

DAFTAR PUSTAKA

- Ahmad, A.L., C.Y. Chan, S.R. Abd Shukor, dan M.D. Mashitah. 2006., Recovery of oil dan carotenes from palm oil mill effluent (POME). *Elsevier Chemical Engineering Journal*. 141: 383-386.
- Ahmad, A.L., N.M. Yasin, C. Derek, dan J.K. Lim. 2011. Microalgae as a sustainable energy source for biodiesel production: a review. *Renewable dan Sustainable Energy Reviews*, 15:584–593.
- Azmi, N.S. dan K.F.M. Yunos. 2014. Wastewater Treatment Of Palm Oil Mill Effluent (POME) by Ultrafiltration Membrane Separation Technique Coupled with Adsorption Treatment as Pre-Treatment. *Agriculture Dan Agricultural Science Procedia*, 2: 257- 264.
- Barsanti, L., V. Passarelli, V. Evangelista, A.M. Frassanito, dan P. Gualtieri. 2011. Chemistry, physico-chemistry and applications linked to biological activities of β -glucans. *Natural Product Repots*. 28:457–466.
- Badar, S.N. Yaakob, dan Z. Timmiati, S.N. 2017. Growth Evaluation Of Microalgae Isolated From Palm Oil Mill Effluent in Synthetic Media. *Malaysian Journal of Analytical Sciences*. 21 (1) : 82 – 94
- Balat, M. 2009. Bioethanol as a vehicular fuel: a critical review. *Energy Resources Part A*.
- Bellou, S., M. Baeshen, A.M. Elazzazy, D. Aggeli, F. Sayegh, dan G. Aggelis. 2014. Microalgal lipids biochemistry and biotechnological perspectives. *Biotechnology Advances*. 32:1476–1493.
- Bellinger, E.G., dan D.C. Sige. 2015. *Freshwater Algae: identification, enumeration, and use as bioindicators*. Chichester, West Sussex, UK.
- Benemann, J.R., B.L. Koopman, J.C. Weissman, D.M. Eisenberg, dan W.J. Oswald. 1978. *An integrated system for the conversion of solar energy with sewage-grown microalgae*. Department of Energy, U.S.
- Bligh, E.G., dan W.J. Dyer. 1959. A rapid method of total lipid extraction and purification. *Canadian Journal Biochemistry dan Physiology*. 37:911-917.
- Bouck, G. B., A. Rogalski, dan A. Valaitis. 1978. Surface organization and composition of *Euglena*. II. Flagellar mastigonemes. *The Journal of Cell Biology*. 77:805–826.
- Bradford, M. 1976. A rapid and sensitive method for the quantification of microgram quantities of protein utilizing the principle of protein-dye-binding. *Analytical Biochemistry*, 72:248–54.
- Brennan, L. dan Owende, P.2010. Biofuels from Microalgae - A Review Of Technologies for Production, Processing, and Extractions of Biofuels dan Co-Products. *Renewable Dan Sustainable Energy Reviews*, 14: 557-577.
- Brown, M.V., G.K. Philip, dan J.A. Bunge. 2009. Microbial community structure in the North Pacific Ocean. *Multidisciplinary Journal of Microbial Ecology*, 3: 1374–1386.



- Cramer, M., dan J. Myers. 1952. Growth and photosynthetic characteristics of *Euglena gracilis*. *Archives of Mikrobiology*, 17:384–402.
- Cheirsilp, B., J. Tippayut, P. Romprom, dan P. Prasertsan. 2016. Phytoremediation of Secondary Effluent from Palm Oil Mill by Using Oleaginous Microalgae for Integrated Lipid Production and Pollutant Removal. *Springer: Waste dan Biomass Valorization*. 8(8):2889 – 2897.
- Chen, C.Y, K.L.Yeh, R. Aisyah, D.J. Lee, dan J.S. Chang. 2011. Cultivation, Photobioreactor Design and Harvesting of Microalgae for Biodiesel Production: A Critical Review. *Bioresource Technology*, 102: 71-81.
