

DAFTAR PUSTAKA

- A.F. Mohd Udaiyappan, H. Abu Hasan, M.S. Takriff, S.R. Sheikh Abdullah, A review of the potentials, challenges and current status of microalgae biomass applications in industrial wastewater treatment, *J. Water Process. Eng.* 20 (2017) 8–21, <https://doi.org/10.1016/j.jwpe.2017.09.006>.
- Abdelfattah, A., Ali, S. S., Ramadan, H., El-Aswar, E. I., Eltawab, R., Ho, S. H., Elsamahy, T., Li, S., El-Sheekh, M. M., Schagerl, M., Kornaros, M., & Sun, J. (2023). Microalgae-based wastewater treatment: Mechanisms, challenges, recent advances, and future prospects. *Environmental Science and Ecotechnology*, 13(January), 100205. <https://doi.org/10.1016/j.es.2022.100205>
- Adl, S. (2024). Prostistology (Issue 7). <https://doi.org/10.13140/RG.2.2.27388.14724>
- Ahmad, N., Rahbani, J., & Lteif, R. (2020). *Bioremediation of Ni, Al and Pb by the living cells of a resistant strain of microalga. October 2021*. <https://doi.org/10.2166/wst.2020.381>
- Akhbari, A., Kutty, P. K., Chuen, O. C., & Ibrahim, S. (2020). A study of palm oil mill processing and environmental assessment of palm oil mill effluent treatment. *Environmental Engineering Research*, 25(2), 212-221. <https://doi.org/10.4491/eer.2018.452>
- Alan, A., Ubirajara, M., Barros, G., Cavalcante, J. H., William, J., Moreira, R. L., Ronald, W., & Farias, L. (2013). Acta Scientiarum Growth of the microalgae Tetraselmis tetrathele and nitrate depletion in culture medium Guillard f / 2 and Conway. 163-168. <https://doi.org/10.4025/actascibiols.2013.35i2.13971>
- Alazaiza, M. Y. D., He, S., Su, D., Amr, S. S. A., Toh, P. Y., & Bashir, M. J. K. (2023). *Sewage Water Treatment Using Chlorella Vulgaris Microalgae for Simultaneous Nutrient Separation and Biomass Production*.
- Alberty, R., & Vesteg, M. (2023). *The Influence of Phenol on the Growth , Morphology and Cell Division of Euglena gracilis*.
- Anggraeni, D. A., Anggraito, Y. U., & Setiati, N. (2024). Literatur Review : Pemanfaatan

Metabarcoding DNA Lingkungan Untuk Menganalisis Keanekaragaman Hayati Ikan. *JJrnal Biologi Pendidikan Dan Terapan*, 10, 178-185.

Antinero, A. T., Balaba, M. P., Leopardas, V. E., Aspe, N. M., & Kajita, T. (2024). Is it really there? Addressing Inadequate Sampling and False Detection in Environmental DNA Metabarcoding. *Journal of Environmental Science and Management*, 27(2), 61-72. <https://doi.org/10.47125/jesam/2024>

Antoni, A., Siregar, Y. I., & Suwondo, S. (2021). Strategi pemanfaatan Palm Oil Mill Effluent (POME) sebagai sumber energi berkelanjutan di pabrik kelapa sawit PT. Meridan Sejati Surya Plantation Kabupaten Siak. *Jurnal Zona*, 4(2), 50-59. <https://doi.org/10.52364/jz.v4i2.18>

Arsad, S., Mulasari, Y. M., Risjani, Y., & Musa, M. (2023). *Microalgae diversity in several different sub-habitats*. 8(4), 561-574. <https://doi.org/10.22034/gjesm.2022.04.08>

Asokaraja, I., Mubarakali, D., & Ramasamy, P. K. (2011). Optimization of Various Growth Media to Freshwater Microalgae for Biomass Production. May 2014. <https://doi.org/10.3923/biotech.2011.540.545>

Asyraf, M. R. M., Ishak, M. R., Syamsir, A., Nurazzi, N. M., Sabaruddin, F. A., Shazleen, S. S., Norrrahim, M. N. F., & Rafidah, M. (2022). Mechanical properties of oil palm fibre-reinforced polymer composites : a review. *Journal of Materials Research and Technology*, 17, 33-65. <https://doi.org/10.1016/j.jmrt.2021.12.122>

Awere, E., Bonoli, A., & Appiah, P. (2020). Solids-liquid separation and solar drying of palm oil mill wastewater sludge : Potential for sludge reuse Case Studies in Chemical and Environmental Engineering Solids-liquid separation and solar drying of palm oil mill wastewater sludge : Potential for sludge reuse. *Case Studies in Chemical and Environmental Engineering*, 2(November), 100057. <https://doi.org/10.1016/j.cscee.2020.100057>

Ayed, H. B. A., Taidi, B., & Ayadi, H. (2015). *Magnesium Uptake by the Green Microalga Chlorella vulgaris in Batch Cultures*. December. <https://doi.org/10.4014/jmb.1507.07039>

Badar, S. N., Yaakonb, Z., & Timmiati, S. N. (2017). Growth Evaluation of Microalgae Isolated From Palm Oil Mill Effluent in Synthetic Media. *Malaysian Journal of Analytical Science*,

21(1), 82-94. <https://doi.org/10.17576/mjas-2017-2101-10>

Badr, A. A., & Fouad, W. M. (2021). *African Journal of Biological Sciences Identification of culturable microalgae diversity in the River Nile in Egypt using enrichment media*. 3(2), 50-64. <https://doi.org/10.33472/AFJBS.3.2.2021.50-64>

Barsanti, L., & Gualtieri, P. (2014). *ALGAE ANATOMY, BIOCHEMISTRY, AND BIOTECHNOLOGY SECOND EDITION*. CRC Press. <https://doi.org/978-1-4398-6733-4>

Barus, A. (2024). *SISTEM PENGOLAHAN LIMBAH CAIR PADA KOLAM FAT FIT KEMBALI DI PMKS TAHUAN GANDA*. 1(1).

Beauger, A., Wetzel, C. E., & Voldoire, O. (2017). *Morphology and ecology of Craticula lecohui sp. nov. (Bacillariophyceae) from hydrothermal springs (Puy-de-Dôme, Massif Central, France) and comparison with similar Craticula speci... December*. <https://doi.org/10.1127/1438-9134/2017/007>

Belinger, E., & Sigeo, D. (2015). Freshwater Algae Identification and Use as Bioindicators.

Ben-David, A., & Davidson, C. E. (2014). Estimation method for serial dilution experiments. *Journal of Microbiological Methods*, 107(December 2014), 214-221. <https://doi.org/10.1016/j.mimet.2014.08.023>

Bhuyar, P. (2018). *Microalgae cultivation using Palm Oil Mill Effluent (POME) as growth medium for biodiesel production in relation to light intensity and CO2 concentration*. November 2019.

Bock, C., Olefeld, J. L., Vogt, J. C., Albach, D. C., & Boenigk, J. (2022). Phylogenetic and functional diversity of Chrysophyceae in inland waters. *Organisms Diversity & Evolution*, April. <https://doi.org/10.1007/s13127-022-00554-y>

Bossa, R., Di Colandrea, M., Salbitani, G., & Carfagna, S. (2024). Phosphorous Utilization in Microalgae: Physiological Aspects and Applied Implications. *Plants*, 13(15). <https://doi.org/10.3390/plants13152127>

Cantonati, M., Angeli, N., Bilous, O., Ciugulea, I., Lange, H., Papatheodoulou, A., & Saber, A. A. (2024). Taxonomic and ecological characterization of three symmetric biraphid diatom

