

DAFTAR PUSTAKA

- Afifudin, A. F. M & Irawanto, R. 2022. Fitoremediasi. PT Global Eksekutif Teknologi. Padang.
- Alsuhendra. 2004. Daya Anti-atherosclerosis Zn-Turunan Klorofil dari Daun Singkong (*Manihot esculenta Crantz*) pada Kelinci Percobaan. Institut Pertanian Bogor, Bogor, Jawa Barat, (Disertasi).
- Arfandi, A., Ratnawulan, & Darvina, Y., 2013. Proses Pembentukan Feofitin Daun Siji sebagai Bahan Aktif Photosensitizer Akibat Pemberian Variasi Suhu. *Pillar Of Physics*. 1:68–76.
- Aulsebrook, M. L., Graham, B., Grace, M. R., & Tuck, K. L., 2017. Lanthanide Complexes for Luminescence-Based Sensing of Low Molecular Weight Analytes. *Coordination Chemistry Reviews*.
- Basu, A., Kar, S. S., Panda, S. S. & Dhal, N. K. 2016. Bioakumulasi Neodymium Oxide (REE) dan Efeknya pada Pertumbuhan dan Perubahan Fisiologis Gandum dan Bibit Padi: Studi Hidroponik di Bawah Ruang Pertumbuhan Tanaman. *e-planet*. 14(2):33-40.
- Bau, M. & Dulski, P. 1996. Anthropogenic Origin of Positive Gadolinium Anomalies in River Waters. *Earth and Planetary Science Letters*. 143:245-255.
- Bünzli, J. C. G., & Piguet, C., 2005. Taking Advantage of Luminescent Lanthanide Ions. *Chemical Society Reviews*. 34(12):1048–1077.
- Chang, R., 2003. Kimia Dasar Konsep-konsep Inti Edisi Ketiga Jilid 1. Erlangga. Jakarta
- Darmokoesoemo, H., Setyawati, H., Ningtyas, A. T. A., & Kusuma, H. S., 2017. The study of effect of metal ion Fe(III) on the chlorophyll as potential photosensitizer on dye sensitized solar cell. *Rasayan Journal of Chemistry*. 10(2):313–318.
- Dewi, R. S., Mutholib, A., Anggraeni, A., Bahti, H. H., Hardianto, A., & Yusuf, M. 2019. Selektivitas Ligand DBDTP Terhadap Isomer Ligand DBDTP untuk Ekstraksi Logam Tanah Jarang Berdasarkan Kajian Simulasi Dinamika Molekuler. *al-Kimiya*. 6(2):67-74.
- Dima, L. L. R. H., Lolo, W. A., Dessy, T., Bachir, G., Abouni, B., Ersita, Kardewi, Retnowati, Y., Bialangi, N., Posangi, N. W., Stark, L., Hasmila, I., Amaliah, Danial, M., Wiguna, A., Rahmi, Y., Abrar, M., et al., 2016. Uji Aktivitas Formulasi Gel Antijerawat Ekstrak Daun Nangka (Artocarpus heterophyllus Lam.) Terhadap Bakteri *Staphylococcus aureus* Secara In Vitro. *Pharmacon Jurnal Ilmiah Farmasi*. 4(1):12-19.
- Dimara, L., Tuririday, H. & Yenusi, T. N. B. 2012. Identifikasi dan Fotodegradasi Pigmen Klorofil Rumput Laut *Caulerpa racemosa* (Forsskal) J. Agardh. *Jurnal*