- Chisti, Y. 2007. Biodiesel from Microalgae. *Biotechnology Danances*. 25:294-306.
- Courchesne, N.M.D., A. Parisien, B. Wang, dan C.Q. Lan. 2009. Enhancement of Lipid Production Using Biochemical, Genetic and Transcription Factor Engineering Approaches. *Journal Of Biotechnology* 141 : 31–4.
- Colquhoun, D., F.J. Antonio, U. Tuesday, E. Barbara. 2008. Fish, *Fish Oils, n-3 Polyunsaturated Fatty Acids dan Cardiovascular Health*. Nutrition dan Metabolism Committee of the Heart Foundation. Australia.
- Cruz-Martínez, L.C., C.K.C. Jesus, M.C. Matsudo, E.D.G. Danesi, S. Sato, dan J.C.M. Carvalho. 2015. Growth and Composition Of *Arthrospira (Spirulina) Platensis* in a Tubular Photobioreactor Using Ammonium Nitrate as the Nitrogen Source in a Fed-Batch Process. *Brazilian Journal Of Chemical Engineering*, 32(2): 347-356
- Darley, W.M. 1982. *Algal biology: A physiological approach*. Blackwell Science. London.
- Direktorat Jenderal Perkebunan. 2016. *Statistik Perkebunan Indonesia 2015-2017: Kelapa Sawit*. Direktorat Jenderal Perkebunan, Kementerian Pertanian
- Dring, M.J. 1974. *Algae Physiology dan Biochemistry*. Blackwell Science. London.
- Dubois, M., K.A. Gilles, J.K. Halminton, P.A. Rebers dan F. Smith. 1956. Calorimetric method for determination of sugars and related substances. *Analytical Chemistry*, 28:350-356.
- Erlich, R.P., H.E. Anne, dan P.H. John. 1973. *Human Ecology: Problems and Solution*. WH. Freeman and Co. San Fransisco. p. 304.
- FAO. 1996. *Manual on The Production dan Use of Live Food for Aquaculture*. FAO Fisheries Technical Paper. <http://www.fao.org>. Diakses pada tanggal 25 Januari 2020.
- Fogg, G.E. dan B. Thake. 1987. *Algae Cultures dan Phytoplankton Ecology 3rd Edition*. The University of Winsconsins Press Ltd., London.
- Fowler, D., Coyle, M. Skiba, U.R.J. Geider, dan J.La Roche. 2002. Redfield revisited: variability of C:N:P in marine microalgae and its biochemical basis. *European Journal of Phycology* 37:1–17.
- Geider, R.J., La Roche. 2002. Redfield Revisited: Variability of C:N:P in Marine Microalgae and Its Biochemical Basis. *European Journal Phycology* 37 (01):1–17. Gojdics, M. 1934. The Cell Morphology and



- Division of *Euglena* deses Ehrbg. *Transactions of the American Microscopical Society*. 53: 299–310
- Gurr, M.I., J.L. Harwood, dan K.N. dFrayn. 2002. *Lipid Biochemistry: An Introduction*, 5th ed. Blackwell. Oxford, UK. p. 320.
- Guschina, I.A., dan J.L. Harwood. 2006. Lipids and lipid metabolism in eukaryotic algae. *Progress in Lipid Research*. 45:160–186.
- Hadiyanto, Widayat, Kumoro, dan C. Danri. 2012. Potency of Microalgae as Biodiesel Source in Indonesia. *International Journal of Renewable Energy Development*. 1:23-27.
- Hadiyanto, H., M.M.A. Nur, dan G.D. Hartanto. 2012. Cultivation of *Chlorella* sp. as Biofuel Sources in Palm Oil Mill Effluent (POME). *International Journal of Renewable Energy Development*. 1(2):45-49.
