

DAFTAR PUSTAKA

- Ahmadiani, N., Robbins, R.J., Collins, T.M. and Giusti, M.M., 2014, Anthocyanins Contents, Profiles, and Color Characteristics of Red Cabbage Extracts from Different Cultivars and Maturity Stages, *J. Agric. Food. Chem.*, 62, 7524-7531.
- Ahmed, J.K., Salih, H.A.M. and Hadi, A.G., 2013, Anthocyanins in Red Beet Juice Act as Scavengers for Heavy Metals Ions such as Lead and Cadmium, *Int. J. Sci. Technol.*, 2(3), 269-274.
- Alighiri, D., 2010, Sintesis Senyawa Turunan *Chalcone* dari Vanilin dan Potensi Penggunaannya sebagai Indikator Asam Basa dan Sensor Anion, *Tesis*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Anggraini, S., 2012, Sintesis Senyawa 3-(4-Hidroksi-3-Metoksifenil)-1-Fenil-2-Propen-1-On dari Vanilin dan Uji Potensinya sebagai *Larvasida* untuk *Aedes aegypti* dan Sensor Anion, *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Arapitsas, P., Sjöberg, P.J.R. and Turner, C., 2008, Characterization of Anthocyanins in Red Cabbage using High Resolution Liquid Chromatography Coupled with Photodiode Array Detection and Electrospray Ionization-Linear Ion Trap Mass Spectrometry, *Food Chem.*, 109, 219-226.
- Asokawaty, R.V., 2015, Isolasi Antosianin dari Kulit Buah Manggis (*Garcinia mangostana* L.) dan Aplikasinya sebagai *Chemosensor*, *Skripsi*, Jurusan Kimia FMIPA UGM, Yogyakarta.
- Bamfield, P. and Hutchings, M.G., 2001, *Chromic Phenomena: The Technological Application of Colour Chemistry*, Second Edition, The Royal Society of Chemistry, Cambridge.
- Bondre, S., Patil, P., Kulkarni, A. Pillai, M.M., 2012, Study on Isolation and Purification of Anthocyanins and Its Application as pH Indicator, *Int. J. Adv. Biotech. Res.*, 3(3), 698-702.
- Brouillard, R. and Markakis, P., 1982, *Chemical Structure of Anthocyanins. In Anthocyanins a Food Colours*, Ed.; Academic Press, New York.
- Chandrasekhar, J., Madhusudhan, M.C. and Raghavarao, K.S.M.S., 2012, Extraction of Anthocyanins from Red Cabbage and Purification using Adsorption, *Food Bioprod. Process.*, 90, 615-6.

- Chikwambi, Z. and Muchuweti, M., 2008, Isolation and Identification of Anthocyanin in The Fruit Peels of Starkrimson and Marx Red Bartlett Common Pear Cultivars and Their Bud Mutants, *Am. J. Food Technol.*, 3(1), 1-12.
- Cho, D.G., Kim, J.H. and Sesler, J.L., 2008, The Benzyl-Cyanide Reaction and Its Application to The Development of a Selective Cyanide Anion Indicator, *J. Am. Chem. Soc.*, 130(36), 12163-12167.
- Clifford, M.N., 2000, Anthocyanins-Nature, Occurrence and Dietary Burden, *J. Sci. Food Agric.*, 80, 1063-1072.
- Degenthardt, A., Knapp, H. and Winterhalter, P., 2000, Separation and Purification of Anthocyanins by High-Speed Countercurrent Chromatography and Screening for Antioxidant Activity, *J. Agric. Food. Chem.*, 48, 338-343.
- Delgado-Vargas, F., Jiménez, A.R. and Paredes-López, O., 2000, Natural Pigment: Carotenoids, Anthocyanins, and Betalains – Characteristics, Biosynthesis, Processing and Stability, *Crit. Rev. Food. Sci.*, 40(3), 173-289.
- Fan, L., Li, T., Wang, B. and Yang, Z., 2014, A Colorimetric and Turn-On Fluorescent Chemosensor for Al(III) Based on A Chromone Schiff-Base, *Spectrochim. Acta. A.*, 118, 760-764.
- Francis, F.J., 1982, *Anthocyanins as Food Colors*, Academic Press, Inc., New York.
- Ge, F., Meng-Meng, L., Ye, H. and Zhao, Bao-Xiang, 2012, Effective Removal of Heavy Metal Ions Cd^{2+} , Zn^{2+} , Pb^{2+} , Cu^{2+} from Aqueous Solution by Polymer-Modified Magnetic Nanoparticles, *J. Hazard. Mater.*, 211-212, 366-372.
- Geissman, T.A., 1962, *The Chemistry of Flavonoid Compounds*, The Macmillan Company, New York.
- Gilbert, M.E. and Lasley, S.M., 2007, Developmental Lead (Pb) Exposure Reduces The Ability of The NMDA Antagonist MK-801 to Suppress Long-Term Potentiation (LTP) in the Rat Dentate Gyrus, in Vivo, *Neurotoxicol Teratol.*, 29(3), 385-393.
- Grazul, M. and Budzisz, E., 2009, Biological Activity of Metal Ions Complexes of Chromones, Coumarins and Flavones, *Coord. Chem. Rev.*, 253, 2588-2598.
- Harborne, J.B., 1973, *Phytochemical Methods a Guide to Modern Techniques of Plant Analysis*, Chapman and Hall, London.
- Holt, P., 2002, Electrolytic Treatment of Waste Water in The Oil Industry, *Thesis*, University of Sydney, Australia.

