

## DAFTAR PUSTAKA

- Andersen, R.A. 2005. *Algal Culturing Techniques*. Elsevier Academic Press. China. Pp: 242-249
- Aoi, W., Y. Naito., K. Sakuma., M. Kuchide., H. Tokuda., T. Maoka., S. Toyokuni., S. Oka., M. Yasuhara and T. Yoshikawa. 2003. Astaxanthin Limits exercise-Induced Skeletal and Cardiac Muscle Damage in Mice. *Antioxidants and Redox Signaling*. 5(1):139-144.
- Beale, S.I., and D. Appleman. 1971. Chlorophyll Synthesis in *Chlorella* Regulation by Degree of Light Limitation of Growth. *Plant Physiology*. 47:230-235
- Britton, G., Liaaen-Jensen, S. and Pfander, H. 2004. *Carotenoids Handbook*. Birkhauser. Verlag. Pp: 204-209
- Bohnert, H.J. Nelson, D.E. and Jensen, R.G. 1995. Adaptations to Environmental Stresses. *The Plant Cell*. 7: 1099-1111.
- Boussiba, S. 2000. Carotenogenesis in The Green Alga *Haematococcus pluvialis*: Cellular Physiology and Stress Response. *Plant Physiology*. 108: 111-117.
- Campo, J.A., H. Rodriguez., J. Moreno., M.A. Vargas., J. Rivas., and M.G. Guerrero. 2004. Accumulation of Astaxanthin and Lutein in *Chlorella zofingiensis* (Chlorophyta). *Applied Microbiology Biotechnology*. 66: 848-854.
- Campbell, N.A., J.B. Reece. A.U. Lisa., L.C. Micahel., A.W. Steven., V.M. Peter and B.J. Robert. 2008. *Biology 8<sup>th</sup>*. Pearson Education Inc. San Fransisco. Pp: 185-195
- Capelli, B and G. Cysewski. 2006. *Astaxanthin. Natural Asatxanthin: King of The Carotenoid*. Cyanotech Corporation. Hawaii. Pp: 4-19
- Chisti, Yusuf. 2007. Biodiesel from microalgae. *Biotechnology Advances*. 25: 296.
- Chen, T and Y. Wang. 2013. Optimizes Astaxanthin Production in *Chlorella zofingiensis* Under Dark Condition by Response Surface Methodology. *Food Science Biotechnology*. 22(5):1343-1350.
- Dere, S., Tohit, G., and Ridvan, S. 1998. Spectrophotometric Determination of Chlorophyll-A, B, and Total Carotenoid Content of Some Algae Species Using Different Solvent. *Journal of Botany*. 22:13-17.
- Dragos, N., V. Bercea., A. Bica., B. Druga., A. Nicoara., and C. Coman. 2008. Astaxanthin Production From a New Strain of *Haematococcus pluvialis* Grown in Batch Culture. *Annals of RSCB*. XV(2): 353-361.

- Dring, M.J., R.M. Forster., and R. Schmid. 1994. Ecological Significance of Blue Light Stimulation of Photosynthetic Capacity in *Laminaria* spp. and Other Brown Algae. *Marine Ecology Progress Series*. 113:271
- Donz, O.C. 1934. *Chlorella zofingiensis*, eine neue bodenalge. *Berichte der Schweizerischen. Botanischen Gesellschaft*. 43: 127-131.
- Endrawati, H., C. Manulang dan Widianingsih. 2012. Densitas dan Kadar Total Lipid Mikroalga *Spirulina platensis* yang Dikultur pada Fotoperioda yang Berbeda. *Buletin Oseanografi Marina*. 1: 33-38
- Fabregas, J., A. Maseda., A. Dominguez., and A. Otero. 2004. The Cell Composition of *Nannochloropsis* sp. Changes Under Different Irradiances in Semicontinuous Culture. *World Journal Microbiol Biotechnol*. 20: 31-35
- Fasset, R.G., and J.S. Coombes. 2011. Astaxanthin: A Potential Therapeutic Agent in Cardiovascular Disease. *Marine Drugs*. 9: 447-465
- Frete, H.D., Susanto, A.B., Budhi, P., and Leenawaty, L. 2012. Karotenoid dari Makroalga dan Mikroalga: Potensi Kesehatan Aplikasi dan Bioteknologi. *Journal Teknologi dan Industri Pangan*. 23(2):221-226
- Fodorpatiki, L. and Bartha, C. 2004. Salt Stress Tolerance Of A Freshwater Green Alga Under Different Photon Flux Densities. *Studia. Universitatis. Babeş. Bolyai. Biologia*. XLX: 2.
- Guckert, J.B., and K.E. Cooksey. 1990. Triglyceride Accumulation and Fatty Acid Profile Changes in *Chlorella* (*Chlorophyta*) During High pH Induced Cell Cycle Inhibition. *Journal of Phycology*. 26: 72-79
- Han, D., Y. Li., and Q. Hu. 2013. Astaxanthin in Microalgae: Pathway, Functions and Biotechnological Implications. *Review Algae*. 28(2): 131-147
- Haryatfrehni, R. 2013. *Kandungan Pigmen dan Keragaman Makroalga di Pantai Sepanjang Gunungkidul D.I. Yogyakarta*. Skripsi. Fakultas Biologi Universitas Gadjah Mada. Yogyakarta. Hal: 4-11.
- Hess, J.L. dan N.E. Tolbert. 1967. Changes in Chlorophyll a/b Ratio and Products of <sup>14</sup>CO<sub>2</sub> Fixation by Algae Grown in Blue or Red Light. *Plant Physiology*. 42:1123-1130.
- Ip, P., and Chen F. 2005. Employment of Reactive Oxygen Species to Enhance Astaxanthin Formation in *Chlorella zofingiensis* in Heterotrophic Culture. *Process Biochemistry*. 40: 3491-3495
- Jin, L. 2010. Genetic Engineering of *Chlorella zofingiensis* For Enhanced Astaxanthin Biosynthesis and Assessment of The Algal Oil For Biodiesel Production. University of Hong kong. Hongkong. Pp: 3-57.

