

## DAFTAR PUSTAKA

- Aeni, N., 2016, Pengaruh Ekstrak Gulma Siam, Saliara, dan Kemuning Terhadap Penghambatan Pertumbuhan Patogen Busuk Lunak Nanas (*Erwinia chrysanthemi*) Secara *in vitro*, *Skripsi*, Fakultas Pertanian Universitas Lampung, Bandar Lampung.
- Afolabi, C., Moladan, A., Ibukun, E.O., and Dan-ologe, I.A., 2007, Phytochemical Constituents and Antioxidants Properties of Extract from the Leaves of *Chromolaena odorata*, *Sci. Res. Essays*, 2, 191–194.
- Alisi, C.S., Ojiako, O. A., Osuagwu, C.G., and Onyeze, G.O.C., 2011, Free Radical Scavenging and *In-vitro* Antioxidant Effects of Ethanol Extract of the Medicinal Herb *Chromolaena odorata* Linn, *Br. J. Pharm. Res.*, 1(4), 141-155.
- Annapurna., H.V., Apoor, B., Ravichandran, N., arun, K.P., Brinda, P., and Swaminatan, S., 2013, Isolation and In Silico Evaluation of Antidiabetic Molecules of *Cynodon dactylon* (L.), *J. Mol. Graph modell*, 39, 87-97.
- Anonim, 1996, *Sigma Quality Control Test Prosedur* EC 3.2.1.20, [https://www.sigmaaldrich.com/content/dam/sigmaaldrich/docs/Sigma/Enzyme\\_Assay](https://www.sigmaaldrich.com/content/dam/sigmaaldrich/docs/Sigma/Enzyme_Assay), (diakses pada tanggal 7 April 2016).
- Anonim, 2005, *Pharmaceutical Care untuk Penyakit Diabetes Mellitus*, Departemen Kesehatan RI, 16, Jakarta.
- Anonim, 2009, *Diabetes Melitus, Informasi Produk Terapeutik*, BPOM, 1(12), 5-8.
- Anonim, 2010, *Pembekuan Izin Edar Obat Antidiabetes yang Mengandung Rosiglitazone*, BPOM, Buletin Berita MESO: 2.
- Anonim, 2014, *Internasional Diabetes Federation, Atlas 6<sup>th</sup> Edition*, [http://www.idf.org/sites/default/files/Atlas-poster-2014\\_EN.pdf](http://www.idf.org/sites/default/files/Atlas-poster-2014_EN.pdf) (diakses pada 21 mei 2017).
- Atalay, M., dan Laaksonen, D.E., 2002, Diabetes, Oxidative Stress and Physical Exercise, *J. Sports Sci. Med.*, 1(1), 1-14.
- Budiman, A., (2011), Isolasi Enzim  $\alpha$ -Glukosidase dari Gabah (*Oryza sativa* var. Ciherang), *Skripsi*, Jurusan Kimia FMIPA UI, Jakarta.
- Brunton, L., Lazo, J.S., and Parker, K.L., 2006, *Goodman & Gilman's the pharmacological basis of therapeutics*, McGraw Hill, New York.
- Caceres, A., Menendez, H., Mendez, E., Cohobon, E., Samayoa, B.E., Jauregui, E., Peralta, E., and Carrillo, G., 1995, Antigonorrhoeal Activity of Plants Used in Guatemala for The Treatment of Sexually Transmitted Diseases, *J. Ethnopharmacol.*, 48(2), 85-88.

