

DAFTAR PUSTAKA

- Abohmora, A., Wagner, M., El-Sheekh, M., and Hanelt, D. 2013. Lipid and total fatty acid productivity in photoautotrophic fresh water microalgae: screening studies towards biodiesel production. *Journal of Applied Phycology*, 25: 931-936.
- Adenle, A.A., Haslam, G.E., and Lee, L. 2013. Global assessment of research and development for algae biofuel production and its potential role for sustainable development in developing countries. *Energy Policy*, 61:182–195.
- Alam, F., Date, A., Rasjidin, R., Mobin, S., Moria, H., and Baqui, A. 2012. Biofuel from algae – is it a viable alternative? *Procedia Engineering*, 49:221–7.
- Amini, S.R., Nima, M.N., Mohammad, A.M., Samira, H.A., and Younes, G. 2011. *Chlorella* sp.: A new konsorsium with highly saturated fatty acids for biodiesel production in bubble-column photobioreactor. *Applied Energy*, 88: 3354-3356.
- Ana, L.G., Jose, C.M., and Manuel, S. 2016. Biotechnological potential of *Synechocystis salina* co-cultures with selected microalgae and cyanobacteria: Nutrients removal, biomass and lipid production. *Bioresource Technology*, 200: 279-286.
- Aslull, M. and Omar, W.M.W. 2012. Responses of *Tetraselmis* sp. and *Nannochloropsis* sp. konsorsiumed from Penang National Park coastal waters, Malaysia, to the combined influences of salinity, light and nitrogen limitation. *International Conference on Chemical, Ecology and Environmental Sciences (ICEES 2012)*.
- Ayedepo, S. O. 2012. Efficient energy utilization as a tool for sustainable development in Nigeria. *International Journal of Energy and Environmental Engineering*, 3: 11–22.
- Barabas, I., Todorut, A. and Baldean, D. 2010. Performance and emission characteristics of an CI engine fueled with diesel-biodiesel-bioethanol blends. *Fuel*, 89 (12): 827-3832.
- Benjamas, C., Warangkana, S., and Rujira, N. 2011. Mixed culture of oleaginous yeast *Rhodotorula glutinis* and microalga *Chlorella vulgaris* for lipid production from industrial wastes and its use as biodiesel feedstock. *New Biotechnology*, 28:362-368.
- Betiku, E, and Adepoju, T. F. 2013. Methanolysis optimization of sesame (*Sesamum indicum*) oil to biodiesel and fuel quality characterization. *International Journal of Energy and Environment*, 4: 9–16.
- Blanken, W., Postma, P.R., Lenneke, D.W., Rene, H.W., and Marcel, J. 2016. Predicting microalgae growth. *Algal Research*, 14: 28-38.
- Bligh, E. G. and Dyer, W. J. 1959. A rapid method of total lipid extraction and purification. *Canadian Journal of Biochemistry and Physiology*, 37:911–917.
- Boonma, S., Chaiklangmuang, S., Chaiwongsar, S., Pekkoh, J., Pumas, C., Ungsethaphand, T., Tongsir, S., and Peerapornpisal, Y., 2014. Enhanced

- carbon dioxide fixation and bio-oil production of a microalgal consortium. *Clean Soil Air Water*, 43: 761–766.
- Borowitzka, M.A. and Moheimani, N.R. 2013. *Algae for biofuels and energy*. vol. 5. Dordrecht: Springer.
- Brennan, L. and Owende, P. 2010. Biofuels from microalgae – a review of technologies for production, processing, and extractions of biofuels and co-products. *Renewable and Sustainable Energy Review*, 14: 557–577.
- Carvalho A. P. 2010. *Light requirements in microalgal photobioreactors*. Springer-Verlage.
- Casazza, A.A., Pier, F.F., Bahar, A., Attilio, C., and Patrizia, P. 2015. Effect of UV radiation or titanium dioxide on polyphenol and lipid contents of *Arthrospira (Spirulina) platensis*. *Algal Research*, 12: 308-315.
- Cheirsilp, B., Warangkana, S., and Rujira, N. 2011. Mixed culture of oleaginous yeast *Rhodotorula glutinis* and microalga *Chlorella vulgaris* for lipid production from industrial wastes and its use as biodiesel feedstock. *New Biotechnology*, 28: 362-368.
- Cheirsilp B., and Torpee S. 2012. Enhanced growth and lipid production of microalgae under mixotrophic culture condition: Effect of light intensity, glucose concentration and fed-batch cultivation. *Bioresource Technology*, 110: 510-516.