- species from streams in Cyprus. *Fottea*, 24(1), 85-98. <https://doi.org/10.5507/fot.2023.012>
- Cao, X., Wang, J., Liao, J., Sun, J., & Huang, Y. (2016). The threshold responses of phytoplankton community to nutrient gradient in a shallow eutrophic Chinese lake. *Ecological Indicators*, 61, 258-267. <https://doi.org/10.1016/j.ecolind.2015.09.025>
- Cheah, W. Y., Show, P. L., Yap, Y. J., Zaid, H. F. M., Lam, M. K., Lim, J. W., Ho, Y. C., & Tao, Y. (2020). Enhancing microalga *Chlorella sorokiniana* CY-1 biomass and lipid production in palm oil mill effluent (POME) using novel-designed photobioreactor. *Bioengineered*, 11(1), 61-69. <https://doi.org/10.1080/21655979.2019.1704536>
- Čmíková, N., Kowalczewski, P. Ł., Kmiecik, D., Tomczak, A., Drożdżyńska, A., Ślachciński, M., Królak, J., & Kačániová, M. (2024). Characterization of Selected Microalgae Species as Potential Sources of Nutrients and Antioxidants. *Foods*, 13(13). <https://doi.org/10.3390/foods13132160>
- Corley, R. H. V., & Tinker, P. B. (2015). The Classification and Morphology of the Oil Palm. The Oil Palm, 30-52. <https://doi.org/10.1002/9781118953297.ch2>
- Correia, N., Pereira, H., Silva, J. T., Soares, M., Sousa, C. B., Schöler, L. M., Costa, M., & Pereira, L. (n.d.). *applied sciences Isolation , Identification and Biotechnological Applications of a Novel , Robust , Free-living Chlorococcum (Oophila) amblystomatis Strain Isolated from a Local Pond.*
- Costa, F. de M., Ramos, P. G. J., Santana, M. L., Oliveira, I. B., Bicudo, C. E. de M., & Moura, C. W. do N. (2022). Morphological diversity and ecological aspects of *Euastrum* taxa (Desmidiaceae) associated with macrophytes from a wetland in the semiarid region of Bahia , Brazil. *Brazilian Journal of Botany*, 0123456789. <https://doi.org/10.1007/s40415-022-00837-w>
- Dagnaisser, L. S., dos Santos, M. G. B., Rita, A. V. S., Chaves Cardoso, J., de Carvalho, D. F., & de Mendonça, H. V. (2022). Microalgae as Bio-fertilizer: a New Strategy for Advancing Modern Agriculture, Wastewater Bioremediation, and Atmospheric Carbon Mitigation. *Water, Air, and Soil Pollution*, 233(11). <https://doi.org/10.1007/s11270-022-05917-x>
- Datta, N. (2023). A review of molecular biology detection methods for human adenovirus. *AIMS*

Biophysics, 10(1), 95-120. <https://doi.org/10.3934/BIOPHY.2023008>

- Dehbi, M., Zeghioud, H., Smail, D., & Dehbi, F. (2025). *A Comparative Evaluation of Ulothrix sp . and Spirogyra sp . as Eco-Friendly Biosorbents for Methylene Blue Removal : Mechanistic Insights from Equilibrium , Kinetic , and Thermodynamic Analyses.*
- Digestate, P., Palikrousis, T. L., Manolis, C., Kalamaras, S. D., & Samaras, P. (2024). *Effect of Light Intensity on the Growth and Nutrient Uptake of the Microalga Chlorella sorokiniana Cultivated in Biogas.*
- Dixit, R., Singh, S., Enamala, M. K., & Patel, A. (2022). *clean technologies Effect of Various Growth Medium on the Physiology and De Novo Lipogenesis of a Freshwater Microalga Scenedesmus rotundus -MG910488 under Autotrophic Condition.* 733-751.
- Dolganyuk, V., Belova, D., Babich, O., Prosekov, A., Ivanova, S., Katserov, D., Patyukov, N., & Sukhikh, S. (2020). Microalgae: A promising source of valuable bioproducts. *Biomolecules*, 10(8), 1-24. <https://doi.org/10.3390/biom10081153>
- Eduardo, C., Bicudo, D. M., Morais, K. S. De, Bartozek, E. R., & Zorzal-almeida, S. (2018). *Thematic Section : Taxonomy and ecology of order Surirellales (Bacillariophyceae) in tropical reservoirs in Southeastern of Brazil.* 30.
- Elystia, S., Novira, T. B., & Muria, S. R. (2021). Sistem Kultur Semikontinu Dalam Produksi Lipid Dan Penyisihan Cod Menggunakan Konsorsium Mikroalga Dari Palm Oil Mill Effluent (Pome). *JST (Jurnal Sains Dan Teknologi)*, 10(1), 28-39. <https://doi.org/10.23887/jstundiksha.v10i1.24099>
- Emparan, Q., Jye, Y. S., Danquah, M. K., & Harun, R. (2020). Cultivation of Nannochloropsis sp. microalgae in palm oil mill effluent (POME) media for phycoremediation and biomass production: Effect of microalgae cells with and without beads. *Journal of Water Process Engineering*, 33(November 2019), 101043. <https://doi.org/10.1016/j.jwpe.2019.101043>
- Farahah, N., Khairuddin, M., Khan, N., Sankaran, S., Farooq, W., Ahmad, I., & Aljundi, I. H. (2024). *Produced water treatment by semi-continuous sequential bioreactor and microalgae photobioreactor.* 3.
- Faso, B., Ouattara, A., & Boussim, I. J. (2011). *A Taxonomic Study of the Genus Closterium*

- Nitzsch ex Ralfs (Zygnematophyceae , Streptophyta) in Temporary Ponds in the Burkina Faso , West Africa. August.* <https://doi.org/10.7872/crya.v32.iss3.2011.255>
- Ferrara, L. (2020). *Dinoflagellates Important Marine Producers of Natural Bio-Compounds with High Biotechnological and Pharmacological Potential.* August. <https://doi.org/10.17756/jfcn.2020-095>
- Firmansyah, E. (2017). PERTUMBUHAN DAN MORFOLOGI AKAR KELAPA SAWIT (*Elaeis guinensis* Jacq.) PADA SALINITAS GENANGAN BERBEDA. *AGROISTA Jurnal Agroteknologi*, 1(2), 181-191.
- Fitria, A. N., Gunawan, V. S., & Mardiah, M. (2021). Study of the Utilization of Palm Oil Industry Liquid Waste. *Konversi*, 10(1), 31-40. <https://doi.org/10.20527/k.v10i1.10146>
- Gamal, R., & Shreadah, M. A. (2024). Journal of Genetic Engineering and Biotechnology Marine microalgae and their industrial biotechnological applications : A review. *Journal of Genetic Engineering and Biotechnology*, 22(4), 100407. <https://doi.org/10.1016/j.jgeb.2024.100407>
- Garamszegi, L. Z. (2014). Modern phylogenetic comparative methods and their application in evolutionary biology. *Modern Phylogenetic Comparative Methods and Their Application in Evolutionary Biology*, July, 1-552. <https://doi.org/10.1007/978-3-662-43550-2>
- Ghareeb, R. Y., Abdelsalam, N. R., & Maghraby, D. M. El. (2022). *Oscillatoria sp . as a Potent Anti-phytopathogenic Agent and Plant Immune Stimulator Against Root-Knot Nematode of Soybean cv . Giza III.* 13(May), 1-14. <https://doi.org/10.3389/fpls.2022.870518>
- Glushchenko, A. M., & Kulikovskiy, M. S. (2017). *Amphipleura vavilovii*: A new diatom species of the family Amphipleuraceae from Laos. *Inland Water Biology*, 10(1), 17-21. <https://doi.org/10.1134/S1995082916040064>
- Gonçalves, J., Freitas, J., Fernandes, I., & Silva, P. (2023). Microalgae as Biofertilizers: A Sustainable Way to Improve Soil Fertility and Plant Growth. *Sustainability (Switzerland)*, 15(16), 1-19. <https://doi.org/10.3390/su151612413>
- Goyat, N., Malik, A., Singh, S., & Duhan, J. S. (2023). DNA Metabarcoding: Simplifying Biodiversity. *Advances in Zoology and Botany*, 11(6), 466-474. <https://doi.org/10.13189/azb.2023.110607>