- Jin, L., Z. Sun. And H. Gerken. 2014. *Recent Advances in Microalgal Biotechnology*. Omics Group. Foster City USA. Pp : 4-10.
- Juneja, A., R.M. Ceballos., and G.S. Murthy. 2013. Effects of Environmental Factors and Nutrient Availability on the Biochemical Composition of Algae for Biofuels Production. *A Review Energies*. 6: 4607-4638
- Kamath, S.B. 2007. Biotechnological Production of Microalgal Carotenoids with Reference to Astaxanthin and Evaluation of its Biological Activity. Thesis. India. Pp: 3-18
- Kozlenko, R. dan R. H. Henson. 1998. Latest Scientific Research On *Spirulina*: Effect On The Aids Virus, Cancer And The Immune System. [www.sprulinasource.com/earthfoodch2b.html](http://www.sprulinasource.com/earthfoodch2b.html); diakses 18 Januari 2015.
- Liu, J., Z. Sun., H. Gerken., Z. Liu., Y. Jiang., and F. Chen. 2014. *Chlorella zofingiensis* as an Alternative Microalgal Producer of Astaxanthin: Biology and Industrial Potential. *Marine Drugs*. 12: 3487-3515
- Lorenz, T., and G.R. Cysewski. 2000. Commercial Potential for Haematococcus Microalgae as a natural Source of Astaxanthin. *Trends in Biotechnology*. 18:160-167
- Mercado, J.M., M.P. Sanchez-Saavedra, G. Correa-reyes, L. Lubian, O. Montero, F.L. Figuero. 2004. Blue Light effect on Growth, Light Absorption Characteristics and Photosynthesis of Five benthic Diatom Strains. *Aquatic Botany*. 78:265-277.
- Muavatun, U. 2015. *Perlakuan Variasi Nitrogen pada Medium untuk Meningkatkan Biomassa, Karbohidrat dan karotenoid Chlorella zofingiensis Donz pada Kultur Kolam Terbuka*. Laporan Skripsi Fakultas Biologi Universitas Gadjah Mada. Yogyakarta. Hal :21-30
- Muller, F.L., Lustgarten, M.S., Jang, Y., Richardson, A. and Van Remmen, H. 2007. Trends in Oxidative Aging Theories. *Free Radical Bio Med* 43: 477-503.
- Munada, M. 2013. *Pengaruh Cahaya Biru Terhadap Pertumbuhan dan Kandungan Klorofil a dan b pada Kultur Mikroalga Tetraselmis sp.* Laporan Seminar Fakultas Biologi Universitas Gadjah Mada. Yogyakarta. Hal : 5-6
- Mlodzinska, E. 2009. Survey of Plant Pigments: Molecular and Environmental Determinants of Plant Colors. *Acta Biologica Cracoviensia Series Botanica*. 51(1): 7-16
- Orosa, M., J.F. Valero., C. Herrero and J. Abalde. 2001. Comparison of The Accumulation of Astaxanthin in *Haematococcus pluvialis* and Other Green

Microalgae Under N-Starvation and High Light Conditions. *Biotechnology Letters*. 23:1079-1085.