- Chen, C.Y., Xin, Q.Z., Hong, W.Y., Hong, W.Y., Shih, H.H., Chieh, L.C., Duu, J.L., Feng, W.B., and Jo, S.C. 2013. Microalgae-based carbohydrates for biofuel production. *Biochemical Engineering Journal*, 78:1-10.
- Chisti, Y. 2007. Biodiesel from microalgae. *Biotechnology Advances*, 25: 294–306.
- Converti, A., Casazza, A.A., Ortiz, E.Y., Perego, P., and Borghi, M.D. 2009. Effect of temperature and nitrogen concentration on the growth and lipid content of *Nannochloropsis oculata* and *Chlorella vulgaris* for biodiesel production. *Chemical Engineering and Processing*, 48(6):1146-1151.
- Courchesne, N.M.D., Parisien, A., Wang, B., and Lan, C.Q. 2009. Enhancement of lipid production using biochemical, genetic and transcription factor engineering approaches. *Journal of Biotechnology*, 141:31–41.
- Croft, M.T., Lawrence, A.D., Raux-Deery, E., Warren, M.J., and Smith, A.G. 2005. Algae acquire vitamin B12 through a symbiotic relationship with bacteria. *Nature*, 438: 90–93.
- da Silva, T.L., Reis, A., Medeiros, R., Oliveira, A.C., and Gouveia, L. 2009. Oil production towards biofuel from autotrophic microalgae semicontinuous cultivations monitored by flow cytometry. *Applied Biochemistry and Biotechnology*, 159:568–578.
- Demirbas, A. 2008. Biofuels sources, biofuel policy, biofuel economy and global biofuel projections. *Energy Conversion and Management*, 49: 2016-2116.
- Dere, S., Tohit, G., and Ridvan, S. 1998. Spectrophotometric determination of chlorophyll-A, B and total carotenoid contents of some algae species using different solvents. *Turkish Journal of Botany*, 22: 13-17.
- Fouilland, E., 2012. Biodiversity as a tool for waste phycoremediation and biomass production. *Reviews in Environmental Science and Biotechnology*, 11: 1–4.
- Griffiths, M. J. and Harrison, S. T. L. 2009. Lipid Productivity as a Key Characteristic for Choosing Algal Species for Biodiesel Production. *Journal of Applied Phycology*, 21 (5): 493-507.

- Gopinath, A., Sukumar, P., and Nagarajan, G. 2010. Effect of biodiesel structural configuration on its ignition quality. *International Journal of energy and environment*, 1: 295-306.
- Gouveia, L. and Oliveira, A.C. 2009. Microalgae as a raw material for biofuels production. *Journal Industrial Microbiology and Biotechnology*, 36:269–74.
- Hadley, N. F. 1985. *The adaptive role of lipids in biological systems*. Wiley, New York
- Hamed, S.M. and G. Klock. 2014. Improvement of Medium Composition and Utilization of Mixotrophic Cultivation for Green and Blue Green Microalgae towards Biodiesel Production. *Advances in Microbiology*, 4: 167-174.
- Harun, R., Singh, M., Forde, G.M., Danquah, M.K. 2010. Bioprocess engineering of microalgae to produce a variety of consumer products. *Renewable and Sustainable Energy Reviews*, 14(3):1037-1047.
- Holt, J.G., Krieg, N.R., Sneath, P.H.A., Staley, J.T., and Williams, S.T., 1994. *Bergey's Manual of Determinative Bacteriology*, 9th ed. Williams & Wilkins, Baltimore.
- Hosseini, S.E., Wahid, M.A., and Aghili, N. 2013. The scenario of greenhouse gases reduction in Malaysia. *Renewable and Sustainable Energy Review*, 28:400–9.
- Huang, G. H., Chen, F., Wei, W., Zhang, X. W., and Chen, G. 2010. Biodiesel production by microalgal biotechnology. *Applied Energy*, 87: 38-46.
- Hu, Q., Sommerfeld, M., Jarvis, E., Ghirardi, M. L., Posewitz, M., Seibert, M. and Darzins, A. 2008. Microalgal Tri- acylglycerols as Feedstocks for Biofuel Production: Perspectives and Advances. *The Plant Journal for Cell and Molecular Biology*, 54 (4): 621-639.
- Hu, Q., Kurano, N., Kawachi, M., Iwasaki, I., and Miyachi, S. 1998. Ultrahigh-cell density culture of a marine green alga *Chlorococcum littorale* in a flat-plate photobioreactor. *Applied Microbiology and Biotechnology*, 49:655–662.