- Green, M. R., & Sambrook, J. (2019). Agarose gel electrophoresis. Cold Spring Harbor Protocols, 2019(1), 87-94. <https://doi.org/10.1101/pdb.prot100404>
- Greenshields, B., Von Der Lühe, B., Schwarz, F., Hughes, H. J., Tjoa, A., Kotowska, M., Brambach, F., & Sauer, D. (2023). Estimating oil-palm Si storage, Si return to soils, and Si losses through harvest in smallholder oil-palm plantations of Sumatra, Indonesia. *Biogeosciences*, 20(7), 1259-1276. <https://doi.org/10.5194/bg-20-1259-2023>
- Groendahl, S., Kahlert, M., & Fink, P. (2017). The best of both worlds: A combined approach for analyzing microalgal diversity via metabarcoding and morphology-based methods. *PLoS ONE*, 12(2), 1-15. <https://doi.org/10.1371/journal.pone.0172808>
- Guermaz, W., Masmoudi, S., Trabelsi, N. A., Gammoudi, S., Ayadi, H., Morant-manceau, A., & Hotos, G. N. (2023). *Physiological and Biochemical Responses in Microalgae Dunaliella salina , Cyndrotheca closterium and Phormidium versicolor NCC466 Exposed to High Salinity and Irradiation.*
- Gul, B., Manzoor, S., Rasheed, A., Hameed, A., Ahmed, M. Z., & Koyro, H. (2024). *Salinity Stress Responses and Adaptation Mechanisms of Zygothrix propinquum : A Comprehensive Study on Growth , Water Relations , Ion Balance , Photosynthesis , and Antioxidant Defense.* 1-26.
- Guntur, B., Hanum, C., & Rahmawati, N. (2023). Morphology of Oil Palm (*Elaeis guineensis* Jacq.) Seedlings under Drought Stress with Oil Palm Shell Ash and *Aspergillus niger* treatment. *IOP Conference Series: Earth and Environmental Science*, 1188(1). <https://doi.org/10.1088/1755-1315/1188/1/012007>
- Guo Z, Tong YW (2014) The interactions between *Chlorella vulgaris* and algal symbiotic bacteria under photoautotrophic and photoheterotrophic conditions. *J Appl Phycol* 26:1483–1492. <https://doi.org/10.1007/s10811-013-0186-1>
- Gupta, N., & Verma, V. K. (2019). Next-Generation Sequencing and Its Application: Empowering in Public Health Beyond Reality. *Microorganisms for Sustainability*, 17, 313-341. https://doi.org/10.1007/978-981-13-8844-6_15
- Hadziavdic, K., Lekang, K., Lanzen, A., Jonassen, I., Thompson, E. M., & Troedsson, C. (2014).

- Characterization of the 18s rRNA gene for designing universal eukaryote specific primers. *PLoS ONE*, 9(2). <https://doi.org/10.1371/journal.pone.0087624>
- Haoujar, I., Cacciola, F., Manchado, M., Abrini, J., Haoujar, M., Chebbaki, K., Oteri, M., Rigano, F., Mangraviti, D., Mondello, L., Essafi, A., & Chairri, H. (2020). *Isolation of Microalgae from Mediterranean Seawater and Production of Lipids in the Cultivated Species*. 1-13.
- Harper, L. R., Buxton, A. S., Rees, H. C., Bruce, K., Brys, R., Halfmaerten, D., Read, D. S., Watson, H. V., Sayer, C. D., Jones, E. P., Priestley, V., Mächler, E., Múrria, C., Garcés-Pastor, S., Medupin, C., Burgess, K., Benson, G., Boonham, N., Griffiths, R. A., ... Hänfling, B. (2019). Prospects and challenges of environmental DNA (eDNA) monitoring in freshwater ponds. *Hydrobiologia*, 826(1), 25-41. <https://doi.org/10.1007/s10750-018-3750-5>
- Hashiguchi, Y., Rafein, M., & Toshinari, M. (2021). Ecotoxicological assessment of palm oil mill effluent discharge by zebrafish (Danio rerio) embryonic assay *. *Environmental Pollution*, 277, 116780. <https://doi.org/10.1016/j.envpol.2021.116780>
- Hernandi, R., Dharma, A., & Armaini, A. (2019). Penapisan, isolasi, dan karakterisasi mikroalga yang berpotensi sebagai sumber biodiesel dari perairan Danau Kerinci, Jambi. *Jurnal Litbang Industri*, 9(1), 41. <https://doi.org/10.24960/jli.v9i1.4326.41-49>
- Huang, J., Liang, S., Liu, H., Li, Y., Wang, X., Guo, Y., & Liang, J. (2025). Establishment of Axenic Cultures for Two Marine Microalgae and the Effects of Antibiotics on Their Growth. *Water (Switzerland)*, 17(2). <https://doi.org/10.3390/w17020275>
- Id, C. D., & Nicolas, J. (2021). *Sequencing DNA with nanopores : Troubles and biases*. <https://doi.org/10.1371/journal.pone.0257521>
- Igwe, J. C., & Onyegbado, C. C. (2007). A Review of Palm Oil Mill Effluent (POME) Water Treatment. 1(2), 54-62.
- Iman, R. M., & Matsumura, Y. (2025). Continuous production of phosphorus from palm oil mill effluent (POME) by supercritical water gasification. *European Biomass Conference and Exhibition Proceedings*, 1080-1082. <https://doi.org/10.5071/27thEUBCE2019-3CO.11.2>
- Indrayani, Haslianti, A. (2018). Isolation and screening of marine microalgae from Kendari waters, Southeast Sulawesi. *AACL Bioflux*, 11(5), 1445-1455.

- Investigaciones, C. De, & Investigaciones, C. De. (2012). *Morphology, biochemistry, and growth of raphidophyte strains from the Gulf of California*. September. <https://doi.org/10.1007/s10750-012-1088-y>
- Inwongwan, S., Kruger, N. J., Ratcli, R. G., & Neill, E. C. O. (2019). *Euglena Central Metabolic Pathways and Their Subcellular Locations*.
- Iskandar, M. J., Baharum, A., Anuar, F. H., & Othaman, R. (2018). Palm oil industry in South East Asia and the effluent treatment technology—A review. *Environmental Technology and Innovation*, 9(May 2017), 169-185. <https://doi.org/10.1016/j.eti.2017.11.003>
- Jasni, J., Narayanan, S., Haiza, N., Yasin, M., Mohamed, P., Lin, S., Liu, C., Wu, S., Jahim, J., & Sobri, M. (2020). Journal of Water Process Engineering Comparative toxicity effect of organic and inorganic substances in palm oil mill effluent (POME) using native microalgae species. *Journal of Water Process Engineering*, 34(September 2019), 101165. <https://doi.org/10.1016/j.jwpe.2020.101165>
- Jeong, H. J., Yoo, Y. Du, Kim, J. S., Seong, K. A., Kang, N. S., & Kim, T. H. (2010). *dinoflagellates in marine planktonic food webs Growth , Feeding and Ecological Roles of the Mixotrophic and Heterotrophic Dinoflagellates in Marine Planktonic Food Webs*. June. <https://doi.org/10.1007/s12601-010-0007-2>
- Jhouhanggir, D. I. P., Pertiwinigrum, A., Fitriyanto, N. A., & Suyono, E. A. (2025). Sustainable cultivation of microalgae *Euglena* sp . IDN 22 using anaerobic digested manure wastewater : Integrating circular bioeconomy principles in agroindustry. *Journal of Ecological Engineering*, 26(8), 238–248.
- Jiang, Z., Chen, Q., Zeng, J., Liao, Y., & Shou, L. (2012). *Phytoplankton community distribution in relation to environmental parameters in three aquaculture systems in a Chinese subtropical eutrophic bay*. February. <https://doi.org/10.3354/meps09499>
- Jue, E., Witters, D., & Ismagilov, R. F. (2020). Two-phase wash to solve the ubiquitous contaminant-carryover problem in commercial nucleic-acid extraction kits. *Scientific Reports*, 10(1), 1-16. <https://doi.org/10.1038/s41598-020-58586-3>
- Jumadi, J., Kamari, A., Rahim, N. A., Yusof, N., & Fatimah, I. (2022). Remediation of Palm Oil

