



## DAFTAR PUSTAKA

- Akcha F., G. Arzul, S. Rousseau, and M. Bardouil. 2008. Comet assay in phytoplankton as biomarker of genotoxic effects of environmental pollution. *Marine Environmental Research*. 66(1):59-61 ISSN 0141-1136. <https://doi.org/10.1016/j.marenvres.2008.02.022>.
- Anonim. 2002. Toxicological Profile for Copper. United States of America Departement of Health and Human Services.
- Anonim. 2007. Aquatic Life Ambient Freshwater Quality Criteria Copper. United States of America Environmental Protection Agency. EPA 822-R-07-001.
- Anonim. 2016. Aquatic Life Ambient Water Quality Criteria Cadmium. United States of America Environmental Protection Agency. EPA 820-R-16-002.
- Arunakumara, K.K.I.U., and Z. Xuecheng. 2008. Heavy Metal Bioaccumulation and Toxicity with Special Reference to Microalgae. *Journal of Ocean University of China* 7(1):60-64.
- Avise, J. C. 1998. *The Genetic Gods: Evolution and Belief in Human Affairs*. Harvard University Press.
- Azaman *et al.* 2017. A comparison of the morphological and biochemical characteristics of *Chlorella sorokiniana* and *Chlorella zofingiensis* cultured under photoautotrophic and mixotrophic conditions. *PeerJ* 5:e3473; DOI 10.7717/peerj.3473
- Azqueta, A., Sergey S., and Andrew R. C. 2009. DNA oxidation. Investigating its key role in environmental mutagenesis with the comet assay. *Mutation Research* 674 (2009) 101–108
- Babu, M.Y., L. Palanikumar, N. Nagarani, V.J. Devi, S.R. Kumar, C.M. Ramakritinan, and A.K. Kumaraguru. 2014. Cadmium and Copper Toxicity in Three Marine Macroalgae: Evaluation of the Biochemical Responses and DNA Damage. *Environmental Science and Pollution Research*. DOI 10.1007/s11356-014-2999-0
- Bellinger, Edward G., David C. Sigeo. 2015. *Freshwater Algae*. West Sussex. John Wiley & Sons, Ltd.
- Bello, N., O. Francino, and A. Sanchez. 2001. Isolation of Genomic DNA from Feathers. *Journal of Veterinary Diagnostic Investigation*. Vol. 13 (2): 162-164.
- Bernhoft, R. A. 2013. Review Article: Cadmium Toxicity and Treatment, Hindawi Publishing Corporation. Volume 2013, Article ID 394652.



- Bold, H. C., dan M. J. Wynne. 1985. Introduction to The Algae Structure and Reproduction. Prentice Hall Inc. Englewood. New Jersey.
- Botkin, Daniel B., and Edward A. Keller. 2011. Environmental Science Earth as A Living Planet Eight Edition. John Willey and Sons Inc. USA.
- Cheng, J., H. Qiu, Z. Chang, Z. Jiang, and W. Yin. 2016. The Effect of Kadmium on the Growth and Antioxidant Response for Freshwater Algae *Chlorella vulgaris*. Springer Plus. 5:1290.
- Cvjetko, P., S. Tolić, S. Šikić, B. Balen, M. Tkalec, Ž. Vidaković-Cifrek, and M. Pavlica. 2010. Effect of Copper on the Toxicity and Genotoxicity of Cadmium in Duckweed (*Lemna Minor* L.). Archives of Industrial Hygiene and Toxicology 61:287-296.
- Desai, S.R., X.N. Verlecar, Nagarajappa, and U. Goswami. 2006. Genotoxicity of Cadmium in Marine Diatom *Chaetoceros tenuissimus* using the Alkaline Comet Assay. Ecotoxicology 15(4):359-363.
- Erbes, M., A. Weßler, U. Obst, and A. Wild. 1997. Detection of Primary DNA Damage in *Chlamydomonas reinhardtii* by Means of Modified Microgel Electrophoresis. Environmental and Molecular Mutagenesis 30:448-458.
- Farmer, A. 2005. Managing Environmental Pollution. Digital Printing. New York, p.2-3.
- Ferro, Y., Perullini, M., Jobbagy, M., Bilmes, S. A., & Durrieu, C. 2012. Development of a biosensor for environmental monitoring based on microalgae immobilized in silica hydrogels. 16879-91. doi:10.3390/s121216879
- Flouty, R., and G. Estephane. 2012. Bioaccumulation and biosorption of copper and lead by a unicellular algae *Chlamydomonas reinhardtii* in single and binary metal systems: A comparative study. Journal of Environmental Management 111: 106-114.
- Guiry, Wendy. in Guiry, M.D. & Guiry, G.M. 2018. Algae Base. World-wide electronic publication, National University of Ireland, Galway. <http://www.algaebase.org/>; searched on 28 August 2018.
- Hadiyanto, M. M. A. Nur, and G.D. Hartanto. 2012. Cultivation of *Chlorella* sp. as Biofuel Sources in Palm Oil Mill Effluent (POME). Intenational Journal of Renewable Energy Development 1 (2) 2012: 45-49.
- Hill, M. K. 2010. Understanding Environmental Pollution Third Edition. Cambridge University Press. UK, p.10-14.