- Hadiyanto dan M.M.A. Nur. 2014. Lipid Extraction of Microalga *Chlorella* sp. Cultivated in Palm Oil Mill Effluent (POME) Medium. *World Applied Sciences Journal*. 31(5): 959-967
- Hadiyanto, D. Setrinanto, S. Silviana, M.Z. Mahdi, dan Y.N. Titisari. 2017. Evaluation of Growth dan Biomass Productivity of Marine Microalga *Nannochloropsis* sp. Cultured in Palm Oil Mill Effluent (POME). *Philippine Journal of Science*. 146 (4): 355-360
- Hancsók, J., M. Krár, S. Magyar, L. Boda, A. Holló, dan Kalló, D .2007. Investigation of the Production of High Cetane Number Bio Gas Oil from Pre-Hydrogenated Vegetable Oils Over. *Microporous Dan Mesoporous Materials*, 101: 148-152.
- Hayashi, H., I. Narumi, S. Wada, M. Kikuchi, M. Furuta, dan K. Uehara. 2004. Light dependency of resistance to ionizing radiation in *Euglena gracilis*. *Journal of Plant Physiology*. 161:1101–1106.
- Henze, Katrin, Badr, Abdelfattah, Wettern, Michael, Cerff, Rudiger, Martin, dan William. 1995. A Nuclear Gene of Eubacterial Origin in *Euglena gracilis* Reflects Cryptic Endosymbioses During Protist Evolution. *Proceedings of the National Academy of Sciences of the United States of America*. 92(20): 9122–6.
- Hu, H, dan K. Gao. 2006. Optimization of Growth dan Fatty Acid Composition of a Unicellular Marine Picoplankton, *Nannochloropsis* sp. with Enriched Carbon Sources. *Biotechnology Letters*. 25(5):421- 425.
- Hu, Q, M. Sommerfeld, dan E. Jarvis. 2008. Microalgal triacylglycerols as feedstocks for biofuel production perspectives and advances. *Plant Journal*. 54:621–639.
- Isnansetyo, A. dan Kurniastuty. 1995. *Teknik Kultur Phytoplankton Zooplankton, Pakan Alam untuk Pemberian Organisme Laut*. Kanisius. Yogyakarta
- Isroi. 2009. *Oil Palm Waste*. Wordpress. Jakarta
- Jasmiati, Sofia, A., dan Thamrin. 2010. Bioremediasi Limbah Cair Industri Tahu Menggunakan Efektif Mikroorganisme (EM4). Ilmu Lingkungan. *Journal of Environmental Science*. Program Studi Lingkungan PPS Universitas Riau.

- Kataoka, H., T. Shimura, T. Mizoshita, E. Kubota, Y. Mori, dan T. Mizushima. 2009. Lentinan with S-1 dan paclitaxel for gastric cancer chemotherapy improve patient quality of life. *Hepatogastroenterology*. 56:547–550.
- Kabinawa, I.N.K. 2008. Biodiesel energi terbarukan dari mikroalga. *Warta Pertamina*. 9: 31-35.
- Kamyab, H., M.F.M. Din, C.T. Lee, A. Keyvanfar, A. Shafaghat, M.Z.A. Majid, M. Ponraj, dan T.X. Yun. 2014. Lipid Production by Microalga *Chlorella pyrenoidosa* Cultivated in Palm Oil Mill Effluent (POME) using Hybrid Photo Bioreactor (HPBR). *Desalination and Water Treatment*. pp. 1-13
- Kamyab, H., M.F.M. Din, C.T. Lee, A. Keyvanfar, A. Shafaghat, M.Z.A. Majid, M. Ponraj, T.X. Yun, L.J. Shiun, dan H.H. Ismail. 2015. Efficiency of Microalgae Chlamydomonas on the Removal of Pollutants from Palm Oil Mill Effluent (POME). *Energy Procedia*. 75:2400 – 2408.