- Biologi Papua.* 4(2):47-53.
- Effendy. 2007. Perspektif Baru Kimia Koordinasi Jilid 1. Bayumedia. Malang.
- Grimm, B., Scheer, H., Porra, R. J., & Rüdiger, W. 2006. Chlorophylls and Bacteriochlorophylls Biochemistry, Biophysics, Functions and Applications. Springer Netherlands.
- Gross, J., 1987. Pigment in Fruits. Academic Press. London.
- Gupta, C. K., & Krishnamurthy, N. 2005. Extractive metallurgy of rare earths. CRC Press. *International Materials Reviews.* 37(1).
- Halimu, R. B., Sulistijowati, R. S. & Mile, L. 2017. Identifikasi Kandungan Tanin pada *Sonneratia Alba*. *Jurnal Ilmiah Perikanan dan Kelautan.* 5(4).
- Hayati, A., Arumingtyas, E. L., Indriyani, S., & Hakim, L., 2014. *Sauvages androgynus* (L.) Merr. Leaf Variation That Grows in the Area of Some Traditional Societies in East Java . *Life Sciences and Biotechnology.* 402.
- Isnawati, A. & Arifin, K. M., 2006. Karakterisasi Daun Kembang Sungsang (*Gloria superba* L.) Dari Aspek Fitokimia. *Media Litbang Kesehatan.* 16(4).
- Kadish, K.M., Smith, K.M. & Guilard, R. 2012. Handbook of Porphyrin Science with Applications to Chemistry, Physics, Materials Science, Engineering, Biology and Medicine. World Scientific Publishing Co.Lte.Ptd.
- Kaegi, R., Gogos, A., Voegelin, A., Hug, S. J., Winkel, L. H. E., Buser., A. M. & Berg, M., 2021. Quantification of Individual Rare Earth Elements from Industrial Sources in Sewage Sludge. *Water Research* X. 11.
- Kementerian Energi dan Sumber Daya Mineral. 2019. Potensi Logam Tanah Jarang Di Indonesia. Pusat Sumber Daya Mineral Batubara dan Panas Bumi Badan Geologi Kementerian Energi dan Sumber Daya Mineral.
- Kirk R.E. & Othmer, D.F., 1993. Encyclopedia of Chemical Technology. Vol.5, fourth edition. A Wiley Interscience Publication, John Wiley and Sons Co., New York.
- Kusmita, L., Puspitaningrum, I., & Limantara, L., 2015. Identification , Isolation and Antioxidant Activity of Pheophytin from Green Tea (*Camellia sinensis* (L.) Kuntze). *Procedia Chemistry.* 14:232–238.
- LaBorde, L. F. & Elbe J. H. V., 1994. Chlorophyll Degradation and Zinc Complex Formation with Chlorophyll Derivatives in Heated Green Vegetables. *Journal of Agricultural and Food Chemistry.* 42(5):1100-1103
- Lakowicz, J. R., 1999. Principles of Fluorescence Spectroscopy (Second Edition). Kluwer Academic/Plenum Publisher.
- Lopes, J. M. S., Moreira, S. G. C., & Barbosa Neto, N. M., 2019. Selective Inner-Filter on the Fluorescence Response of Chlorophyll and Pheophytin Molecules Extracted from *Caesalpinia echinata* Leaves. *Journal of the Brazilian.*
- Masrihanah, A., 2020. Uji Aktivitas Antioksidan Ekstrak Ultrasonik Air, Metanol,

- Etanol, Etil Asetat dan Petroleum Eter Daun Katuk (*Sauvopus androgynus* (L.) Merr). Universitas Islam Negeri Maulana Malik Ibrahim, Fakultas Sains dan Teknologi, Malang, (Skripsi).
- Moeller, T., 1961. Chemistry of Rare Earths. In Spedding, F.H. and Daane, A.H. (eds.), The Rare Earths, Chapter 2. John Wiley. New York.
- Moeller, T., 1967. Lanthanide Elements. In Hampel, C. A. (Ed.). Encyclopedia of Chemical Elements. 338-349. Reinhol. New York.
- Mulja, M. & suharman. 1995. Analisis Instrumen. Airlangga. Surabaya.
- Nurdin, Kusharto, C. M., Tanziha, I., & Januwati, M., 2009. Kandungan Klorofil Berbagai Jenis Daun Tanaman dan Cu-Turunan Klorofil Serta Karakteristik Fisiko-Kimianya. *Jurnal Gizi Dan Pangan*. 4(1):13.
- Nuryono. 2019. Kimia Anorganik Struktur dan Ikatan. Gadjah Mada University Press. Yogyakarta.
- Pohan, P. S., Minarni, & Herman. 2018. Aplikasi Metode Fluorescence Imaging pada Akar Berbasis Laser untuk Mendeteksi Tingkat Kekeringan pada Tanaman Kelapa Sawit. 63–69.
- Poernomo, H. & Trisnawati, I. 2017. Analisis Potensi Kandungan Oksida Tanah Jarang dalam Pasir Zirkon Lokal. 367–374.
- Quach, H. T., Steeper, R. L., & Griffin, G. W., 2004. An Improved Method for the Extraction and Thin-Layer Chromatography of Chlorophyll a and b from Spinach. *Journal of Chemical Education*. 81(3).
- Ramlan. 2020. Analisa Sifat Fisis, Sifat Mekanik dan Sifat Magnet pada Bonded Magnet NdFeB dengan Perekat Celuna. *Piston: Journal of Technical Engineering*. 3(2):1–5.
- Riyono, S. H., 2006. Beberapa Metode Pengukuran Klorofil Fitoplankton di Laut. *Jurnal Oseana*. 31(3):33–44.
- Samsonov, M. D., Trofimov, T. I., Kulyako, Y. M., Malikov, D. A. & Myasoedov, B. F. 2016. Supercritical Fluid Extraction of Rare Earth Elements, Thorium and Uranium from Monazite Concentrate and Phosphogypsum Using Carbon Dioxide Containing Tributyl Phosphate and Di-(2-ethylhexyl) phosphoric Acid. *Russian Journal of Physical Chemistry B*. 10(7):1078–1084.
- Saputro, A. N. C., 2015. Konsep Dasar Kimia Koordinasi. Deepublish. Yogyakarta.
- Silalahi, I. H., Julian, Yusprianto, M., & Rudiyanah. 2020. Sintesis dan Transisi Elektronik Kompleks Tembaga (II)-Klorofil. *Indonesian Journal of Pure Applied Chemistry*. 3(3):1–9.
- Solovchenko, A., 2010. Photoprotection in Plants: Optical Screening Based Mechanisms, 1st ed. Springer: Heidelberg, Germany.
- Suhartati, T., 2013. Dasar-dasar Spektrofotometer UV-Vis dan Spektrofotometer Massa untuk Penentuan Struktur Senyawa Organik. AURA.