- Mill Effluent (Pome) Using Selected Biological Techniques: a Mini Review. *Jurnal Teknologi*, 84(5), 93-103. <https://doi.org/10.11113/jurnalteknologi.v84.18013>
- Kamyab, H., Din, M. F. M., Keyvanfar, A., Majid, M. Z. A., Talaiekhosani, A., Shafaghat, A., Lee, C. T., Shiun, L. J., & Ismail, H. H. (2015). Efficiency of Microalgae *Chlamydomonas* on the Removal of Pollutants from Palm Oil Mill Effluent (POME). *Energy Procedia*, 75(May 2019), 2400-2408. <https://doi.org/10.1016/j.egypro.2015.07.190>
- Karpowicz, M., Ejsmont, J., Kalinowska, K., Grabowska, M., Zawiska, I., Więcko, A., López, C., & Kuczyńska, N. (2025). One lake — three worlds for plankton : a case of dystrophic lakes. *Hydrobiologia*, 0123456789. <https://doi.org/10.1007/s10750-025-05948-5>
- Kelly, M., Juggins, S., Moschandreu, K., & Kemitzoglou, D. (2023). Development of novel diatom metrics to assess ecological status of phytobenthos in Greek lakes. *Ecological Indicators*, 147(November 2022), 109974. <https://doi.org/10.1016/j.ecolind.2023.109974>
- Kezlya, E., Tseprik, N., & Kulikovskiy, M. (2023). Genetic Markers for Metabarcoding of Freshwater Microalgae: Review. *Biology*, 12(7). <https://doi.org/10.3390/biology12071038>
- Khatun, R., Reza, M. I. H., Moniruzzaman, M., & Yaakob, Z. (2017). Sustainable oil palm industry: The possibilities. *Renewable and Sustainable Energy Reviews*, 76(December 2016), 608-619. <https://doi.org/10.1016/j.rser.2017.03.077>
- Ki, J. S. (2012). Hypervariable regions (V1-V9) of the dinoflagellate 18S rRNA using a large dataset for marker considerations. *Journal of Applied Phycology*, 24(5), 1035-1043. <https://doi.org/10.1007/s10811-011-9730-z>
- Kislioglu, M. S., Obek, E., Konakci, N., & Sasmaz, A. (2025). *Heavy Metal Accumulation in Dominant Green Algae Living in a Habitat Under the Influence of Cu Mine Discharge Water*. 1-11.
- Kociolek, J. P., Spaulding, S. A., & Park, G. G. (1998). SYMMETRICAL NAVICULOID DIATOMS. In *Freshwater Algae of North America: Ecology and Classification*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-741550-5.50018-0>
- Kondzior, P., & Butarewicz, A. (2018). *Effect of Heavy Metals (Cu and Zn) on the Content of Photosynthetic Pigments in the Cells of Algae Chlorella vulgaris*. 19(3), 18-28.

- Kucmanová, A., & Gerulová, K. (2019). Microalgae Harvesting: A Review. Research Papers Faculty of Materials Science and Technology Slovak University of Technology, 27(44), 129-143. <https://doi.org/10.2478/rput-2019-0014>
- Kumar, V., Al Momin, S., Kumar, V. V., Ahmed, J., Al-Musallam, L., Shajan, A. B., Al-Aqeel, H., Al-Mansour, H., & Al-Zakri, W. M. (2021). Distribution and diversity of eukaryotic microalgae in Kuwait waters assessed using 18S rRNA gene sequencing. PLoS ONE, 16(4 April), 1-25. <https://doi.org/10.1371/journal.pone.0250645>
- Kupriyanova, E. V., & Los, D. A. (2024). Spirulina/Arthrospira/Limnospira—Three Names of the Single Organism. Foods, 13(2762).
- Lacroux, J., Jouannais, P., Atteia, A., Bonnafous, A., Trably, E., Steyer, J., & Lis, R. Van. (n.d.). *Microalgae screening for heterotrophic and mixotrophic growth on butyrate*. 1-43.
- Lakatos, G. E., Štěrbová, K., Bárcenas-pérez, D., Grivalský, T., Manoel, J. C., Mylenko, M., Cheel, J., Nyári, J., Wirth, R., Kovács, K. L., Kopecký, J., Elster, J., & Masojídek, J. (2025). Tribonema cf. minus cultivation in thin - layer raceway pond to uncover its biotechnological potential. *Journal of Applied Phycology*, June. <https://doi.org/10.1007/s10811-025-03554-5>
- Langlois, V. S., Louie, M., Michael, D. L., Jacob, J. A., Julie, J. I., Knowles, G. K., Sandré, F., Anh, T., René, T., Cecilia, L. W., & Inanc, L. Y. (2025). *Environmental DNA (eDNA) Quantitative Polymerase Based Assays for Surveying 125 Taxa of Importance to North America*. <https://doi.org/10.1002/edn3.70139>
- Lavaud, J., & Lepetit, B. (2013). Biochimica et Biophysica Acta An explanation for the inter-species variability of the photoprotective non-photochemical chlorophyll fluorescence quenching in diatoms. *BBA - Bioenergetics*, 1827(3), 294-302. <https://doi.org/10.1016/j.bbabi.2012.11.012>
- Lee, P. Y., Costumbrado, J., Hsu, C. Y., & Kim, Y. H. (2012). Agarose gel electrophoresis for the separation of DNA fragments. *Journal of Visualized Experiments*, 62, 1-5. <https://doi.org/10.3791/3923>
- Lefebvre, K. E., & Hamilton, P. B. (2015). *Morphology and molecular studies on large Neidium species (Bacillariophyta) of North America, including an examination of Ehrenberg's types*.

220(3), 11646.

- Lenarczyk, J., Pi, J., & Wo, K. (2025). *Towards rebuilding algae communities in post-mining ditches*. 179(July). <https://doi.org/10.1016/j.ecolind.2025.114263>
- Levkov, Z., S. Tofilovska & D. Mitić-Kopanjan (2016): Species of the diatom genus *Craticula* Grunow (Bacillariophyceae) from Macedonia. - Contributions, Sec. Nat. Math. Biotech. Sci., MASA 37: 129- 165.
- Li, H. B., Singh, R. K., Singh, P., Song, Q. Q., Xing, Y. X., Yang, L. T., & Li, Y. R. (2017). Genetic diversity of nitrogen-fixing and plant growth promoting *Pseudomonas* species isolated from sugarcane rhizosphere. *Frontiers in Microbiology*, 8(JUL), 1-20. <https://doi.org/10.3389/fmicb.2017.01268>
- Li, K., Liu, Q., Fang, F., Luo, R., Lu, Q., Zhou, W., Huo, S., Cheng, P., Liu, J., Addy, M., Chen, P., Chen, D., & Ruan, R. (2019). Bioresource Technology Microalgae-based wastewater treatment for nutrients recovery : A review. *Bioresource Technology*, 291(June), 121934. <https://doi.org/10.1016/j.biortech.2019.121934>
- Li, Q., Edwards, K. F., & Schvarcz, C. R. (2022). *Broad phylogenetic and functional diversity among mixotrophic consumers of Prochlorococcus*. August 2021. <https://doi.org/10.1038/s41396-022-01204-z>
- Lim, J. X., & Vadivelu, V. M. (2014). Treatment of agro based industrial wastewater in sequencing batch reactor : Performance evaluation and growth kinetics of aerobic biomass. *Journal of Environmental Management*, 146, 217-225. <https://doi.org/10.1016/j.jenvman.2014.07.023>
- Liu, J., & Zhang, H. (2021). Combining Multiple Markers in Environmental DNA Metabarcoding to Assess Deep-Sea Benthic Biodiversity. *Frontiers in Marine Science*, 8(August), 1-9. <https://doi.org/10.3389/fmars.2021.684955>
- Lloyd, C., Tan, K. H., Lim, K. L., Valu, V. G., Fun, S. M. Y., Chye, T. R., Mak, H. M., Sim, W. X., Musa, S. L., Ng, J. J. Q., Bte Nordin, N. S., Bte Md Aidzil, N., Eng, Z. Y. W., Manickavasagam, P., & New, J. Y. (2021). Identification of microalgae cultured in Bold's Basal medium from freshwater samples, from a high-rise city. *Scientific Reports*, 11(1), 1-6. <https://doi.org/10.1038/s41598-021-84112-0>