- Huang, W., Yu, X., Lin, H. and Lin, H., 2011, A Colorimetric Sensor for The Recognition of Biologically Important Anions, *J. Incl. Phenom. Macrocycl. Chem.*, 69, 69-73.
- Iosub, S.D., Meghea, A. and Geana, I., 2014, Anthocyanin Derivatives Concentrated from Selective Natural Extracts, *U.P.B. Sci. Bull.*, Series B, 76(1).
- Jasmidi, Sugiharto, E. and Mudjiran, 2002, Pengaruh Lama dan Kondisi Penyimpanan Biomassa terhadap Biosorpsi Timbal (II) dan Seng (II) oleh Biomassa *Saccharomyces cerevisiae*, *Indo. J. Chem.*, 11-15.
- Kaimudin, T., 2011, Pengaruh Gugus Nitro pada Sintesis Turunan Senyawa Azo dari Vanilin sebagai Senyawa Indikator Asam-Basa dan Sensor Anion, *Tesis*, FMIPA UGM, Yogyakarta.
- Kannan, V., 2011, Extraction of Bioactive Compounds from Whole Red Cabbage and Beetroot using Pulsed Electric Fields and Evaluation of their Functionality, *Thesis*, Food Science & Technology University of Nebraska, Lincoln.
- Khan, P.M.A. and Farooqui, M., 2011, Analytical Application of Plant Extract as Natural pH Indicator: A Review, *J. Adv. Scient. Res.*, 2(4), 20-27.
- Khaodee, W., Aeungmaitrepirom, W. and Tuntulani, T., 2014, Effectively Simultaneous Naked-Eye Detection of Cu(II), Pb(II), Al(III) and Fe(III) using Cyanidin Extracted from Red Cabbage as Chelating Agent, *Spectrochim. Acta. A.*, 126, 98-104.
- Lee, J., 2005, Determination of Total Monomeric Anthocyanin Pigment Content of Fruit Juice, Beverages, Natural Colorants, and Wines by the pH Differential Method: Collaborative Study, *J. AOAC. Int.*, 88(5), 1269-1278.
- Lestari, S., Sugiharto, E. dan Mudassir, 2003, Studi Kemampuan Adsorpsi Biomassa *Saccharomyces cerevisiae* yang Terimobilkan pada Silika Gel terhadap Tembaga (II), *teknosains*, 16A(3), 357-371.
- Lin, Q., Chen, P., Liu, J., Fu, Y., Zhang, Y. and Wei, T., 2013, Colorimetric Chemosensor and Test Kit for Detection Copper (II) Cations in Aqueous Solution with Specific Selectivity and High Sensitivity, *Dyes Pigment*, 98, 100-105.
- Markham, K.R., 1998, *Cara Mengidentifikasi Flavonoid*, diterjemahkan oleh: Padmawinata K., Penerbit ITB, Bandung.