- Cai, C.Y., Rao, L., Guo, J.X., Xiao, Z.Z., Cao, J.Y., Huang, Z.S., and Wang, B., 2017, Analogues of Xanthoness—Chacones and bis-Chalcones as  $\alpha$ -Glucosidase Inhibitors an Anti-Diabetes Candidates, *Europ. J. Med. Chem.*, 130, 51-59.
- Cetto, A.A., and Heinrich, M., 2005, Mexican Plants with Hypoglycaemic Effect Used in the Treathment of Diabetes, *J. Ethnopharmacol.*, 99, 325-348.
- Chakraborty, A.K., Rambhade, S., and Patil, U.K., 2010, Evaluation of Analgesic Activity Studies Of Various Extracts Of Leaves Of *Eupatorium Odoratum* Linn, *J. Pharm. Tech.*, 612-616.
- Chakraborty, A.K., Rambhade, S., and Patil, U.K., 2011, *Chromolaena odorata* (L.): An Overview, *J. Pharm. Res.*, 4(3), 573-576.
- Chen, J.W., Zhu, Z.Q., Hu, T.X., and Zhu, D.Y., 2002, Structure Activity Relationship of Natural Flavonoid in Hydroxyl Radical Scavenging Effects, *Act. Pharmacol. Sin.*, 23, 667-672.
- Choudhary, M.I., Adhikari, A., Rasheed, S., Marasini, B.P., Hussain, N., Kaleem, W.A., and Atta-ur-Rahman, 2011, Cyclopeptide Alkaloids of *Ziziphus oxyphylla* Edgw as Novel Inhibitors of  $\alpha$ -Glucosidase Enzyme and Protein Glycation, *Phyrochem. Lett.*, 4, 404-406.
- Christophe, A.B., and Vriese, S.D., 2000, *Fat Digestion and Absorption*, AOCS Press, New York.
- Cleland, W.W., 1979, Substrate Inhibition, *Meth. Enzymol.*, 63, 500-513.
- Corwin, E.J., 2008, *Handbook Of Pathophysiology, Third Edition*, The Ohio State University, Columbus.
- Dennison, C., 2002, *A Guide to Protein Isolation*, Kluwer Academic, New York.
- Deutscher, M.P., 1990, *Metods in Enzymology: Guide to Protein Purification*, Academic Press, New York.
- Dewi, R.T., and Maryani, F., 2015, Antioxidant and  $\alpha$ -Glucosidase Inhibitory Compound of *Centella asiatica*, *Procedia Chem.*, 17, 147-152.
- Dipiro, J.T., Robert, L.T., Gary, C.Y., Gary, R.M., Barbara, G.W., and Posey, L.M., 2005, *Pharmacotherapy a Pathophysiologic Approach*, McGraw-Hill Companies, Inc., New York.
- Elekofehinti, O.O., 2015, Saponins: Anti-Diabetic Principles from Medical Plants- A review, *Pathophys.*, 22, 95-103.
- Farnworth, N.R., 1966, Biological and Phytochemical Screening of Plants, *J. Pharm. Sci.*, 55(3), 225-76.

- Ghani, U., 2015, Re-exploring Promising  $\alpha$ -glucosidase Inhibitors for Potential Development Into Oral Anti-diabetic Drugs: Finding Needle in the Haystack, *Eur. J. Med. Chem.*, 103, 133-162.
- Hadiroseyani, Y., Hafifuddin, Alifuddin, M. dan Supriyadi, H., 2005, Potensi Daun Kirinyuh (*Chromolaena odorata*) Untuk Pengobatan Penyakit Cacar Pada Ikan Gurame (*Osphronemus gouramy*) yang disebabkan *Aeromonas hydrophilla* S26, *J. Akuakultur Indonesia*, 4(2), 139–144.
- Handa, S.S., Khanuja, S.P.S., Long, G., and Rakesh, D.D., 2008, *Extraction Technologies for Medical and Aromatic Plants*, ICS UNIDO, Italy.
- Harborne, J.B., 1987, *Metode Fitokimia: Penuntun Cara Modern Menganalisis Tumbuhan*, (diterjemahkan oleh Padmawinata, K., dan soediro, I.), ITB, Bandung.
- Harvey, D., 2000, *Modern Analytical Chemistry*, The McGraw-Hill Companies, Inc.
- Heinrich, M., Barnes, J., Gibbons, S., dan Wiliamso, E.M., 2004, *Fundamental of Pharmacognosy and Phytotherapi*, Elsevie, Hungaria.
- Ikewuchi, J.C., and Ikewuchi, C.C., 2011, Anti-Cholesterolemic Effect of Aqueous Extract of the Leaves of *Chromolaena odorata* (L) King and Robinson (Asteraceae): Potential for the Reduction of Cardiovascular Risk, *Pac. J. Sci. Technol.*, 12 (2), 385-391.
- Istiqomah, 2013, Perbandingan Metode Maserasi dan Sokletasi Terhadap Kadar Piperin Buah Cabe Jawa (*Piperis retrofraeti fructus*), *Skripsi*, Fakultas Kedokteran dan Ilmu Kesehatan, UIN Syarif Hidayatullah, Jakarta.
- Jo, S.H., Ka, E.H., Lee, H.S., Apostolidis, E., Jang, H.D., and Kwon, Y.I., 2009, Comparison of Antioxidant Potential and Rat Intestinal  $\alpha$ -Glucosidases inhibitory Ativities of Quercetin, Rutin, and Isoquercetin, *Int. J. Appl. Res. In Nat. Prod.*, 2(4), 52-60.
- Kasper, D.L., and Harrison, T.R., 2005, *Harrison's Principles of Internal Medicine*, McGraw Hill, New York.
- Laar, F.A.V., Lucassen, P.L., Akkermans, R.P., Linsdonk, E.H.V., Rutten, G.E., dan Weel, C.V., 2005,  $\alpha$ -Glucosidase Inhibitors for Patient with Type 2 Diabetes, *Diabetes Care*, 28, 154-163.
- Lankhanpal, P., dan Rai, D.K., 2007, Quercetin: A Versatile Flavonoid, *Internet. J. Med. Update*, 2(2), 22-37.
- Lau, A., dan Harper, W., 2007, Thiazolidinediones and Their Effect on Bone Metabolism: A Review, *Can. J. Diabetes*, 31(4), 378-383.

