

DAFTAR PUSTAKA

- Ahmed F., Fanning K., Netzel M., Schenk P. M. 2015. Induced caretenoid accumulationn in Dunaliella salina and Tetraselmis suecica by plant hormones and UV-C radiation. *Biotechnological and Product and Process Engineering* .99(22):16.
- Akbarirad H., Ardabilia A., Khaganegah M. 2016. An overview on some of important sources of natural antioxidants. *International Food Research Journal* 23(3): 928-933 (2016) .
- Amri E., Dharma A., Armaini . Tjong D. H. 2017. Screening Anti-Acne Potency of Microalgae: Antibacterial and Antioxidant Activities. *Der Pharma Chemica* 9(4):28-31.
- Bhagavathy S., Sumathi P., and Bell I.J. 2011. Green algae *Chlorococcum humicola*-a new source of bioactive compounds with antimicrobial activity. *Asian Pacific Journal of Tropical Biomedicine*, vol. 1, no. 1.
- Chadir Z., Syafrizayanti , and Putri M. 2017. Isolation and Identification of Microalgae from Harau Valley Payakumbuh, West Sumatra as One Agent Producing Compounds Antibacterial. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*. Volume 8(3).
- Cha K. H., Koo S., Lee L. 2008. Antiproliferative Effects of Carotenoids Extracted from Chlorella ellipsoidea and Chlorella vulgaris on Human Colon Cancer Cells. *J. Agric. Food Chem.* Vol. 56, No. 22
- Chew K.W., Yap J.Y., Show P.L., Suan N.H., Juan J.C., Ling T.C. 2017. Microalgae biorefinery: High value products perspectives. *Bioresource Technology* 229 (2017) 53–62.
- Conception M.R., Avalos J., Bonet M.L., Mendes D.M., Zacarias L. 2018. Review A global perspective on carotenoids: Metabolism, biotechnology, and benefits for nutrition and health. *Progress in Lipid Research*.Volume 70 : 62–93.
- Dinga, Zhaoa P., Jun Pengb, Yongteng Zhaoa, Jun-Wei Xua, Tao Lia, Russel J. Reiterc,Huixian Mad, Xuya Yu. 2018. Melatonin enhances astaxanthin accumulation in the green microalga Haematococcus pluvialis by mechanisms possibly related to abiotic stresstolerance. *Alga Research*. 33.266-265.

- Duong, V.T., Y. Li, E. Nowak and P.M. Schenk. 2012. Microalgae Isolation and Selection for Prospective Biodiesel Production. *Energies*. 5: 1835-1849.
- El-Baz F.K, Hussein R.A., Mahmoud K., Abdo S.M. 2017. Cytotoxic Activity of Carotenoid rich Fractions from *Haematococcus pluvialis* and *Dunaliella salina* Microalgae and the Identification of the Phytoconstituents using LC-DAD/ESI-MS. *Phytotherapy Research*. 32:298–304.
- Fadillah, Zahara. 2010. *Pengaruh Konsentrasi Limbah Cair Tahu Terhadap Pertumbuhan Mikroalga Scenedesmus sp. [Skripsi]*. Jakarta: Fakultas Sains dan Teknologi, Universitas Islam Negeri Syarif Hidayatullah.
- Faria G.R., Paes C.R.P.S., Castro D.J.F.A., Tinoco N.A.B., Barbarino E., Laurencio S.O. 2012. Effects of the availability of CO₂ on growth, nutrient uptake, and chemical composition of the marine microalgae Chlorella sp. and Nannochloropsis oculata, two potential useful strains for biofuels production. *International Research Journal of Biotechnology*. 3. 65-75.
- Fu W., Nelson D.R., Yi Z., M. Xu, Khraiwesh B., Jijakli K., A. Chaiboonchoe. A. Alzahmi, S. Brynjolfsson and Salehi-Ashtian k. 2017. Bioactive Compounds From Microalgae: Current Development and Prospects. *Studies in Natural Products Chemistry*, Vol. 54.
- Garcinuño A.G., Sánchez-Álvarez J.M., Valle E.M., Galán M. 2016. Understanding and optimizing the addition of phytohormones in the culture of microalgae for lipid production. *Applied Cellular Physiology and Metabolic Engineering*.
- Ghanbari R., Zarei M., Ebrahimpour A. Abdul-Hamid A., Ismail A. Saari N. 2015. Angiotensin-I Converting Enzyme (ACE) Inhibitory and Anti-Oxidant Activities of Sea Cucumber (*Actinopyga lecanora*) Hydrolysates. *International Journal of Molecular Sciences*, 16, 28870-28885
- Goiris K., Muylaert K., Fraeye I., Foubert I., Brabanter JD., Cooman L. 2012. Antioxidant potential of microalgae in relation to their phenolic and carotenoid content. *Journal Applied Phycology*. 24:1477–1486
- Hadiyanto. Widayat. Kumoro A. C. 2012. Potency of Microalgae as Biodiesel Source in Indonesia. *International Journal of Renewable Energy Development*. 1 :23-27
- Han X., Zeng H., Bartocc P., Fantozzi F., Yan Y. 2018. Phytohormones and Effects on Growth and Metabolites of Microalgae: A Review. *Fermentation*.4:25.