- Marwati, S., 2010, Kajian Penggunaan Ekstrak Kubis Ungu (*Brassica oleracea* L) sebagai indikator titrasi asam basa, *Prosiding Seminar Nasional Kimia "Profesionalisme Peneliti dan Pendidik dalam Riset dan Pembelajaran yang Berkualitas dan Berkarakter"*, 30 Oktober 2010, Yogyakarta.
- Mazza, G. and Miniati, E., 1993, *Anthocyanin in Fruits, Vegetables and Grains*, CRC Press, London.
- Mebane, R.C. and Rybolt, T.R., 1985, Edible Acid-Base indicator, *J. Chem. Educ.*, 62, 285.
- Moncada, M.C., Moura, S., Melo, M.J., Roque, A., Lodeiro, C. and Pina, F., 2003, Complexation of Aluminum(III) by Anthocyanins and Synthetic Flavylum Salts a Source for Blue and Purple Color, *Inorg. Chim. Acta*, 356, 51-61.
- Neelufar, S., Alekhya, T. dan Sudhakar, K., 2012, Pharmacognostical and Phytochemical Evaluation of *Brassica oleracea* linn var. *capitata* F. *rubra* (The Red Cabbage), *J. Pharm Bio.*, 2(2), 43-46.
- Nollet, L.M.L. and Toldrá, F., 2012, *Handbook of Analysis of Active Compounds in Functional Foods*, CRC Press Taylor & Francis Group, London.
- Patras, A., Brunton, N.P., O'Donnell, C. and Tiwari, B.K., 2010, Effect of Thermal Processing on Anthocyanins Stability on Foods; Mechanisms and Kinetics of Degradation, *Trends Food Sci. Tech.*, 21, 3-11.
- Peng, M. J., Guo, Y., Yang, X. Y. and Wang, L. Y., 2013, A Highly Selective Radiometric and Colorimetric Chemosensor for Cyanide Detection, *Dyes and Pigments*, 98, 327-332.
- Purwono, B. and Mahardani, C., 2009, Synthesis of Azo Compound Derivative from Eugenol and Its Application as a Titration Indicator, *Indo. J. Chem.*, 10, 95-98.
- Rahmawati, A., 2011, Pengaruh Derajat Keasaman terhadap Adsorpsi Logam Kadmium (II) dan Timbal (II) pada Asam Humat, *Jurnal Penelitian Sains & Teknologi*, 12(1), 1-14.
- Reichardt, C., 2003, *Solvent and Solvent Effect in Organic Chemistry*, 3th Edition, WILEY-VCH Verlag GmbH and Co. KGaA, Weinheim.
- Rein, M., 2005, Copigmentation Reaction and Color Stability of Berry Anthocyanins, *Dissertation*, Department of Applied Chemistry and Microbiology University of Helsinki, Helsinki.
- Rorong, J.A. dan Suryanto, E., 2010, Analisis Fitokimia Enceng Gondok (*Eichhornia crassipes*) dan Efeknya sebagai Agen Fotoreduksi Fe³⁺, *Chem prog.*, 3, 33-41.

