/22998993/195213>
- Hariyadi, T. P., & Jelita, M. (2024). Analisis Potensi dan Evaluasi Emisi Biodiesel dari Palm Oil Mill Effluent. *Jurnal Al-Azhar Indonesia Seri Sains Dan Teknologi*, 9(2), 115–128.
<https://doi.org/10.36722/sst.v9i2.2754>
- Hernaningsih, T. (2018). Aplikasi Membrane Bioreactor (Mbr) Untuk Proses Daur Ulang Air Limbah. *Jurnal Air Indonesia*, 7(2). <https://doi.org/10.29122/jai.v7i2.2410>
- Hilmawan, E., Widiati, A., Febriyani, A. L., & Dewi, R. E. P. (2020). Analisis Teknoekonomi Penerapan Teknologi Biorefinery Pada Pabrik Kelapa Sawit. *Majalah Ilmiah Pengkajian Industri*, 14(1), 59–70. <https://doi.org/10.29122/mipi.v14i1.3978>
- Husen, A. K., Bidira, F., Adane, E., Melaku, B., Wendesen, T., & Desta, M. (2024). Color , COD , and turbidity removal from surface water by using linseed and alum coagulants : optimization through response surface methodology. *Applied Water Science*, 14(9), 1–16. <https://doi.org/10.1007/s13201-024-02240-0>
- Innocenzi, V., & Prisciandaro, M. (2021). Technical feasibility of biodiesel production from virgin oil and waste cooking oil: Comparison between traditional and innovative process based on hydrodynamic cavitation. *Waste Management*, 122, 15–25.
<https://doi.org/10.1016/j.wasman.2020.12.034>
- Kementerian Lingkungan Hidup Republik Indonesia. (2014). *Peraturan Menteri Lingkungan Hidup Republik Indonesia*. Kementerian Lingkungan Hidup Republik

Indonesia. <https://jdih.maritim.go.id/en/peraturan-menteri-negara-lingkungan-hidup-no-5-tahun-2014>

- Khairiah, H., & Linggom, U. (2023). Proses Bioremediasi Ex-Situ Pada Pengolahan Limbah Cair Crude Palm Oil (CPO). *Jurnal Sains Dan Ilmu Terapan*, 6(1), 19–23. <https://doi.org/10.59061/jsit.v6i1.139>
- Kristianto, H., Jennifer, A., Sugih, A. K., & Prasetyo, S. (2020). Potensi Polisakarida dari Limbah Buah-buahan sebagai Koagulan Alami dalam Pengolahan Air dan Limbah Cair: Review. *Jurnal Rekayasa Proses*, 14(2), 108–127. <https://doi.org/10.22146/jrekpros.57798>
- Lech, M., Klimek, A., Porzybot, D., & Trusek, A. (2022). Three-Stage Membrane Treatment of Wastewater from Biodiesel Production-Preliminary Research. *Membranes*, 12(39), 1–11.
- Lewar, Y. S., Herawati, H., & Kahar, A. (2020). Pengaruh Temperatur Terhadap COD, BOD dan VFA pada Pengolahan Limbah Cair Pabrik Kelapa Sawit (LCPKS) dalam Bioreaktor Anaerobik. *Jurnal Chemurgy*, 4(2), 8. <https://doi.org/10.30872/cmg.v4i2.4588>
- Lier, J. B. Van, Mahmoud, N., & Grietje, Z. (2008). Anaerobic Wastewater Treatment. In *Acta Arithmetica* (Vol. 151, Issue 4). IWA Publishing. <https://doi.org/10.4064/aa151-4-5>
- Ljunggren, M. (2006). Micro screening in wastewater treatment – an overview. *Vatten*, 62, 171–177.
- Martini, S., Yuliwati, E., & Kharismadewi, D. (2020). Pembuatan Teknologi Pengolahan Limbah Cair Industri. *Distilasi*, 5(2), 26–33.
- Mirzayanti, Y. W., Purwaningsih, D. Y., Mustofa, Awaludin, A. F., & Niam, A. C. (2024). Enhancing Industrial Wastewater Oil Removal Through Integrated Coagulation–Flocculation Pretreatment and Dissolved Air Flotation (DAF). *Journal of Research and Technology*, 10(2), 243–251. <https://doi.org/10.55732/jrt.v10i2.1516>
- Mohammed, T., & Albarazanje, M. (2019). Study the Performance of Dissolved Air Flotation as Industrial Wastewater Treatment Method. *Engineering and Technology Journal*, 37(3C), 333–337. <https://doi.org/10.30684/etj.37.3c.5>
- Mursitaningrum, A. P., Fricilia, D. K., & Adhani, L. (2024). Efektivitas Koagulan PAC dan Aluminium Sulfat dengan Kombinasi Flokulan pada Limbah Cair Pabrik Sepeda Motor. *Jurnal Sains Dan Edukasi Sains*, 7(2), 90–95. <https://doi.org/10.24246/juses.v7i2p90-95>