- Harmoko dan Sepriyaningsih. 2017. Keanekaragaman Mikroalga di Sungai Kati Kota Lubuk Linggau. *Scripta Biologica*. Volum 4. Nomor 3. 2001-205.
- Hernandi R. 2018. Pengaruh Salinitas Terhadap Pertumbuhan, Kandungan Lipid, dan Komposisi Asam Lemak Mikroalga yang Diisolasi dari Perairan Danau Kerinci, Jambi. *Tesis*. Jurusan Kimia FMIPA Universitas Andalas.
- Hu C., Lin J., Lu F., Chou F., Yang D. 2008. Determination of carotenoids in *Dunaliella salina* cultivated in Taiwan and antioxidant capacity of the algal carotenoid extract. *Food Chemistry* 109 :439–446.
- Hu, Q. 2013. *Handbook of Microalgal Culture: Applied Phycology and Biotechnology, Second Edition*. 723.
- Hunt R W., Chinnasamy S., Bhatnagar A., & Das K. C. 2010. Effect of Biochemical Stimulants on Biomass Productivity and Metabolite Content of the Microalga, *Chlorella sorokiniana* *Appl Biochem Biotechnol* (2010) 162:2400–2414
- Hynstova V., Sterbova D., Klejdus B., Hedbavnya J., Huska K., Adam V. 2018. Separation, identification and quantification of carotenoids and chlorophylls in dietary supplements containing *Chlorella vulgaris* and *Spirulina platensis* using High Performance Thin Layer Chromatography. *Journal of Pharmaceutical and Biomedical Analysis*. 148: 108–118.
- Kawaroe M., Prartono T., Sunuddin A., Sari D.W., Agustine D., 2010. *Mikroalga : Potensi dan Pemanfaatannya untuk Produksi Bio Bahan Bakar*. IPB Press.
- Kimura M., Amaya D.B., Godoy H. 1990. Assessment of the Saponification Step in the Quantitative Determination of Carotenoids and Provitamins A *Food Chemistry*. 35 : 187-195.
- Kozlova T.A., Hardy B.P., Krishna P., and Levin D.B. 2017. Effect of phytohormones on growth and accumulation of pigments and fatty acid in the microalgae *Scenedesmus quadricauda*. *Alga Research* 27 325-334.
- Li, Y., M. Horsmand and N. Wu., 2008. Biofuel from Microalgae. *Biotechnol.*, 24 : 815-820.
- Liang N., dan Kitts D. D. 2014. Antioxidant Property of Coffee Components: Assessment of Methods that Define Mechanisms of Action. *Molecules*.19
- Lichtenher, H.K. 1987. Chlorophylls and Carotenoids : Pigments of Photosynthetic Biomembranes, Methods In Enzymology. *Academic Press*.