- Osterlic, M., Bjerkg, B. and Liaaen-Jensen, S. 1999. Accumulation Asatxanthin All-E, 9Z and 13 Z Geometrical Isomers and 3 and 3'RS Optical Isomers in rainbow Trout (*Oncorhynchus mykiss*) is Selective. *Journal of Nutrition*. 129: 391-398.
- Pelah, D., A. Sintov and E. Cohen. 2004. The Effect of Salt Stress on the Production of Cantaxanthin and Astaxanthin by *Chlorella zofingiensis* Grown Under Limited Light Intensity. *World Journal of Microbiology and Biotechnology*. 20: 483-486.
- Pisal, D.S., and S.S. Lele. 2005. Carotenoid Production from Microalga *Dunaliella salina*. *Indian Journal of Biotechnology*. 4: 476-483.
- Raven, J.A., and Geider, R.J. 1988. Temperature and Algal Growth. *New Phytologist*. 110: 441-461.
- Richmond A, Cheng-Wu Z, Zarmi Y. 2004. Efficient Use of Strong Light for High Photosynthetic Productivity: Interrelationship Between The Optical Path, The Optimal Population Density and Cell Growth Inhibition. *Biomolecular Engineering*. 20: 229-236
- Rise, M., E. Cohen., M. Vishkautsan., M. Cojocar., H.E. Gottlieb and S. Arad. 1994. Accumulation of Secondary Carotenoid in *Chlorella zofingiensis*. *Journal of Plant Physiology*. 144: 28
- Sarada, R., S. Bhattacharya and G.A. Ravishankar. 2002. A Response Surface Approach for The Production of Natural Pigment Astaxanthin from Green Algae *Haematococcus pluvialis*; Effect of Sodium Acetate, Culture Age, and Sodium Chloride. *Food Biotechnology*. 16: 107-120.
- Satoh, S., M. Ikeuchi., M. Mimuro., and A. Tanaka. 2001. Chlorophyll b Expressed in Cyanobacteria Functions as a Light Harvesting Antenna in Photosystem I Through Flexibility of the Proteins. *The Journal of Biological Chemistry*. 276(6): 4293-4297.
- Sirait, J. 2008. Luas Daun, Kandungan Klorofil dan Laju Pertumbuhan Rumput pada Naungan dan Pemupukan yang Berbeda. *JITV*. 13(2): 109-116
- Suh, I. S. dan S.B. Lee. 2003. A Light Distribution Model for an Internally radiating Photobioreactor. *Journal of Bioscience and Bioengineering*. 82:180-189
- Suresh, B and Ravishankar, G.A. 2004. Phytoremediation – A Novel and Promising Approach for environmental Clean-Up. *Critical Review in Biotechnology*. 24: 97-124.

- Sostaric, M., J. Golob., M. Bricelj., D. Klinar., and A. Pivec. 2009. Studies On The Growth Of *Chlorella vulgaris* In Culture Media With Different Carbon Source. *Biochemical Engineering*. 23(4): 471-477.
- Spolaore, P., J. Cassan., C. Duran and A. Isambert. 2006. Commercial Applications of Microalgae. *Journal of Bioscience and Bioengineering*. 101: 87-96
- Taiz, L. Dan E. Zeiger. 2002. *Plant Physiology*. 3rd Edition. Sunderland: Sinauer Associates. Pp. 116-119
- Tjahjono, A.E., Y. Hayama., T. Kakizono., Y. Terada., N. Nishio., and S. Nagai. 1994. Hyper Accumulation of Astaxanthin in Green Alga *Haematococcus pluvialis* at Elevated temperatures. *Biotechnology Letters*. 16: 133-138
- Wijiseno, T. 2011. *Uji Pengaruh Variasi Media Kultur Terhadap Tingkat Pertumbuhan dan Kandungan Protein, Lipid, Klorofil, dan Karotenoid Pada Mikroalga Chlorella vulgaris Buitenzorg*. Laporan Skripsi. Fakultas Teknik Universitas Indonesia. Depok. Hal: 61-85
- Weil, A. 2000. Green food *Spirulina*, blue green algae and *Chlorella*. [www.wellness.com](http://www.wellness.com); diakses 27 Januari 2015.
- Zeb, A., and S. Mehmood. 2004. Carotenoids from Various Sources and Their Potential Health Applications. *Pakistan Journal of Nutrition*. 3(3): 199-204
- Zhu, Xin-Guang, S. P. Long dan D. R. Ort. 2008. What is the maximum efficiency with which photosynthesis can convert solar energy into biomass?. *Current Opinion in Biotechnology* 19: 153-159