- Nur, M. F. M., Putra, N. H., & Ningsih, E. (2020). Kombinasi Koagulan dan Flokulan dalam Pengolaha Air Limbah Industri Farmasi. *Seminar Nasional Sains Dan Teknologi Terapan*, 01(01), 339–344.
- Pampang, H., Ole, M. A. N., & Darajat, Z. (2022). Efektivitas Penggunaan Poli Aluminium Klorida (PAC) dan Aluminium Sulfat (Tawas) Dalam Pengolahan Limbah Cair Industri pada Waste Water Treatment Plant (WWTP) PT. KIMA Makassar dengan Metode Koagulasi Menggunakan Jar Test. *KOLONI: Jurnal Multidisiplin Ilmu*, 1(4), 853–858.
- PT. Basuki Water Indonesia. (2023). *Wastewater Treatment Plant 360 m3/day PT Selago Makmur Plantation*.
- Raishsha, R., & Mardiyanto, M. A. (2017). Design of the wastewater treatment system of an office building. *Sustinere: Journal of Environment and Sustainability*, 1(1), 48–62. <https://doi.org/10.22515/sustinere.jes.v1i2.15>
- Ristyana, L. (2022). Analisis Kandungan DO, BOD, COD, TS, TDS, TSS dan Analisis Karakteristik Fisikokimia Limbah Cair Industri Tahu di UMKM Daerah Imogiri Barat Yogyakarta. *Universitas Ahmad Dahlan, June*, 1–22.
- Sae-Ngae, S., Cheirsilp, B., Louhasakul, Y., Suksaroj, T. T., & Intharapat, P. (2020). Techno-economic analysis and environmental impact of biovalorization of agro-industrial wastes for biodiesel feedstocks by oleaginous yeasts. *Sustainable Environment Research*, 30(11), 1–13. <https://doi.org/10.1186/s42834-020-00052-w>
- Sari-Erkan, H. (2019). Wastewater treatment from the biodiesel production using waste cooking oil by electrocoagulation: A multivariate approach. *Water Science and Technology*, 79(12), 2366–2377. <https://doi.org/10.2166/wst.2019.238>
- Satbhai, S. M., Topare, N. S., Bhutada, D. S., Bokil, S. A., Wadgaonkar, V. S., & Gunnasegaran, P. (2023). Review on Biodiesel Wastewater Treatment Using Membrane Bioreactor (MBR) Technology. *International Journal of Membrane Science and Technology*, 10(3), 795–814. <https://doi.org/10.15379/ijmst.v10i3.1601>
- Setyawan, T. K. A., Lolo, E. U., Sudaryantiningsih, C., & Widiyanto. (2025). Efektivitas Variasi Dosis Koagulan PAC Pada Pengolahan Limbah Cair Industri Tahu Untuk Penurunan Parameter BOD Dan TSS (Studi Kasus: Industri Tahu Dele Emas, Kampung Krajan, Kelurahan Mojosongo, Kota Surakarta). *Jurnal Solo Teknologi*, 1(1), 1–9.
- Sharma, M., Rawat, S., & Rautela, A. (2024). Phytoremediation in sustainable wastewater management: an eco-friendly review of current techniques and future prospects. *Aqua Water Infrastructure, Ecosystems and Society*, 73(9), 1946–1975. <https://doi.org/10.2166/aqua.2024.427>