- Lu Y., and Xu J. 2015. Phytohormones in microalgae : a new opportunity for microalgal biotechnology. *Trends in Plants Science*. Volume. 20. Number 5.
- Molyneux P. 2004. The Use of The Stable Free Radical Diphenylpicrylhydrazyl (DPPH) For Estimating Antioxidant Activity. *Songklanakarin Journal of Science and Technology*, 26(2), 211-219.
- Morales I.S.S., Valle L.T., Rocha F.J.M., Hernandez J.F.L. 2018 Tocopherols, Phycocyanin and Superoxide Dismutase from Microalgae: as Potential Food Antioxidants. *Applied Food Biotechnology*. Value 5 (1):19-27.
- Mousavi P, Morowvat MH, Montazeri-Najafabady N, Abolhassanzadeh Z, Mohagheghzadeh A, Hamidi M, Niazi A, Ghasemi Y. Investigating the effects of phytohormones on growth and β-carotene production in a naturally isolates stain of Dunaliella salina. *J App Pharm Sci*, 2016; 6 (08): 164-171.
- Niczyporuk A. P., Bajguz A. 2013. The effect of natural and synthesis auxins on the growth, metabolite content and antioxidant response of green alga Chorella Vulgaris (Trebouxiophyceae).
- Nurhayati C., Hamszah B., Pambuyan R. 2014. Pegaruh pH, Konsetrasi Isolat Chrella Vulharis dan Wakru Pengamatan Terhadap Tingkat Cemaran Limbah Cair Crumb Rubber. *Jurnal Dinamika Penelitian Industri* Vol. 25 No.2.97-106..
- Paliwal C., Mitra M., Bhayai K., Bharadwa V., Ghsh T., Dbey S., Mishra S.2017. Abiotic Stresses as tools for metablites in micralgae.
- Park W., Yoo G., Moon M., Kim , C. W., Choi Y., & Yang J. 2013. Phytohormone Supplementation Significantly Increases Growth of *Chlamydomonas reinhardtii* Cultivated for Biodiesel Production. *Appl Biochem Biotechnol*.
- Park W., Yoo G., Moon M., Kim , C. W., Choi Y., & Yang J. 2013. Phytohormone Supplementation Significantly Increases Growth of *Chlamydomonas reinhardtii* Cultivated for Biodiesel Production. *Appl Biochem Biotechnol*.
- Pavin M., Zannat M.N., Habib M.A.B. 2007. Short Communication : Two Important Techniques for Isolation of Microalgae. *Asian Fisheries Science* 20:117-124.

- Prase tiyo H., Setyaningsih I., Agungpriyono D.R. 2015. *Growth and Extracellular Polysaccharide Production of Porphyridium cruentum In Various Photoperiod*. *Jurnal Pengolahan Hasil Perikanan Indonesia*. Volume 18 :2.
- Priyadarshani I., and Rath, B., 2012. Commercial and industrial applications of microalgae – A review. *J. Algal Biomass* 3(4):89–100.
- Putri M. 2016. Isolasi Dan Identifikasi Mikroalga yang terdapat di Perairan Lembah Harau Payakumbuh, Sumatera Barat Sebagai Salah Satu Agen Penghasil Senyawa Antibakteri *Tesis*. Jurusan Kimia FMIPA Universitas Andalas.
- Raja V., Majeeda U., Kang H., Iqbal K., Riffat J. 2017. Abiotic Stress : Interplay between ROS, Hormone and MAPKs. *Environmental and Experimental Botany*. 134: 142-157.
- Rao S., Kalva S., Yerramilli A., Mamidi S. 2011. Free Radicals and Tissue Damage: Role of Antioxidants. *Journal Free Antioxidant*. Vol. 4
- Reni L., Kreckhoff., Edwin L., Ngangi, Suzanne L., Undap, Diane J. 2019. Crude extracts of *Kappaphycus alvarezii* algae cultivated in several seaweed production centers in North Sulawesi, Indonesia as immunostimulant. *AACL Bioflux*. Volume 12, Issue 2.
- Rosly N.F., Razak R.A.A., Kupusamy R., Yusoff M.M., Natanamuruguraj. 2013. Induction of bioactive compound composition from marine microalgae (*Lyngbya sp.*) by using different stress condition. *Journal of Coastal Life Medicine*. 1(3): 205-209.
- Sangeetha P., Anuradha V., Suganya V., and Bhuvana P. 2018. In Vitro Antioxidant and Radical Scavenging Activity Of Marine Microalga *Nannochloropsis oculata*. *World Journal Of Pharmacy and Pharmaceutical Sciences*. Volume 7, Issue 4, 923-937.
- Sarangarajan R., Meera S., Rukkumani R., Sankar P., dan .Anuradha. 2017. Antioxidants: Friend or foe?. *Asian Pacific Journal of Tropical Medicine*; 10(12): 1111–1116.
- Sathasivam R., Seu-ki J., 2018. A Review of the Biological Activities of Microalgal Carotenoids and Their Potential Use in Healthcare and Cosmetic Industries. *Marine Drugs*. 16:26.
- Scott K. 2001. Detection and Measurement of Carotenoids by UV/VIS Spectrophotometry. *Current Protocols in Food Analytical Chemistry*.