- Long, J., Kociolek, J. P., Williams, D. M., Liu, B., Mo, W., & Chen, J. (2022). *Two new freshwater species of Surirella (Bacillariophyta) from the Wuling Mountains , China*. 49, 35-49. <https://doi.org/10.3897/phytokeys.201.79626>
- Low, S. S., Bong, K. X., Mubashir, M., Cheng, C. K., Lam, M. K., Lim, J. W., Ho, Y. C., Lee, K. T., Munawaroh, H. S. H., & Show, P. L. (2021). Microalgae cultivation in palm oil mill effluent (POME) treatment and biofuel production. *Sustainability (Switzerland)*, 13(6). <https://doi.org/10.3390/su13063247>
- Mahanty, T., Bhattacharjee, S., Goswami, M., Bhattacharyya, P., Das, B., Ghosh, A., & Tribedi, P. (2017). Biofertilizers: a potential approach for sustainable agriculture development. *Environmental Science and Pollution Research*, 24(4), 3315-3335. <https://doi.org/10.1007/s11356-016-8104-0>
- Mahmud, A. A., Upadhyay, S. K., Srivastava, A. K., & Bhojiya, A. A. (2021). Biofertilizers: A Nexus between soil fertility and crop productivity under abiotic stress. *Current Research in Environmental Sustainability*, 3(July), 100063. <https://doi.org/10.1016/j.crsust.2021.100063>
- Mahmudi, M., Arsad, S., Lusiana, E. D., & Musa, M. (2023). *Microalgae diversity in varying habitat characteristics in Pasuruan and Sidoarjo coastal areas , East Java , Indonesia*. 24(8), 4418-4426. <https://doi.org/10.13057/biodiv/d240823>
- Marella, T. K., Saxena, A., & Tiwari, A. (2020). Bioresource Technology Diatom mediated heavy metal remediation : A review. *Bioresource Technology*, 305(December 2019), 123068. <https://doi.org/10.1016/j.biortech.2020.123068>
- Mas'ud, & Wahyuningsih, S. (2023). Analisis Kinerja Perdagangan Kelapa Sawit Tahun 2023. Pusat Data Dan Sistem Informasi Pertanian Sekretariat Jendral Kementrian Pertanian, 13, 0-60. https://satudata.pertanian.go.id/assets/docs/publikasi/1F_Analisis_Kinerja_Perdagangan_Kelapa_Sawit_2023.pdf
- Matantseva, O. V., & Skarlato, S. O. (2013). Mixotrophy in microorganisms: Ecological and cytophysiological aspects. *Journal of Evolutionary Biochemistry and Physiology*, 49(4), 377-388. <https://doi.org/10.1134/S0022093013040014>

- Maulana, M., & Nur, A. (2022). Co-cultivation of microalgae growing on palm oil mill effluent under outdoor condition for lipid production ARTICLE HISTORY. *Environmental Pollutants and Bioavailability*, 34(1), 537-548. <https://doi.org/10.1080/26395940.2022.2147098>
- Maulana, M., Nur, A., & Buma, A. G. J. (2019). Opportunities and Challenges of Microalgal Cultivation on Wastewater , with Special Focus on Palm Oil Mill Effluent and the Production of High Value Compounds. *Waste and Biomass Valorization*, 10(8), 2079-2097. <https://doi.org/10.1007/s12649-018-0256-3>
- Mertens, A., Wal, J. Van Der, Verweij, G., Pex, B., Dulmen, A. Van, & Dam, H. Van. (2025). A revised list of diatom ecological indicator values in The Netherlands. *Ecological Indicators*, 172(February), 113219. <https://doi.org/10.1016/j.ecolind.2025.113219>
- Microalgae, P., Novovesk, L., Nielsen, S. L., Tufan, O., Haznedaroglu, B. Z., Fazi, S., Robbins, J., & Vasquez, M. (2023). *Overview and Challenges of Large-Scale Cultivation of*. 1-23.
- Mittelstrass, J., Heinzelmann, R., Eschen, R., Hartmann, M., & Kupper, Q. (2025). Metabarcoding with Illumina and Oxford Nanopore Technologies provides complementary insights into tree seed mycobiota. *Environmental Microbiome*, 7. <https://doi.org/10.1186/s40793-025-00712-7>
- Miyamoto, T., & Ohtake, N. (2022). *Physiology of microalgae and their application to sustainable agriculture : A mini-review. November*, 1-9. <https://doi.org/10.3389/fpls.2022.1005991>
- Mohammad, S., Baidurah, S., Kobayashi, T., Ismail, N., & Leh, C. P. (2021). Palm oil mill effluent treatment processes—A review. *Processes*, 9(5). <https://doi.org/10.3390/pr9050739>
- Mohapatra, B., Verma, D. K., Sen, A., & Panda, B. B. (2013). Bio-fertilizers- A Gateway to Sustainable Agriculture. *Popular Kheti*, 1(4), 97-102.
- Moniz, M. B. J., & Kaczmarek, I. (2010). Barcoding of Diatoms: Nuclear Encoded ITS Revisited. *Protist*, 161(1), 7-34. <https://doi.org/10.1016/j.protis.2009.07.001>
- Morais, E. G., Cristofoli, N. L., Maia, B., Magina, T., Cerqueira, P. R., & Teixeira, R. (2021). *Microalgal Systems for Wastewater Treatment : Technological Trends and Challenges towards Waste Recovery*. 1-26.

- Morsi, H. H., El-sheekh, M. M., Eladel, H., Al-tuwaijri, M. M., & El-sabbagh, S. M. (2023). (*Chlorophyceae*) Grown in Municipal Wastewater for Simultaneous Nutrient Removal and Biodiesel Production.
- Mparan, E., Arun, Q. H., & Anquah, R. D. (2019). *ROLE OF PHYCOREMEDIATION FOR NUTRIENT REMOVAL FROM WASTEWATERS: A REVIEW*. 17(1), 889-915.
- Muria, S. R., Chairul, & Naomi, D. C. (2020). Pemanfaatan Mikroalga Chlorella sp. untuk Pengolahan Palm Oil Mill Effluent [POME] Secara Fed Batch. *Jurnal Sains Dan Teknologi*, 19(1), 7-12.
- Muria, S. R., Chairul, & Naomi, D. C. (2020). Pemanfaatan Mikroalga Chlorella sp. untuk Pengolahan Palm Oil Mill Effluent [POME] Secara Fed Batch. *Jurnal Sains Dan Teknologi*, 19(1), 7-12.
- Muthukumaran, M., Rawindran, H., Noorjahan, A., Parveen, M., Barasarathi, J., Blessie, J. P. J., Ali, S. S., Sayyed, R. Z., Awasthi, M. K., Hassan, S., Ravindran, B., Vatanpour, V., & Balakumar, B. S. (2024). Microalgae-based solutions for palm oil mill effluent management: Integrating phycoremediation, biomass and biodiesel production for a greener future. *Biomass and Bioenergy*, 191(October), 107445. <https://doi.org/10.1016/j.biombioe.2024.107445>
- Nayeem, J., Dey, P., Kanti, S., & Helena, D. (2025). *Unveiling the Biological Potential of Indigenous Oscillatoria spp . From Freshwater and Marine Ecosystems Through Advanced Characterization*. <https://doi.org/10.1002/fsn3.70868>
- NEZBRYTSKA, I., SHAMANSKYI, S., PAVLIUKH, L., & GORBUNOVA, Z. (2022). Application of Euglena gracilis in wastewater treatment processes. *Journal of Biotechnology, Computational Biology and Bionanotechnology*, 103(4), 323–330.
- Neury-ormanni, J., Vedrenne, J., & Morin, S. (2020). Science of the Total Environment Benthic diatom growth kinetics under combined pressures of microalgal competition , predation and chemical stressors. *Science of the Total Environment*, 734, 139484. <https://doi.org/10.1016/j.scitotenv.2020.139484>
- Novais, M. H., Almeida, S. F. P., Blanco, S., Delgado, C., Helena, M., Almeida, S. F. P., & Blanco,