- Shelmet, W. (2016). Screen Maintenance Improves Water and Wastewater Treatment Plant Performance. *Opflow*, 42(11), 16–18. <https://www.jstor.org/stable/90004064>
- Soonmin, H., & Kabbashi, N. A. (2021). Review on activated carbon: Synthesis, properties and applications. *International Journal of Engineering Trends and Technology*, 69(9), 124–139. <https://doi.org/10.14445/22315381/IJETT-V69I9P216>
- Sperling, M. Von. (2007). *Biological Wastewater Treatment Series Sludge and Aerobic Biofilm* (Vol. 5).
- Sulistyo, H., Rahayu, S. S., Sediawan, W. B., Sarto, Yusuf, & Nainggolan, R. (2012). Water Treatment by Coagulation-Flocculation Using Ferric Sulphate as Coagulant. *Asean Journal of Chemical Engineering*, 12(1), 42–50.
- Syafila, M., Setiadi, T., Haris Mulyadi, A., & -, E. (2007). Kajian Biodegradasi Limbah Cair Industri Biodiesel pada Kondisi Anaerob dan Aerob. *ITB Journal of Sciences*, 39(1&2), 166–178. <https://doi.org/10.5614/itbj.sci.2007.39.1-2.9>
- Tabassum, S., Zhang, Y., & Zhang, Z. (2015). An integrated method for palm oil mill effluent (POME) treatment for achieving zero liquid discharge - A pilot study. *Journal of Cleaner Production*, 95(November), 148–155. <https://doi.org/10.1016/j.jclepro.2015.02.056>
- Tessele, F., & Van Lier, J. B. (2020). Anaerobic digestion and the circular economy. *Water E-Journal*, 5(3).
- Viena, V., Bahagia, Nurlaini, & Juanda, R. (2023). Efektivitas Penurunan COD , BOD dan TSS Limbah Industri Sawit Menggunakan Koagulan Kimia dan Ekstrak Alami Pati Pelepah Sawit. *Jurnal Serambi Engineering*, 8(1), 4931–4939.
- Vignesh, P., Pradeep Kumar, A. R., Ganesh, N. S., Jayaseelan, V., & Sudhakar, K. (2021). Biodiesel and green diesel generation: An overview. *Oil and Gas Science and Technology*, 76. <https://doi.org/10.2516/ogst/2020088>
- Vonny, A. A., Akrim, D., Jumadil, J., Syaiful, A. Z., & Fikruddin, M. (2025). Perancangan Instalasi Pengolahan Air Limbah (IPAL) Pabrik Kelapa Sawit. *JEBE: Journal of Environment Behavior and Engineering*, 1(2), 17–33. <https://doi.org/10.56326/jebe.v1i2.5356>
- Wentzell, B. M. (2025). Phytoremediation for water quality improvement: current advances and future prospects. *Biotechnology for the Environment*, 2(1). <https://doi.org/10.1186/s44314-025-00022-9>
- Widyadhana, A., & Sururi, M. R. (2024). Evaluasi Sistem Instalasi Pengolahan Air Limbah Industri PET PT.X. *Envirous*, 4(2), 11–18. <https://doi.org/10.33005/envirous.v4i2.175>

- Yekti, A., Nurhayati, E., Prameswari, S., Manah, H., Agung, A., Reinata, W., Yulikasari, A., Warmadewanthi, I. D. A. A., & Lin, T. (2023). The role of aeration and pre-chlorination prior to coagulation-flocculation process in water treatment : A laboratory and field research in Indonesia. *Case Studies in Chemical and Environmental Engineering*, 7(February), 100352. <https://doi.org/10.1016/j.cscee.2023.100352>
- Zeng, P., Liu, Y. Q., Li, J., & Liao, M. (2024). The Aerobic Granules Process for Wastewater Treatment: From Theory to Engineering. *Processes*, 12(4), 1–18. <https://doi.org/10.3390/pr12040707>
- Zhao, P., Li, L., Song, X., Wang, M., Zhang, Z., Li, Y., Zhao, Y., & Li, B. L. (2025). Enhancing the efficiency of coagulation method for sewage treatment by adding sludge. *PLoS One*, 20(4), 1–15. <https://doi.org/10.1371/journal.pone.0321286>