- Sekartresna W., Dharma A., Zein R., Chaidir Z. 2016. Identification of Blue-Green Algae *Uncultured Oscillatoria sp* IPOME-4 Isolated from Local Industry Effluent with The Potential as β -Carotene Feedstock. *Der Pharma Chemica*. 8(12):110-117.
- Sindhu E., Preethi K., Kuttan R. 2010. Antioxidant activity of carotenoid lutein in vitro and in vivo. Indian Journal of Experimental Biology. Vol. 48.
- Sulistyaningrum, N., 2014, Isolasi dan Identifikasi Struktur Karotenoid dari Ekstrak Bayam Merah (*Amaranthus Tricolor L.*), Jurnal Kefarmasian Indonesia, 4:75-82.
- Sun X., Ren L., Zhao Q., Ji XJ., Huang H. 2018. Microalgae for the production of lipid and carotenoid : a review with focus on stress regulation and adaptation. *Biotechnology for Biofuels*. 11: 272.
- Tchakoteu S.S., Chatzifragkou A., Kalantzi O., Koutinas A.A., Aggelis G., Panikolaou S. 2015. Oleaginous yeast *Cryptococcus curvatus* exhibits interplay between biosynthesis of intracellular sugars and lipids. *Europe Journal Lipid Science Technology*. 117, 657–672.
- Wang F., Huang L., Gao B., Zhang C. 2018. Optimum Production Conditions, Purification, Identification, and Antioxidant Activity of Violaxanthin from Microalga *Eustigmatos cf. polyphem* (Eustigmatophyceae). *Marine Drugs*:190.
- Wang N., Manabe Y., Sugawara T., Paul N.A., Zhao J. 2018. Identification and Biological Activities of Caretenoid from the freshwater alga *Oedogonium intermedium*. *Food Chemistry* . 242: 247-255.
- Widowati I., Zainuri M., Kusumaninrum H.P., Susilowati R., Hardivilier Y., Leignel V., Bourgounons N.B., Mouget J. 2017. Antioxidant activity of three microalgae *Dunaliella salina*, *Tetraselmis chuii* and *Isochrysis galbaclone Tahiti*. *IOP Conference Earth Environmental Science*. 55 012067.
- Yoshida, K. et al. (2003) Induction of tolerance to oxidative stress in the green alga, *Chlamydomonas reinhardtii*, by abscisic acid. *Plant Cell Environ*. 26, 451–457.
- Yu X., Chen L., and Zhang W. 2015. .Chemicals to enhance microalgal growth and accumulation of high-value bioproduct. *Frontiers in Microbiolog*. Volume 6:57.

Zebi C. 2017. Efficient microscale screening of various *Haematococcus pluvialis* strains for growth and astaxanthin production. *Dissertation*. Mathematisch-Naturwissenschaftlichen Fakultät der Universität zu Köln.

Zhang J., Sun Z., Sun P., Chena P., and Chen F. 2014. Microalgal carotenoids: beneficial effects and potential in human health. *Journal Food Function*. 5. 413–425.

Zhao Y., Wang H., Han B., Yu X. 2019. Coupling of abiotic stresses and phytohormones for the production of lipids and high-value by microalgae : A review. *Bioresource Technology*. 274:549-556.

Zheng B., Su M., Chen Q., Chang Q., Wang W., and Li G., 2016. Antioxidant and hepatoprotective activities of polysaccharides from *Anoectochilus roxburghii*. *Journal of Carbohydrate Polymers* 153: 391–398