- Ifeanyi V.O., Anyanwu B.N., Ogbulie J.N., Nwabueze R.N., Ekezie W. and Lawal O.S. 2011. Determination of the effect of light and salt concentrations on *Aphanocapsa* algal population. *African Journal of Microbiology Research*, 5 (17): 2488-2492.
- Janssen M. 2002. Cultivation of microalgae: effect of light/dark cycles on biomass yield. *Thesis Wageningen University*, Wageningen, the Netherlands. 184 p.
- Johnson, K.R., and Admassu, W. 2013. Mixed algae cultures for low cost environmental compensation in cultures grown for lipid production and wastewater remediation. *Journal of Chemical Technology and Biotechnology*, 88: 992–998.
- Johnson, M.B. and Wen, Z. 2009. Production of biodiesel fuel from the microalga *Schizochytrium limacinum* by direct transesterification of algal biomass. *Energy Fuels*, 23(10):5179–5183.
- Kazamia, E., David, C.A., and Alison, G.S. 2012. Synthetic ecology –A way forward for sustainable algal. *Journal of Biotechnology*, 162: 163-169.

- Kim, J., Yoo, G., Lee, H., Lim, J., Kim, K., and Kim, C.W. 2013. Methods of downstream processing for the production of biodiesel from microalgae. *Biotechnology Advances*, 31(6):862-876.
- Koreiviene, J., Valc̃iukas, R., Karosiene, J., and Baltre`nas, P., 2014. Testing of *Chlorella/Scenedesmus* microalgae consortia for remediation of wastewater, CO₂ mitigation and algae biomass feasibility for lipid production. *Journal of Environmental Engineering and Landscape Management*, 22: 105–114.
- Kumar M, Sharma MK, and Kumar A. 2005. *Spirulina fusiformis*: a food supplement against mercury induced hepatic toxicity. *Journal of Health Science*, 51(4): 424-430.
- Li, L., Jing, C., Qian, L., Yancong, D., and Jianguo, L. 2015. Screening and phylogenetic analysis of lipid-rich microalgae. *Algal Research*, 11: 381-386.
- Ling, J., Saiwa, N., Wai, L.C., Renata, A. de T., and Hojae, S. 2014. Lipid production by a mixed culture of oleaginous yeast and microalga from distillery and domestic mixed wastewater. *Bioresource Technology*, 173: 132-139.
- Liu, Z.Y., Wang, G.C., and Zhou, B.C. 2008. Effect of iron on growth and lipid accumulation in *Chlorella vulgaris*. *Bioresource Technology*, 99(11): 4717-4722.
- Lv, J.M., Cheng, L.H., Xu, X.H., Zhang, L., Chen, H.L. 2010. Enhanced lipid production of *Chlorella vulgaris* by adjustment of cultivation conditions. *Bioresource Technology*, 101(17):6797-6804.
- Marchetti, J., Miguel, V., and Errazu, A. 2007. Possible methods for biodiesel production. *Renewable and Sustainable Energy Reviews*, 11: 1300-1311.
- Mata, T.M., Martins, A.A., and Caetano, N.S. 2010. Microalgae for biodiesel production and other applications: a review. *Renewable Sustainable Energy Review*. 14, 217–232.
- Mata T. M., Melo A. C., Simoes M. and Caetano N. S. 2012. Parametric study of a brewery effluent treatment by microalgae *Scenedesmus obliquus*. *Bioresource Technology*, 107: 151-158.
- Mathew, B., Sankaranarayanan, R., Nair, P.P., Varghese, C., Somanathan, T., Amma, B.P., Amma, N.S., and Nair, M.K., 1995. Evaluation of chemoprevention of oral cancer with *Spirulina fusiformis*. *Nutrition and Cancer*. 24, 197-202.
- May, R.M. 1977. Thresholds and breakpoints in ecosystems with a multiplicity of stable states. *Nature*, 269: 471–477.
- Mendes, R.L., Alberto, D.R., and Antonio, F.P. 2006. Supercritical CO₂ extraction of γ -linoleic acid and other lipids *Arthrospira (Spirulina) maxima*: Comparison with organic solvent extraction. *Food Chemistry*, 99: 57-63.
- Mercer, P., and Armenta, R.E. 2011. Developments in oil extraction from microalgae. *European Journal of Lipid Science and Technology*, 113: 539–547.