- Kamyab, H., S. Chelliapan, R. Shahbazian-Yassar, M.F.M. Din, T. Khademi, A. Kumar, S. dan Rezania. 2017. Evaluation of Lipid Content in Microalgae Biomass Using Palm Oil Mill Effluent (POME). *The Minerals, Metals and Materials Society*. 69(8):1361-1367
- Kawaroe, M., T. Partono, A. Sunuddin, D.W. Sari, dan D. Agustine. 2010. *Mikroalga Potensi dan Pemanfaatan untuk Produksi Bio Bahan Bakar*. Bogor (ID): IPB Press. pp: 150
- Keeble, F. 1912. *Plant-animals: a study in symbiosis*. London: Cambridge University Press. pp. 103–4.
- Khan, S.A., Rashmi, M.Z. Hussain, S. Prasad dan U.C. Banerjee. 2009. Prospects of biodiesel production from microalgae in India. *Renewable and Sustainable Energy Reviews*. 13:2361–2372.
- Kosaric, N., H. Nguyen, dan M. Bergougnou. 1974. Growth of *Spirulina maxima* algae in 388 effluents from secondary waste-water treatment plants. *Biotechnology Bioengineering*. 16:881–896.
- Krajčovič, J., V. Matej, dan S.D. Schwartzbach 2015. Euglenoid flagellates: A multifaceted biotechnology platform. *Journal of Biotechnology*, pp. 202, 135–145.
- Kromkamp, J. 1987. Formation and Functional Significance of Storage Products in Cyanobacteria. *New Zealand Journal Marine Freshwater Resource* 21:457–465
- Kunne, A., dan E.J. Degroot. 1996. Protein Synthesis in *Euglena Gracilis* is Light and Temperature-Dependent, Oscillating in a Circadian, Temperature-Compensated Manner. *Botanica Acta*, 109: 57-63.
- Lang, dan Ling Yu. 2007. Treatability of Palm Oil Mill Effluent (POME) Using Black Liquor in an Anaerobic Treatment Process. *Thesis for The Degree of Master of Science*. Universitas Sains Malaysia. Malaysia.
- Lee, Y.K. dan H. Shen. 2004. Basic Culturing Techniques. dalam: Richmond, A. (Ed.) *Handbook Of Microalgal Culture: Biotechnology and Applied Phycology*. Blackwell Publishing Ltd. Oxford.

- Lu, L., Yang, G., Zhu, B., dan Pan, K. 2017. A Comparative Study On Three Quantitating Methods of Microalgal Biomass. *Indian Journal Of Geo-Marine Sciences.* 46(11): 2265–2272.
- Lv. M.J.M., L.H. Cheng, X.H. Xu, L. Zhang dan H.L. Chen. 2010. Enhanced Lipid production of *Chlorella vulgaris* by adjustment of Cultivation conditions. *Bioresource Technology.* 101:6797-6804
- Marin, B, A. Pal, M. Klingberg, dan M. Melkonian. 2003. Phylogeny and taxonomic revision of plastid-containing euglenophytes based on SSU rDNA sequence comparisons and synapomorphic signatures in the SSU rRNA secondary structure. *Protista Journal.* 154 (1): 99–145.
- Margulis, L. 2007. Power to the Protocists. In Margulis, Lynn; Sagan, Dorion (eds.). *Dazzle Gradually: Reflections on the Nature of Nature. White River Junction: Chelsea Green.* pp. 29–35.
- Markou, G., I. Angelidakis, dan D. Georgakakis. 2012. Microalgae carbohydrates: an overview of the factors influencing carbohydrates production, and of main bioconversion technologies for production of biofuels. *Applied Microbiology dan Biotechnoogy.* 96:631-645.
- Morimura, Y. 1959. Synchronous Culture of *Chlorella*. *Plant Physiology.* p. 49-62.
- Mulyadi, A. 1999. Pertumbuhan dan Daya serap nutrient dari ganggang mikro *Dunaliella tertiolecta* yang dipelihara pada limbah domestic. *Natur Indonesia.* 2(1):65-68
- Munasinghe, C.P., dan S.K. Khanal. 2010. Biomass derived syngas fermentation into biofuels: opportunities dan challenges. *Bioresource Technology.* 101:5014-5022.