- S. (2019). Morphology and ecology of *Fragilaria misarelensis* sp . nov . (Bacillariophyta), a new diatom species from southwest of Europe. *Phycologia*, 58(2), 128-144. <https://doi.org/10.1080/00318884.2018.1524245>
- Novak, I. N., Magnusson, M., Craggs, R. J., & Lawton, R. J. (2024). Screening protocol for freshwater filamentous macroalgae bioremediation of primary municipal wastewater. *Journal of Applied Phycology*, 36(5), 2863-2880. <https://doi.org/10.1007/s10811-024-03261-7>
- Nur, S., Oslan, H., Shoparwe, N. F., Yusoff, A. H., Rahim, A. A., Chang, C. S., Tan, J. S., Oslan, S. N., Arumugam, K., Ariff, A. Bin, Sulaiman, A. Z., & Mohamed, M. S. (2021). A Review on *Haematococcus pluvialis* Bioprocess Optimization of Green and Red Stage Culture Conditions for the Production of Natural Astaxanthin.
- O, N. A., Aziz, F., R, A. M., Faizal, M., & H, M. A. (2020). *The effect of Palm Oil Mill Effluent Final Discharge on the Characteristics of Pennisetum purpureum*. 1-10. <https://doi.org/10.1038/s41598-020-62815-0>
- Odeh, W., Sweiss, M., Ahmad, F. H., Arabeyyat, Z., Alnsour, W., Aldabbas, M., & Hasan, M. (2023). Isolation and Identification of Green Microalgae from Northern Jordan. *Journal of Pure and Applied Microbiology*, 17(4), 2205-2214. <https://doi.org/10.22207/JPAM.17.4.17>
- Osman, N.A.; Ujang, F.A.; Roslan, A.M.; Ibrahim, M.F.; Hassan, M.A. The effect of palm oil mill effluent final discharge on the characteristics of *Pennisetum purpureum*. *Sci. Rep.* 2020, 10, 6613
- Osorio-Reyes, J. G., Valenzuela-Amaro, H. M., Pizaña-Aranda, J. J. P., Ramírez-Gamboa, D., Meléndez-Sánchez, E. R., López-Arellanes, M. E., Castañeda-Antonio, M. D., Coronado-Apodaca, K. G., Gomes Araújo, R., Sosa-Hernández, J. E., Melchor-Martínez, E. M., Iqbal, H. M. N., Parra-Saldivar, R., & Martínez-Ruiz, M. (2023). Microalgae-Based Biotechnology as Alternative Biofertilizers for Soil Enhancement and Carbon Footprint Reduction: Advantages and Implications. *Marine Drugs*, 21(2). <https://doi.org/10.3390/md21020093>
- Oviedo-Montiel, H., Herrera-Cruz, E., Hoya-Florez, J., Prieto-Guevara, M., Estrada-Posada, A., & Yepes Blandón, J. A. (2020). Cellular viability and growth of microalgae: effect of the culture medium. *Intropica*, 15(2), 126-136. Datta, N. (2023). A review of molecular biology

- detection methods for human adenovirus. *AIMS Biophysics*, 10(1), 95-120.
<https://doi.org/10.3934/BIOPHY.2023008>
- Oyekanmi, A. A., Aziz, A., Latiff, A., & Daud, Z. (2017). Adsorption of Heavy Metal from Palm Oil Mill Effluent on the Mixed Media Used For the Preparation of Composite Adsorbent. *April*.
<https://doi.org/10.1051/mateconf/201710306020>
- Pacheco, M. M., Hoeltz, M., Moraes, M. S. A., & Schneider, R. C. S. (2015). Microalgae: Cultivation techniques and wastewater phycoremediation. *Journal of Environmental Science and Health - Part A Toxic/Hazardous Substances and Environmental Engineering*, 50(6), 585-601. <https://doi.org/10.1080/10934529.2015.994951>
- Pavan-Kumar, A., Gireesh-Babu, P., & Lakra, W. S. (2015). DNA Metabacoding: a new approach for rapid biodiversity assessment. *Journal of Cell Science and Molecular Biology*, 2(1), 111. <http://opensciencepublications.com/fulltextarticles/JCMB-2350-0190-2-111.html>
- Pfandl, K., Dyal, P., & Boenigk, J. (2009). SSU rRNA gene variation resolves population heterogeneity and ecophysiological differentiation within a morphospecies (Stramenopiles , Chrysophyceae). 54(1), 171-181.
- Pichrtová, Y. N. J. N. M. (2025). Desiccation tolerance in peatland desmids : a comparative study of Micrasterias thomasi and Staurostrum hirsutum (Zygnematophyceae). *Protoplasma*, 262(5), 1215-1228. <https://doi.org/10.1007/s00709-025-02061-1>
- Pivato, M., & Ballottari, M. (2021). *Chlamydomonas reinhardtii* cellular compartments and their contribution to intracellular calcium signalling. 72(15), 5312-5335.
<https://doi.org/10.1093/jxb/erab212>
- Pokhrel, S. (2024). No TitleEΛENH. In Αγαν (Vol. 15, Issue 1).
- Prakoso, S. P., Wirajana, I. N., & Suarsa, I. W. (2017). AMPLIFIKASI FRAGMENT GEN 18S rRNA PADA DNA METAGENOMIK MADU DENGAN TEKNIK PCR (POLYMERASE CHAIN REACTION). *Indonesian Journal of Legal and Forensic Sciences (IJLFS)*, 7(3), 1. <https://doi.org/10.24843/ijlfs.2017.v07.i01.p03>

- Prasad, A., Harshita, B., Gupta, A., Shukla, N., Rajagopal, S., Gupta, S., Sharma, A., Valadi, J., Nigam, I., & Suravajhala, P. (2021). Advances in Bioinformatics. In *Advances in Bioinformatics* (Issue August, pp. 1-446). <https://doi.org/10.1007/978-981-33-6191-1https://doi.org/10.21676/23897864.3633>
- Prelle, L. R., Graiff, A., Gründling-pfaff, S., Sommer, V., Kuriyama, K., & Karsten, U. (2019). *Photosynthesis and Respiration of Baltic Sea Benthic Diatoms to Changing Environmental Conditions and Growth Responses of Selected Species as Affected by an Adjacent Peatland (Hütelmoor).* 10(July), 1-19. <https://doi.org/10.3389/fmicb.2019.01500>
- Production, B., Bellido-pedraza, C. M., & Torres, M. J. (2024). *The Microalgae Chlamydomonas for Bioremediation and.*
- Purbani, D. C., Ambarwati, W., Kusuma, A. B., & Herliany, N. E. (2019). Identification of marine microalgae from Tambrauw, West Papua. *Journal of Chemical Information and Modeling*, 11(3), 777-790. <http://journal.ipb.ac.id/index.php/jurnalikt>
- Purbani, D. C., Ambarwati, W., Kusuma, A. B., & Herliany, N. E. (2019). Identification of marine microalgae from Tambrauw, West Papua. *Journal of Chemical Information and Modeling*, 11(3), 777-790. <http://journal.ipb.ac.id/index.php/jurnalikt>
- Purbani, D. C., Noerdjito, D. R., Purnaningsih, I., Yuliani, Y., & Prabowo, D. A. (2021). Analisis Morfologi dan Filogenetik Molekuler Alga Hijau Coccoid yang Diisolasi dari Pulau Enggano. *Berita Biologi*, 20(1), 1-12.
- Pushkareva, E. (2024). *Microbial community composition of terrestrial habitats in East Antarctica with a focus on microphototrophs.* January, 1-10. <https://doi.org/10.3389/fmicb.2023.1323148>
- Putri, D. S., Marianah, M., & Ihromi, S. (2019). Isolasi Mikroalga Laut Dari Pantai Mapak Pulau Lombok. *Jurnal Agrotek UMMat*, 5(2), 91. <https://doi.org/10.31764/agrotek.v5i2.699>
- Putri, N. A., Dewi, R. N., Lestari, R., Yuniar, R. A., Ma'arif, L. M., & Erianto, R. (2023). Microalgae as A Bioremediation Agent for Palm Oil Mill Effluent: Production of Biomass and High Added Value Compounds. *Jurnal Rekayasa Kimia & Lingkungan*, 18(2), 149-161. <https://doi.org/10.23955/rkl.v18i2.34018>