- Milano, J., Hwai, C.O., Masjuki, H.H., Chong, W.T., Man, K.L., Ping, K.L., and Viknes, V. 2016. Microalgae biofuels as an alternative to fossil fuel for power generation. *Renewable and Sustainable Energy Reviews*, 58: 180-197.

- Novoveska, L., Dylan, T.F., Tristan, A.W., and William, J.H. 2016. Stabilizing continuous mixed cultures of microalgae. *Algal Research*, 13: 126-133.
- Nuhamunada, M., Muhammad, Z., Alfian, B.K., Hati, E.P., Amalia, R., and Eko, A.S. 2013. Eksplorasi mikroalga di pesisir selatan Yogyakarta untuk mendapatkan konsorsium local yang unggul dalam produks biodiesel. *Program Kreativitas Mahasiswa*. Yogyakarta: Universitas Gadjah Mada.
- Olguin, J.O., Anilu, M., Ricardo, E.G.P., and Eberto, N. 2015. Population dynamics in mixed cultures of *Neochloris oleoabundans* and native microalgae from water of a polluted river and isolation of a diatom consortium for the production of lipid rich biomass. *New Biotechnology*, 30: 705-715.
- Ordog, V., Wendy, A.S., Peter, B., Csaba, L., Otto, P., and Johannes van, S. 2013. Lipid productivity and fatty acid composition in *Chlorella* and *Scenedesmus* konsorsiums grown in nitrogen-stressed conditions. *Journal Applied Phycology*, 25: 233-243.
- Papone, T., Supaporn, K., Mutiyaporn, P., and Ratanporn, L. 2016. Producing of Microbial Oil by Mixed Culture of Microalgae and Oleaginous Yeast Using Sugarcane Molasses as Carbon Substrate. *Journal of Clean Energy Technologies*, 4 (4): 253-256.
- Parmar, A., Niraj, K.S., Ashok, P., Edgard, G., and Datta, M. 2011. Cyanobacteria and microalgae: A positive prospect for biofuels. *Bioresource Technology*, 102: 10163-10172.
- Piligaev, A.V., Sorokina, K.N., Bryanskaya, A.V., Peltek, S.E., Kolchanov, N.A., Parmon, V.N. 2015. Konsorsiumion of prospective microalgal konsorsiums with high saturated fatty acid contentfor biodiesel production. *Algal Research*, 12: 368-376.
- Pruvost, J. Van Vooren, G., B. Le Gouic, Couzinet- Mossion, A. and Legrand, J. 2010. Systematic Investigation of Biomass and Lipid Productivity by Microalgae in Photo- bioreactors for Biodiesel Application. *Bioresource Technology*, 102 (1): 150-158.
- Pulz, O., and Gross, W. 2004. Valuable products from biotechnology of microalgae. *Applied Microbiology and Biotechnology*, 65: 635-648.
- Raj, M.T. and Kandasamy, M.K.K. 2012. Tamanu oil - an alternative fuel for variable compression ratio engine. *International Journal of Energy and Environmental Engineering*, 3: 18-25.
- Ravishankar, G.A., Sarada, R., Vidyashankar, S., VenuGopal, K.S., and Kumudha, A. 2002. *Cultivation of micro-algae for lipids and hydrocarbons, and utilization of spent biomass for livestock feed and for bio-active constituents*. In: Makkar HPS, editor. Biofuel co-products as livestock feed - opportunities and challenges, Rome. Food and Agriculture Organization: 423-446.
- Richmond, A. 2004. *Handbook of Microalgal Culture : Biotechnology and Applied Phycology*. Blackwell Science Ltd. UK. pp: 3; 105.
- Ruangsomboon, S. 2015. Effects of different media and nitrogen sources and levels on growth and lipid of green microalga *Botryococcus braunii* KMITL and its biodiesel properties based on fatty acid composition. *Bioresource Technology*, 191: 377-384.
- Saadaoui, I., Ghomza, A.G., Touria, B., Fatma, A.K., Hareb, A.J., and Malcolm, P. 2016. Evidence of thermo and halotolerant *Nannochloris* consortium

- suitable for biodiesel production in Qatar Culture Collection of Cyanobacteria and Microalgae. *Algal Research*, 14: 39-47.
- Sahu, A., Pancha, I., Jain, D., Paliwal, C., Ghosh, T., and Patidar, S. 2013. Fatty acids as biomarkers of microalgae. *Phytochemistry*;89:53-58.
- Schenk, P. M., Skye, R., Hall, T., Stephens, E., Ute, C. M., Mussgnug, J. H., Posten, C., Kruse, O., and Hankamer, B. 2008. Second Generation Biofuels: High-Efficiency Microalgae for Biodiesel Production. *Bioenergy*, 1: 20-43.