- Nakano, Y., K. Miyatake, R.Yamaji, A. Nishizwa, S. Shigeoka, K. Hosotani, H. Inui, F. Watanabe, T. Enomoto, dan S. Takenaka, 1995. A protist, *Euglena gracilis* Z, functions as a sole nutrient source in a closed ecosystem. *Japan Journal. CELSS* 8:7–12
- Nisbet, B. 1984. *Nutrition and Feeding Strategies in Protozoa.* London: Croom Helm. p. 73.
- Nudelman, M. Alejandra, Rossi, M. Susana, Conforti, Visitacin, Triemer, dan E. Richard. 2003. Phylogeny of euglenophyceae based on small subunit rDNA sequences: Taxonomic implications. *Journal of Phycology.* 39(1):226–35
- Oh Hama, T., dan S. Miyachi. 1988. *Microalgal Biotechnology: Chlorella sp.* London. Cambrigde University Press.
- Olofsson, M., T. Lamela, E. Nilsson, J.P.Bergé, V. del Pino, P.Uronen, dan C. Legrdan. 2012. Seasonal variation of lipids and fatty acids of the microalgae *Nannochloropsis oculata* grow in outdoor large-scale photobioreactors. *Energies.* 5: 1577–1592.
- Prihantini, N.B., Putri, B., dan Yuniati, R. 2005. Pertumbuhan *Chlorella* sp. dalam Medium Ekstrak Tauge (Met) dengan Variasi pH Awal. *Makara, Sains.* 9(1):1-6.

- Putch, M., M. Hafiz, dan H.A. Ariffin. 2007. Pre-Treatment of Palm Oil Mill Effluent (POME): Comparison Study Using Chitosan and Alum. *Malaysia Journal of Civil Engineering*. 19(2): 128-141.
- Putri, D., A. Ulhidayati, L.A. Musthofa, dan A.K. Wardani. 2018. Single Cell Protein Production of *Chlorella* sp. Using Food Processing Waste as A Cultivation Medium. *IOP Conference Series: Earth and Environmental Science*. 131: 12-52
- Rahayu, A.S., D. Karsiwulan, H. Yuwono, I. Trisnawati, S. Mulyasari, dan S. Rahardjo, Hokermin, V. Paramita. 2015. *Buku Panduan Konversi POME Menjadi Biogas:Pengembangan Proyek di Indonesia*. Winrock International. pp.8-10
- Raven, J.A., dan J. Beardall. 2004. Carbohydrate metabolism and respiration in algae. dalam Markou, G., I. Angelidaki, dan D. Georgakakis. 2012. Microalgal carbohydrates: an overview of the factors influencing carbohydrates production, and of main bioconversion technologies for production of biofuels. *Applied Microbiology dan Biotechnology*. 96 : 631-645.
- Rebollosa F, P.A. Navarro, C.F. García, M.J.J Ramos,dan G.J.L. Guil. 2001. Biomass Nutrient Profiles of The Microalga *Nannochloropsis*. *Journal of Agriculture and Food Chemical*. 49(6):2966-2972.
- Richmond, A. 2003. *Handbook of Microalgal Culture: Biotechnology and Applied Phycology*. WILEY.
- Safi, C., A.V. Ursu, C. Laroche, B. Zebia, O. Merah, P.Y. Pontalier, C. Vaca-García. 2014 Aqueous extraction of proteins from microalgae: Effect of different cell disruption methods. *Algal Research*. 3:61–65.
- Samarakoon, K.W., J.Y. Ko, J.H. Lee, O.N. Kwon, S.W. Kim, Y.J. Jeon. 2014. Apoptotic anticancer activity of a novel fatty alcohol ester isolated from cultured marine diatom, *Phaeodactylum tricornutum*. *Journal of Functional Foods*. 6:231–240.