- RAFAELINA, M., RUSTAM, Y., & AMINI, S. (2015). Pertumbuhan Dan Aktivitas Antioksidan Dari Mikroalga. *Bioma*, 11(1), 12. [https://doi.org/10.21009/bioma11\(1\).2](https://doi.org/10.21009/bioma11(1).2)
- Raj, J., Li, O., Chio, C., & Boteju, R. (2025). *Isolation , identification and optimization of culture condition of freshwater microalgae in Northwestern Ontario , Canada for sustainable lipid and biomass production*. 91(March). <https://doi.org/10.1016/j.algal.2025.104264>
- Randrianarison, G., & Ashraf, M. A. (2018). Microalgae plant (*Chlorella* sp .) for wastewater treatment and energy production Microalgae Plant (*Chlorella* Sp .) for Wastewater Treatment and Energy Production. *Ekoloji*, 27(106), 1455-1465.
- Ranjan, R., & Xavier, B. (n.d.). Different methods for microalgae Isolation. 17-23.
- Restuhadi, F., dan Zalfiatri, Y. 2020. Pemanfaatan Simbiosis Mikroalga *Chlorella* sp.dan Starbat untuk Menurunkan Kadar Polutan Limbah Cair Sagu. *Jurnal Ilmu Lingkungan*. 11 (2): 140-153.
- Reul, A., Mart, E., Melero-jim, I. J., Bañares-españa, E., Flores-moya, A., & Garc, J. (2020). *What Triggers the Annual Cycle of Cyanobacterium Oscillatoria sp . in an Extreme Environmental Sulfide-Rich Spa ? Figure 1*.
- Rev, U. (2015). *Biosistematika Mikroba*. Institut Teknologi Bandung, July 2011. <https://doi.org/10.13140/RG.2.1.3528.6166>
- Ruck, E. C., Nakov, T., Alverson, A. J., & Theriot, E. C. (2016). Phylogeny, ecology, morphological evolution, and reclassification of the diatom orders Surirellales and Rhopalodiales. *Molecular Phylogenetics and Evolution*. <https://doi.org/10.1016/j.ympev.2016.07.023>
- Sahlmann, L., Edlund, M. B., Thellman, A. N., Solomon, C. T., Morales, A. M., Scott, W., & Bowden, W. B. (2025). Environmental and Sustainability Indicators An examination of environmental factors that influence the composition of diatom communities in northern hardwood streams (USA). *Environmental and Sustainability Indicators*, 27(December 2024), 100697. <https://doi.org/10.1016/j.indic.2025.100697>
- Sahu, A. (2024). Environmental DNA (eDNA): A Molecular Tool for Conservation and Restoration Environmental DNA (eDNA): A Molecular Tool for Conservation and

Restoration of Riverine Diversity with Future Perspectives. April.

- Sakiah, & Wahyuni, M. (2018). Analysis of C-Organic , Nitrogen , Phosphorus and Potassium in Application Areas and Without Application of Palm Oil Mill Effluent. *Journal of Agriculture and Veterinary Science*, 11(4), 23-27. <https://doi.org/10.9790/2380-1104012327>
- Salman, J. M., Grmasha, R. A., Lengyel, E., & Al-sareji, O. J. (2023). *Heliyon Influence of magnesium concentrations on the biomass and biochemical variations in the freshwater algae , Chlorella vulgaris*. 9(January).
- Santos, L. M. A. (2016). *The Eustigmatophyceae : Actual knowledge and research perspectives. January 1996*.
- Safi, C., M. Charton, O. Pignolet, F. Silvestre, C. Vaca- Garcia, and P. Y. Pontalier. 2013. "Influence of Microalgae Cell Wall Characteristics on Protein Extractability and Determination of Nitrogen- To- Protein Conversion Factors." *Journal of Applied Phycology* 25: 523-529
- Saxena, A., Tiwari, A., Kaushik, R., & Iqbal, H. M. N. (2020). *Diatoms recovery from wastewater: Overview from an ecological and economic perspective. January*.
- Schleicher, T., Hilbert, I., Manhart, A., Hennenberg, K., Ernah, Vidya, S., & Fakhriya, I. I. (2019). Production of Palm Oil in Indonesia. Country-focused Commodity Analysis in the Context of the Bio-Macht Project. Universitas Padjajaran, 64. <https://www.oeko.de/fileadmin/oekodoc/BioMacht-palm-oil-report.pdf>
- Science, E. (2020). *Biological Oxygent Demand (BOD5) as Bio Indicator of Phytoplankton Diversity Index in The Mangrove Area of Kintap Estuary - South Kalimantan Biological Oxygen Demand (BOD 5) as Bio Indicator of Phytoplankton Diversity Index in The Mangrove Area of Kintap Estuary - South Kalimantan*. <https://doi.org/10.1088/1755-1315/448/1/012126>
- Science, E. (n.d.). *The potential use of the diatom Nitzschia palea (Kützting) W . Smith For the Removal of Certain Pollutants from Al-Rustumeyah Wastewater Treatment Plant in Baghdad-Iraq The potential use of the diatom Nitzschia palea (Kützting) W . Smith For the Removal of Certain Pollutants from Al- Rustumeyah Wastewater Treatment Plant in*

Baghdad-Iraq. <https://doi.org/10.1088/1755-1315/779/1/012114>

Science, W., Yoochatchaval, W., Kubota, K., Harada, H., & Syutsubo, K. (2011). *Anaerobic degradation of palm oil mill effluent (POME)*. November. <https://doi.org/10.2166/wst.2011.782>

Sehusman. (2024). Analisis Kinerja Perdagangan Kelapa Sawit (Saefudin (ed.)). Pusat Data dan Sistem Informasi Pertanian Sekretariat Jenderal Kementerian Pertanian.

Sekatresna, W., Dharma, A., Zein, R., & Chaidir, Z. (2015). Isolation and characterization of microalgae isolated from palm oil mill effluent (POME) for biodiesel feed stocks with β -carotene as co-product. *Journal of Chemical and Pharmaceutical Research*, 7(9), 222-231.

Septiawan, H., Hariyadi, H., & Thohari, M. (2014). Analisis Pengelolaan Lingkungan Pabrik Kelapa Sawit Batu Ampar - PT. SMART Tbk. dalam Implementasi Indonesian Sustainable Palm Oil. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan*, 4(2), 136-144.

Shafeeq, N. K. (2021). Polymer Chain Reaction (PCR): Principle and Applications. *Ibn AL-Haitham Journal For Pure and Applied Sciences*, 34(4), 35-44. <https://doi.org/10.30526/34.4.2699>

Singh, I. (2019). Microbial Biofertilizers : Types and Applications Metadata of the chapter that will be visualized online. *Natural Biofertilizer for Sustainainability Agricultural*, August. <https://doi.org/10.1007/978-3-030-18933-4>

Solak, C. N., Gastineau, R., Lemieux, C., Turmel, M., Gorecka, E., Trobajo, R., Rybak, M., Elif, Y., & Witkowski, A. (2021). *Nitzschia anatoliensis sp . nov ., a cryptic diatom species from the highly alkaline. c*, 1-21. <https://doi.org/10.7717/peerj.12220>

Střížek, A., Příbyl, P., Lukeš, M., Grivalský, T., Kopecký, J., & Galica, T. (2023). *Hibberdia magna (Chrysophyceae)*: a promising freshwater fucoxanthin and polyunsaturated fatty acid producer. *Microbial Cell Factories*, 1-20. <https://doi.org/10.1186/s12934-023-02061-x>

Suhandono, S., Apriyanto, A., Pradita, A., Anryansyah, Putri, G. I., & Dameria, N. (2015). *Biosistematika Mikroba. Institut Teknologi Bandung, July 2011*. <https://doi.org/10.13140/RG.2.1.3528.6166>