- Rukmana, R., 1994, *Budidaya Kubis Bunga dan Brokoli*, Kanisius, Yogyakarta.
- Schreiber, H.D., Swink, A.M. and Godsey, T.D., 2010, The Chemical Mechanism for Al^{3+} Complexing with Delphinidin: A Model for The Bluing of Hydrangea Sepals, *J. Inorg. Biochem.*, 104, 732-739.
- Sembiring, Z., Buhani, Suharso and Sumadi, 2009, The Isothermic Adsorption of Pb(II), Cu(II) and Cd(II) Ions on *Nannochloropsis sp* Encapsulated by Silica Aquagel, *Indo. J. Chem.*, 9(1), 1-5.
- Shao, J., 2011, Acenaphthenequinone Based Simple Colorimetric Anion Sensor with only One Binding Site, *J. Incl. Phenom. Macrocycl. Chem.*, 70, 91-95.
- Singh, S., Bothara, S.B. and Sangeeta, S., 2011, Preliminary Pharmaceutical Characterization of Some Flowers as Natural Indicator: Acid-Base Titration, *Phcog. J.*, 3(22), 64-70.
- Smyk, B., Pliszka, B. and Drabent, R., 2008, Interaction Between Cyanidin-3-glucoside and Cu(II) Ions, *Food Chem.*, 107, 1616-1622.
- Stintzing, F.C., Stintzing, A.S., Carle, R., Frei, B. and Wrolstad, R.E., 2002, Color and Antioxidant Properties of Cyanidin-based Anthocyanin Pigments, *J. Agric. Food. Chem.*, 50, 6172-6181.
- Udhayakumari, D., Velmathi, S., Sung, Y. and Wu, S., 2014, Highly Fluorescent Probe for Copper (II) Ion based on Commercially Available Compounds and Live Cell Imaging, *Sensor. Actuat. B-Chem.*, 198, 285-293.
- Ukwueze, N.N., Nwadinigwe, C.A., Okoye, C.O.B. and Okoye, F.B.C., 2009, Potentials of 3, 3', 4', 5, 7-Pentahydroxyflavylium of *Hibiscus rosa-sinensis* L. (*Malvaceae*) Flowers as Ligand in the Quantitative Determination of Pb, Cd and Cr, *Int. J. Phys. Sci.*, 4, 58-62.
- Wiczowski, W., Szawara-Nowak, D. and Topolska, J., 2013, Red Cabbage Anthocyanins: Profile, Isolation, Identification, and Antioxidant Activity, *Food Res. Int.*, 51, 303-309.
- Widiana, R. dan Zeswita, A.L., 2012, Kepadatan Populasi Ulat Krop (*Crocidolomia binotalis* Zell.) pada Tanaman Kubis (*Brassica oleracea* L.) di Kenagarian Alahan Panjang Kecamatan Lembah Gumanti Kabupaten Solok, *Jurnal Ekotrans*, 12(1), 1-5.
- Wirda, Z., Halim, H., Millati, T. dan Zulhidiani, R., 2011, Pengaruh Berbagai Jenis Pelarut dan Asam terhadap Randemen Antosianin dari Kubis Merah (*Brassica oleracea capitata*), *Agroscentia*, 18(2).

- Wu, X. and Prior, R.L., 2005, Identification and Characterization of Anthocyanins by High-Performance Liquid Chromatography-Electrospray Ionization-Tandem Mass Spectrometry in Common Foods in The United States: Vegetables, Nuts, and Grains, *J. Agric. Food. Chem.*, 53, 3101-3113.
- Yadav, M., Chatterji, S., Gupta, S.H. and Watal, G., 2014, Preliminary Phytochemical Screening of Six Medicinal Plants used in Traditional Medicine, *Int. J. Pharm. Pharm. Sci.*, 6(5), 539-542.
- Yang, B., Tong, X., Deng, Z. and Xiangwen, L.V., 2015, The Adsorption of Cu Species onto Pyrite Surface and Its Effect on Pyrite Floatation, *J. Chem.*, 1-7.
- Yang, S., Zhao, D., Zhang, H., Lu, S., Chen, L. and Yu, X., 2010, Impact of Environmental Condition on The Sorption Behavior of Pb(II) in Na-Bentonite Suspension, *J. Hazard. Mater.*, 183, 632-640.
- Zakerhamidi, M.S., Ghanadzadeh, A. and Moghadam, M., 2012, Solvent Effects on The UV-Visible Absorption Spectra of Aminoazobenzene Dyes, *Chem. Sci. Trans.*, 1(1), 1-8.
- Zussiva, A., Laurent, B.K. dan Budiyati, C.S., 2012, Ekstraksi dan Analisis Zat Warna Biru (Antosianin) dari Bunga Telang (*Clitoria Ternatea*) sebagai Pewarna Alami, *Jurnal Teknologi Kimia dan Industri*, 1(1), 356-365.