- Sankar, M., dan V. Ramasubramanian. 2012. Biomass Production of Commercial Algae *Chlorella vulgaris* on Different Culture Media. *Journal of Life Science* 1(1):56-60.
- Schaechter, M. 2011. *Eukaryotic Microbes*. San Diego: Elsevier/Academic Press. p. 315.
- Schwartzbach, S., S. Shigeoka. 2017. *Euglena*: Biochemistry. *Cell and Molecular Biology*. Springer: Berlin, Germany.
- Selmani, N., Mirghani, M.E.S., dan Alam, M.Z. 2013. Study the Growth of Microalgae in Palm Oil Mill Effluent Waste Water. *IOP Conerence Series: Earth Dan Environmental Science*. 16:1-26
- Sheehan J., T. Dunahay, J. Benneman, dan P. Roessler. 1998. Alook back back at the department of energy's aquatic species program-biodiesel from algae. *National renewable Energy Laboratory*.23:167-172.
- Shen, C. dan C. Lee, 2006. Same financial development yet different economic growth-why. *Journal of Money, Credit dan Banking*, 38(7): 1907-1944.



- Smith, V.H., B.S.M. Sturm, F.J. deNoyelles, dan S.A. Billings. 2009. The ecology of algal biodiesel production. *Trends in Ecology and Evolution*. 25(6):301-309.
- Spolaore, P.C., C.E. Joannis, Duran, dan A. Isambert. 2006. Commercial applications of microalgae. *Journal of Bioscience. Bioengineering*. 101(2):87-96.
- Stockenreiter, M. 2012. *Ecological optimization of biomass and lipid production by microalgae*. Dissertation, LMU.
- Suyono, E.A., Nuhamunada, M., Ramadhani, N., dan Ramadhaniyah. 2016. Lipid Content from Monoculture of Microalgae *Chlorella Zofingiensis* Donz and Mixed Culture of Glagah Isolate in Laboratory Scale and Raceway Pond for Biodiesel Production. *Asian Jounal Of Microbiology. Biotechnology and Enviromental Sciences*. 18(1):95-100
- Taiz L., dan E. Zeiger, E. 2010. *Plant physiology*, 5th. Sinauer Associates, Sunderland.
- Thompson, G.A. 1996. Lipids and Membrane Function in Green Algae. *Biochimics et Biophysica Acta - Lipids dan Lipid Metabolism*, 1302 (1): 17–45.
- Toyama, T., T. Hanaoka, K. Yamada, K. Suzuki, Y. Tanaka, M. Morikawa, dan K. Mori. 2019. Enhanced production of biomass and lipids by *Euglena gracilis* via co-culturing with a microalga growth-promoting bacterium, *Emticicia* sp. EG3. *Biotechnology for Biofuels*, 12:205.
- Viena, V. 2014. Kultivasi Mikroalga Hijau Pada Sumber Nitrogen Berbeda Untuk Ekstraksi Lipida. *Jurnal Purifikasi*. 14(2): 99 – 105
- Wijffels, R.H., dan M.J. Barbosa. 2010. *An outlook on microalgal biofuels*. 329:796–799.
- Wolosski, K. 2002. *Phylum Euglenophyta*. dalam John, David M.; Whitton, Brian A.; Brook, Alan J. (eds.). *The Freshwater Algal Flora of the British Isles: an Identification Guide to Freshwater and Terrestrial Algae*. p. 144.
- Yamane, Y.I., T. Utsunomiya, M. Watanabe, dan K. Sasaki. 2001. Biomass production in mixotrophic culture of *Euglena gracilis* under acidic condition dan its growth energetics. *Biotechnoogy. Letters*. 23:1223–1228.
- Zimorski, V., C. Rauch, J.J. Van, A.G.M. Tielens, Dan W.F. Martin. 2017. *Euglena: Biochemistry, Cell and Molecular Biology*. Springer, New York.