- Sumiati. 2021. Penggunaan Pelarut Etanol dan Aseton pada Prosedur Kerja Ekstraksi Total Klorofil Daun Jati (*Tectona grandis*) dengan Metode Spektrofotometri. *Indonesian Journal of Laboratory*. 4(1):30-35.
- Syafrida, M., Darmanti, S. & Izzati, M., 2018. Pengaruh Suhu Pengeringan Terhadap Kadar Air, Kadar Flavonoid dan Aktivitas Antioksidan Daun dan Umbi Rumput Teki (*Cyperus rotundus L.*). *Bioma*. 20(1):44-50.
- Tanaka, R., & Tanaka, A., 2011. Chlorophyll Cycle Regulates the Construction and Destruction of the Light-Harvesting Complexes. *Biochimica et Biophysica Acta-Bioenergetics*. 1807(8):68–976.
- Tao, Y., Zhao, G., Yang, J., Ikeda, S., Jiang, J., Hu, T., Chen, W., Wei, Z. & Hong, F. 2001. Determination of Double Decker Sandwich Structured La-Substituted Chlorophyll a by EXAFS. *Journal of Synchrotron Radiation*. 8(2):996-997.
- Thibon, A. & Pierre, V. C., 2009. Principles of Responsive Lanthanide-Based Luminescent Probes for Cellular Imaging. *Analytical and Bioanalytical Chemistry*. 394(1):107–120). Springer Verlag.
- Toma, H. E., Araki, K., & Dovidauskas, S., 2000. A Cyclic Voltammetry Experiment Illustrating Redox Potentials, Equilibrium Constants and Substitution Reactions in Coordination Chemistry. *Journal of Chemical Education*. 77(10):1351–1353.
- Walford, J. 1980. Development in Food Colours. Applied Science Publishers, Ltd. London.
- Warono, D. & Syamsudin. 2013. Unjuk Kerja Spektrofotometer untuk Analisa Zat Aktif Ketoprofen. *Konversi*. 2(2).
- Weiss, C. 1978. The Pi Electron Structure and Absorption Spectra of Chlorophylls in Solution. *Journal of Molecular Spectroscopy*. 44:37–80.
- Yadav, L. D. S. 2013. Organic Spectroscopy. Springer Netherlands.
- Yang, Q., Wang, L., He, J., Yang, Z. & Huang, X. 2018. Direct Imaging of How Lanthanides Break the Normal Evolution of Plants. *Journal of Inorganic Biochemistry*.
- Zainol, M., Abdul-Hamid, A., Abu, B. F. & Pak, D. S., 2009. Effect of Different Drying Methods on The Degradation of Selected Flavonoids in *Centella Asiatic*. *International Food Research Journal*. 16: 531-537.
- Zepf, V., Simmons, J., Reller, A., Ashfield, M. & Rennie, C. 2014. Materials Critical to the Energy Industry, An Introduction, (2nd ed.). BP p.l.c.
- Zhang, J., Wang, Z., Wu, Q., An, Y., Jia, H. & Shen, Y. 2019. Anthropogenic Rare Earth Elements: Gadolinium in a Small Catchment in Guizhou Province, Southwest China. *International Journal of Environmental Research and Public Health*. 16:4052.