- Hoek, V.D., D. G. Mann & H.M. Johns. 1995. An Introduction to Phycology. Cambridge at the University Press. London.
- Hoffman, David J., Barnet A. Rattner, G. Allen Burton, Jr., and John Cairns, Jr. 2002. Handbook of Ecotoxicology second edition. Lewis Publishers. New York.
- Holar, Sherman. 2012. A closer look at bacteria, algae, and protozoa. Britannica Educational Publishing. New York. p.45-61.
- Holt E.A., and Miller S. W. 2010. Bioindicators: using organisms to measure environmental impacts. Nature. 3(10):8–13.
- Hosmani S. 2014. Freshwater plankton ecology: a review. J Res Manage Technol. 3:1–10. doi: 10.1016/j.jmrt.2014.02.001.
- Johansen, Melanie N. 2012. Microalgae: biotechnology, microbiology, and energy. Nova Science Publishers, Inc. New York. p.1-2.
- Kementrian Negara Lingkungan Hidup. 2009. UU Nomor 32 Tahun 2009.
- Kett, A., Dong S., Andrachuk H. and Craig B. 2005. Learning with lichens: Using Epiphytic Lichens as Bioindicators of Air Pollution. Brook University. USA
- Kim, Se-Kwon. 2012. Handbook of marine microalgae: biotechnology and applied phycology. Oxford. JohnWiley & Sons, Ltd. p. 23.
- Kshirsagar, A.D. 2013. Use of Algae as a Bioindicator to Determine Water Quality of River Mula from Pune City, Maharashtra (India). Universal Journal of Enviromental Research and Technology Volume 3., 1:79-85.
- Lee, Robert Edward. 2008. Phycology. New York. Cambridge University Press. p.3.
- Li, M., Hu, C., Gao, X. *et al.* 2009. Genotoxicity of organic pollutants in source of drinking water on microalga *Euglena gracilis*. Ecotoxicology 18:669. <https://doi.org/10.1007/s10646-009-0343-0>
- Lin, Ai-jun, Xu-hong Zhang, Mei-mei Chen, and Qing Cao. 2007. Oxidative stress and DNA damages induced by cadmium accumulation. Journal of Environmental Sciences 19(5):596-602. ISSN 1001-0742. [https://doi.org/10.1016/S1001-0742\(07\)60099-0](https://doi.org/10.1016/S1001-0742(07)60099-0).
- Magdeldin, Sameh. 2012. Gel Electrophoresis: Principles and Basics. Rijeka. InTech.



- Makovets, Svetlana. 2013. DNA Electrophoresis: Methods and Protocols. New York. Humana Press.
- Martin, R. 1996. Gel electrophoresis: nucleid acids. Oxford. Bios scientific Publisher.
- Massaro, Edward J. 2002. Handbook of Copper Pharmacology and Toxicology. New Jersey. Humana Press.
- Mitchelmore, C.L., and J.K. Chipman. 1998. DNA Strand Breakage in Aquatic Organisms and the Potential Value of the Comet Assay in Environmental Monitoring. *Mutation Research* 399:135-147.
- Necchi Jr., Orlando. 2016. River Algae. Switzerland. Springer International Publishing.
- Nuriadi, Mery N., and Nurdin R. 2013. Analisis Logam Tembaga (Cu) pada Buangan Limbah Tromol (Tailing) Pertambangan Poboya. *Jurnal Akademik Kimia* 2(2): 90-96, May 2013.
- Offem, B. O., and E.O. Ayotunde. 2008. Toxicity of Lead to Freshwater Invertebrates (Water Fleas; *Daphnia magna* and *Cyclop* sp.) in Fish Ponds in a Tropical Floodplain. *Water, Air, and Soil Pollution* 192:39–46.
- Parmar, Trishala K., Deepak R., and Y. K. Agrawal. 2016. Bioindicators: the natural indicator of environmental pollution. *Frontiers in Life Science* 9(2):110-118.
- Philippe, C., Hautekiet P., Grégoir A. F., Thoré E. S., Pinceel T., Stoks R., Brendonck L., and Boeck, G. D. 2018. Combined effects of cadmium exposure and temperature on the annual killifish (*Nothobranchius furzeri*). *Environmental Toxicology Chemistry* 37: 2361-2371. doi:10.1002/etc.4182
- Pinto, E., T.C.S. Sigaud-Kutner, M.A.S. Leitão, O.K. Okamoto, D. Morse, and P. Colepicolo. 2003. Heavy Metal-induced Oxidative Stress in Algae. *Journal of Phycology* 39:1008-1018.
- Pourrut, B., Geoffrey P., Jérôme S., Marie C., Maritxu G., and Eric P. 2008. Potential role of NADPH-oxidase in early steps of lead-induced oxidative burst in *Vicia faba* roots, *Journal of Plant Physiology* 165(6):571-579, ISSN 0176-1617, <https://doi.org/10.1016/j.jplph.2007.07.016>.
- Pratama, I. 2011. Pengaruh Pemanenan Mikroalga terhadap Biomassa dan Kandungan Esensial dalam *Chlorella vulgaris*. Naskah Skripsi. Fakultas Teknik Universitas Indonesia. Depok.