- Scragg, A.H., Morrison, J., and Shales, S.W. 2003. The use of a fuel containing *Chlorella vulgaris* in a diesel engine. *Enzyme and Microbial Technology*, 33(7):884-889.
- Singh, R. K., Tiwari, S. P., Rai, A. K., and Mohapatra, T. M. 2011. Cyanobacteria: an emerging source for drug discovery. *Journal Antibiotics*, 6, 401-412.
- Singh, A., Nigam, P.S., and Murphy, J.D. 2011. Mechanism and challenges in commercialisation of algal biofuels. *Bioresource Technology*, 102:26-34.
- Sivakumar, R. and Rajendran, S. 2013. Growth measurement technique of microalgae. *International Journal of Current Science*, 7: 52-54.
- Staley, J.T., Bryant, M.P., Pfennig, N., and Holt, J.G. 1989. *Bergey's Manual of Systematic Bacteriology*, vol. 3. Williams & Wilkins, Baltimore.
- Suyono, E.K., Winarto, H., Muhammad, Z., Matin, N., Sri, R., and Andhika, P.N. 2015. The Effect of Salinity on Growth, Dry Weight and Lipid Content of the Mixed Microalgae Culture Konsorsiumed from Glagah as Biodiesel Substrate. *Journal of Life Sciences*, 9:229-233.
- Tale, M., Sukhendu, G., Balasaheb, K., and Sharad, K. 2014. Konsorsiumion and characterization of microalgae for biodiesel production from Nisargruna biogas plant effluent. *Bioresource Technology*, 169: 328-335.
- Tang, Y.Z., Koch, F., and Gobler, C.J. 2010. Most harmful algal bloom species are vitamin B₁ and B₁₂ auxotrophs. *Proceedings of the National Academy of Sciences of the United States of America*, 107: 20756-20761.
- Thajuddin, N., and Subramanian, G. 2005. Cyanobacterial biodiversity and potential applications in biotechnology. *Current Science India*, 89(1):47-57.
- Tokusoglu, Ö. and Ünal, M.K. 2003. Biomass nutrient profiles of three microalgae: *Spirulina platensis*, *Chlorella vulgaris* and *Isochrysis galbana*. *Journal of Food Science*, 68:1144-1148.
- Utama, I.V., Sri, N., Stevanus, Fahrunnida dan Reza, D. P. 2015. Isolasi kultur murni mikroalga dari konsorsium superstrain Glagah sebagai stok *culture collection* di Indonesia. *Program Kreativitas Mahasiswa*. Universitas Gadjah Mada. Yogyakarta.
- van Eykelenburg, C. 1977. On the morphology and ultrastructure of the cell wall of *Spirulina platensis*. *Antonie Leeuwenhoek*, 43: 89-99.
- Widjaja, A., Chein, C.C., and Ju, Y.H. 2009. Study of Increasing Lipid Production from Fresh Water Microalgae *Chlorella vulgaris*. *Journal of the Taiwan Institute of Chemical Engineers*, 1: 13-20.
- Xu, F., Miao, J., Zhang, X., and Tan, T. 2010. A new strategy for lipid production by mix cultivation of *Spirulina platensis* and *Rhodotorula glutinis*. *Applied Biochemistry and Biotechnology*, 160(2): 498-503.
- Yamamoto, M., Fujishita, M., Hirata, A., and Kawano, S. Regeneration and maturation of daughter cell walls in the autospore-forming green alga

- Chlorella vulgaris* 2004. (*Chlorophyta*, *Trebouxiophyceae*). *Research Journal of Plant*, 117: 257–64.
- Yen, C.L., Stone, S.J., Koliwad, S., Harris, C., and Farese, R.V. Jr. 2008. Thematic review series: glycerolipids. DGAT enzymes and triacylglycerol biosynthesis. *Journal of Lipid Research*. 49: 2283–2301.
- Zhang, Z., Ji, H., Gong, G., Zhang, X., and Tan, T. 2014. Synergistic effects of oleaginous yeast *Rhodotorula glutinis* and microalga *Chlorella vulgaris* for enhancement of biomass and lipid yields. *Bioresource Technology*, 164: 93–99.
- Zeng, X., Danquah, M.K., Chen, X.D., and Lu, Y. 2011. Microalgae bioengineering: from CO fixation to biofuel production. *Renewable and Sustainable Energy Review*, 15(6):3252–3260.