- Sulastri, Henny, C., & Nomosatryo, S. (2019). Keanekaragaman fitoplankton dan status trofik Perairan Danau Maninjau di Sumatera Barat , Indonesia. Pros Sem Nas Masy Biodiv Indon, 5(Chalar 2009), 242-250. <https://doi.org/10.13057/psnmbi/m050217>
- Sultana, S., Khan, S., Akter, N., & Momota, S. (2024). Heliyon Ecology of freshwater harmful euglenophytes : A review. *Heliyon*, 10(8), e29625. <https://doi.org/10.1016/j.heliyon.2024.e29625>
- Sunna, A. (2020). *Molecular tools and applications of Euglena gracilis - from biorefineries to bioremediation* (Vol. 17, Issue 12). <https://doi.org/10.1002/bit.27516>
- Swaleh, M., Abubakar, L., Mwanguni, S., Munga, D., & Okuku, E. (2022). Effect of selected environmental factors on microalgae diversity and abundance in Gazi Bay , south coast Kenya Effect of selected environmental factors on microalgae diversity and abundance in Gazi Bay , south coast Kenya. *Journal of Sea Research*, 184(May), 102217. <https://doi.org/10.1016/j.seares.2022.102217>
- Tan, K. A., Lalung, J., Morad, N., Ismail, N., Maznah, W., Omar, W., Khan, M. A., Sillanpää, M., & Rafatullah, M. (2021). *Post-Treatment of Palm Oil Mill Effluent Using Immobilised Green Microalgae Chlorococcum oleofaciens*. 1-18.
- Tan, K. A., Lalung, J., Wijaya, D., Ismail, N., Omar, W. M. W., Wabaidur, S. M., Siddiqui, M. R., Alam, M., & Rafatullah, M. (2022). Removal of Nutrients by Using Green Microalgae from Lab-Scale Treated Palm Oil Mill Effluent. *Fermentation*, 8(11). <https://doi.org/10.3390/fermentation8110658>
- Tav̆, P., & Dolinar, M. (2025). *A Pipeline for the Isolation and Cultivation of Microalgae and Cyanobacteria from Hypersaline Environments*. 13-15.
- Teng, S. Y., Yew, G. Y., Sukačová, K., Show, P. L., Máša, V., & Chang, J. S. (2020). Microalgae with artificial intelligence: A digitalized perspective on genetics, systems and products. *Biotechnology Advances*, 44(September). <https://doi.org/10.1016/j.biotechadv.2020.107631>
- Thakur, S., Ratnam, S., & Singh, A. (2024). Introduction to Agribusiness Management. *Agribusiness Management*, 1-20. <https://doi.org/10.4324/9781003490111-1>
- Tian, X.; Lin, X.; Xie, Q.; Liu, J.; Luo, L. Effects of Temperature and Light on Microalgal Growth

- and Nutrient Removal in Turtle Aquaculture Wastewater. *Biology* 2024, 13, 901.
<https://doi.org/10.3390/biology13110901>
- Tirado, J. L., Herdean, A., & Ralph, P. J. (2025). The need for smart microalgal bioprospecting. *Natural Products and Bioprospecting*. <https://doi.org/10.1007/s13659-024-00487-3>
- Torres, J., & Bellido-pedraza, C. M. (2024). *Applications of the Microalgae Chlamydomonas and Its Bacterial Consortia in Detoxification and Bioproduction*.
- Tuchman, N. C. (1996). The Role of Heterotrophy in Algae. In *Algal Ecology*. Elsevier Inc.
<https://doi.org/10.1016/b978-012668450-6/50039-4>
- United State Department of Agriculture. (2023). Indonesia Palm Oil: Historical Revisions Using Satellite-Derived Methodology. United States Department of Agriculture Foreign Agricultural Service Report, 19, 1-9.
https://ipad.fas.usda.gov/highlights/2012/08/Mexico_corn/
- Urmia, L., Mehrjuyan, S. R., & Atazadeh, E. (2022). *STUDY OF THE DIATOM GENERA ENCYONEMA , CRATICULA , AND CYMATOPLEURA (BACILLARIOPHYTA) IN THE WESTERN RIVERS OF LAKE URMIA, IRAN*. 28(2).
<https://doi.org/10.22092/ijb.2022.128207>
- Uroko, R. I., & Njoku, O. U. (2015). *Study on Fresh and Fermented Palm Oil Mill Effluents as an Alternative Source of Improving Soil Fertility Study on Fresh and Fermented Palm Oil Mill Effluents as an Alternative Source of Improving Soil Fertility*. July.
- Velásquez-Orta, S. B., Yáñez-Noguez, I., Ramírez, I. M., & Ledesma, M. T. O. (2024). Pilot-scale microalgae cultivation and wastewater treatment using high-rate ponds: a meta-analysis. *Environmental Science and Pollution Research*, 31(34), 46994-47021.
<https://doi.org/10.1007/s11356-024-34000-7>
- Vlasiuk, M., & Igor, K. (2012). MORPHOLOGICAL FEATURES OF THE SPECIES OF THE GENUS CHLAMYDOMONAS S . L .(C HLOROPHYTA) FROM VARIOUS MOLECULAR. *Modern Phytomorphology*, 2, 91-93.
- Wahi, N., Bhatia, A. K., & Bhadauria, S. (2017). Molecular approach for identification of algal isolate using 18S rRNA Phylogenetic analysis and determining its oil content. *Phykos*, 47(1),

- Wahyuni, M. (2018). *Analysis of C-Organic , Nitrogen , Phosphorus and Potassium in Application Areas and Without Application of Palm Oil Mill Effluent*. 11(4), 23-27. <https://doi.org/10.9790/2380-1104012327>
- Wang, H., Sathasivam, R., & Ki, J. (2017). *Physiological effects of copper on the freshwater alga Closterium ehrenbergii Meneghini (Conjugatophyceae) and its potential use in toxicity assessments*. 32(2), 131-137.
- Widiastuti, L., Sulistiyanto, Y., Jaya, A., & Ludang, Y. (2020). Identification of Nutrients Content from Palm Oil Wastewater. 83, 23819 - 23831.
- Winanti, W. S., Prasetyadi, P., & Wiharja, W. (2019). Pengolahan Palm Oil Mill Effluent (POME) menjadi Biogas dengan Sistem Anaerobik Tipe Fixed Bed tanpa Proses Netralisasi. Jurnal Teknologi Lingkungan, 20(1), 143. <https://doi.org/10.29122/jtl.v20i1.3248>
- Woittiez, L. S., van Wijk, M. T., Slingerland, M., van Noordwijk, M., & Giller, K. E. (2017). Yield gaps in oil palm: A quantitative review of contributing factors. European Journal of Agronomy, 83(February), 57-77. <https://doi.org/10.1016/j.eja.2016.11.002>
- Wolfe, A. P., & Siver, P. A. (2013). A hypothesis linking chrysophyte microfossils to lake carbon dynamics on ecological and evolutionary time scales. *Global and Planetary Change*, 111, 189-198. <https://doi.org/10.1016/j.gloplacha.2013.09.014>
- Yan, W., & Show, P. L. (2020). Enhancing microalga *Chlorella sorokiniana* CY-1 biomass and lipid production in palm oil mill effluent (POME) using novel-designed photobioreactor. *Bioengineered*, 11(1), 61-69. <https://doi.org/10.1080/21655979.2019.1704536>
- Yang, X., Liu, Z., Zhang, Y., Shi, X., & Wu, Z. (2024). *Dinoflagellate-Bacteria Interactions: Physiology, Ecology, and Evolution*. 1-23.
- Zaiko, A., Pochon, X., Garcia-Vazquez, E., Olenin, S., & Wood, S. A. (2018). Advantages and limitations of environmental DNA/RNA tools for marine biosecurity: Management and surveillance of non-indigenous species. *Frontiers in Marine Science*, 5(SEP). <https://doi.org/10.3389/fmars.2018.00322>

- Zainal Abidin, Z. A., Zahri, N. F., & Zainuddin, Z. (2022). Isolation of Microalgae From Antarctic Soil. *Science Heritage Journal*, 6(2), 34-36. <https://doi.org/10.26480/gws.02.2022.34.36>
- Zebib, B., & Merah, O. (2014). *Morphology , composition , production , processing and applications of Chlorella vulgaris : A review. July*. <https://doi.org/10.1016/j.rser.2014.04.007>
- Zhou, Y., He, Y., Zhou, Z., Xiao, X., Wang, M., & Chen, B. (2022). A newly isolated microalga Chlamydomonas sp . YC to efficiently remove ammonium nitrogen of rare earth elements wastewater. *Journal of Environmental Management*, 316(April), 115284.<https://doi.org/10.1016/j.jenvman.2022.115284>
- Zuccaro, G., Yousuf, A., Pollio, A., & Steyer, J. P. (2019). Microalgae cultivation systems. In *Microalgae Cultivation for Biofuels Production*. Elsevier Inc. <https://doi.org/10.1016/B978-0-12-817536-1.00002-3>
- Zongo, B., Zongo, F., Ouattara, A., & Boussim, J. I. (2011). A Taxonomic Study of the Genus Closterium Nitzsch ex Ralfs (Zygnematophyceae , Streptophyta) in Temporary Ponds in the Burkina Faso , West Africa. *Cryptogamie*, 32(3), 255-270. <https://doi.org/10.7872/crya.v32.iss3.2011.255>