- Prayitno, Joko. 2015. Growth Pattern and Biomass Harvesting in Microalgal Photobioreactor for Carbon Sequestration. *Jurnal Teknologi Lingkungan* 17(1):45-52.
- Qian, H., Jingjing Li, Liwei Sun, Wei Chen, G. Daniel Sheng, Weiping Liu, and Zhengwei Fu. 2009. Combined effect of copper and cadmium on *Chlorella vulgaris* growth and photosynthesis-related gene transcription. *Aquatic Toxicology* 94(1) 56-61, ISSN 0166-445X. <https://doi.org/10.1016/j.aquatox.2009.05.014>.
- Rahimzadeh, M. R., Mehravar R. R., Sohrab K., Ali-akbar M. 2017. Review Article: Cadmium toxicity and treatment: An update. *Caspian Journal Internal Medicine* 8(3):135-145. DOI 10.22088/cjim.8.3.135.
- Rand, G. M. 1995. *Fundamentals of aquatic toxicology: Effect, Environmental Fate and Risk*. New York. Taylor & Francis Ltd. pp.366-367.
- Rettner, Rachael. 2017. DNA: Definition, Structure & Discovery. <https://www.livescience.com/37247-dna.html>. 14 januari 2019.
- Robinson, R. 2003. *Genetics Volume 1: A-D*. New York. The Macmillan Science Library. pp.239-248.
- Romero-Puertas, M.C., Palma J.M., Gómez M., del Río L. A., and Sandalio L. M. 2002. Cadmium causes the oxidative modification of proteins in pea plants. *Plant Cell Environ* 25 677–686
- Roziaty, Efri. 2016. Review: Kajian Lichen: Morfologi, habitat dan bioindicator kualitas udara ambien akibat polusi kendaraan bermotor. *Bioeksperimen* 2(1): 54-66.
- Sasongko, Ahmadi. Kruniawan Y., and Dwi S. 2017. Verifikasi Metode Penentuan Logam Kadmium (Cd) dalam Air Limbah Domestik dengan Metode Spektrofotometri Serapan Atom. *Jurnal Sains dan Teknologi* 6(2) E-ISSN: 2548-8570
- Scoullou, Michael J. 2001. *Mercury - Cadmium – Lead Handbook for Sustainable Heavy Metals Policy and Regulation*. Dordrecht. Springer.
- Shafi, S.M. 2005. *Environmental Pollution*. New Delhi. Atlantic Publisher and Distribution.
- Sharma P, Joshi N, Sharma A. 2010. Isolation of genomic DNA from medicinal plants without liquid nitrogen. *Indian Journal Experimental Biology* 48:610–614.
- Susanto, Agus Hery. 2012. *Bahan Ajar Biologi Molekuler*. Fakultas Biologi Unsoed, Purwokerto.



- Tabatabaei, M., Tohidfar, M., Jouzani, G.S., Safarnejad, M., Pazouki, M. 2011. Biodiesel production from genetically engineered microalgae. *Renewable and Sustainable Energy Reviews*. (15): 1918-1924.
- Tchounwou, P. B., Yedjou, C. G., Patlolla, A. K., & Sutton, D. J. 2012. Heavy metal toxicity and the environment. *Experientia supplementum* (2012), 101, 133-64.
- Umar, Lazuardi. Frank A. Alexander Jr. Joachim Wiest. 2015. Application of Algae-Biosensor for Environmental Monitoring. 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Milan, 2015, pp. 7099-7102. doi: 10.1109/EMBC.2015.7320028
- Walsh GE. 1978. Toxic effects of pollutants on plankton. In: Butler GC, editor. *Principles of ecotoxicology*. New York (NY): Wiley. Chapter 12; p. 257–274.
- Wójcik M., Skórzyńska-Polit E., Tukiendorf A. 2006. Organic acids accumulation and antioxidant enzyme activities in *Thlaspi caerulescens* under Zn and Cd stress. *Plant Growth Regul* 48:145–155. doi: 10.1007/s10725-005-5816-4.
- Yaqin, Khusnul. 2006. Ecotoxicological Assessment of Aquatic Genotoxicity Using the Comet Assay. Hayati, September 2006, hlm. 124-130