- Lehninger, A.L., 1990, *Dasar-Dasar Biokimia*, Terjemahan Maggy Thenawidjaya, Penerbit Erlangga, Jakarta.
- Lehninger, A.L., 1982, *Principles of Biochemistry*, Worth Pub, New York.
- Li, Y.Q., Zhou, F.C., Bian, J.S., and Shan, F., 2009, Comparative Evaluation of Quercetin, Isoquercetin, and Rutin as Inhibitors of  $\alpha$ -Glucosidase, *J. Agric. Food Chem.*, 57, 11463-11468.
- Liang, R., Jiang, J., and Qiu, J., 2008, An Amperometric Glucose Biosensor Based on Titania Sol-Gel/Prussian Blue Composite Film, *Anal. Sci.*, 24, 1425 – 1430.
- Luo, J.G., Ma, L., and Kong, L.Y., 2008, New Triterpenoid Saponins with Strong  $\alpha$ -Glucosidase Inhibitory Activity from The Roots of *Gypsophila oldhamiana*, *Bioorg. Med. Chem.*, 16, 2912-2920.
- Malviya, N., Jain, S., and Malviya, S., 2010, Antidiabetic Potential of Medicinal Plants, *Act. Pol. Pharm. Drug Res.*, 67(2): 113-118.
- Marangoni, A.G., 2003, *Enzyme Kinetics A Modern Approach*, A John Willey & Sons, New Jersey.
- Marianne, Lesatri, D.P., Sukandar, E.Y., Kurniati, N.F., and Nasution, R., 2014, Antidiabetic Activity of Leaves Ethanol Extract *Chromolaena odorata* (L.) R.M. King on Induced Male Mice with Alloxan Monohydrate, *J. Natural*, 14(1), 1141-8513.
- Markham, K.R., 1988, *Cara Mengidentifikasi Flavonoid*, (diterjemahkan oleh Padmawinata, K. Dan Soediro, I.), ITB, Bandung.
- Mohamed, I.E., Nur, E.B.E.E., Choudhary, M.I., Gu, L., and Khan, S.N., 2006, Bioactive Natural Product from Two Sudanese Medicinal Plants *Diospyros mespiliformis* and *Croton zambesicus*, *Rec. Nat. Prod.*, 3, 198-203.
- Mukherjee, P.K., Maiti, K., Mukherjee, K., and Houghton, P.J., 2006, Leads from Indian Medicinal Plants with Hypoglycemic Potential, *J. Ethnopharmacol.*, 106, 1-28.
- Murata, S., Matsui, H., and Chiba, S., 1979, Substrate Specificity  $\alpha$ -Glucosidase II in Rice Seed, *Agric. Biol. Chem.*, 43, 2131-2135.
- Murray, R.K., Granner, D.K., and Rodwell, V.W., 2009, *Biokimia Harper edisi 27* (diterjemah oleh Brahm, U. Pendit), Penerbit Buku Kedokteran EGC, Jakarta.
- Nakai, H., Ito, T., Hayyashi, M., Kamiya, K., Yamamoto, T., Matsubara, K., Kim, Y.M., Jintarnart, W., Okuyama, M., Mori, H., Chiba, S., Sano, Y., and

- Kimura A, 2007, Multiple Forms of  $\alpha$ -glucosidases in Rice Seeds (*Oryza sativa* L., var *Nipponbare*), *Biochimie.*, 89, 49-62.
- Nampoothiri, S.V., Pratapan, A., Cherian, O.L., Raghu, K.G., Venugopalan, V.V., and Sundaresan, A., 2011, *In vitro* Antioxidant and Inhibitory Potential of *Terminalia bellerica* and *Emblica officinalis* Fruits Against LDL Oxidation and Key Enzymes Linked to Type 2 Diabetes, *Food Chem. Toxicol.*, 1(49), 125-131.
- Nashiru, O., Koh, S., Lee, S., and Lee, D., 2001, Novel  $\alpha$ -Glucosidase from Extreme Thermophile *Thermus caldophilus* GK24, *J. Biochem. Mol. Biol.*, 34, 347-354.
- Nelson, D.L., and Cox, M.M., 2012, *Lehninger Principles of Biochemistry*, 6<sup>th</sup> ed., W.H. Freeman, New York.
- Novindar, M., 2010, Uji Aktivitas Antioksidan Sirup Berbahan Dasar Rosela (*Hibiscus sabdariffa*), *Skripsi*, FMIPA, Universitas Pendidikan Indonesia, Bandung.
- Onkaramurthy, M., Veerapur, V.P., Thippeswamy, B.S., and Reddy, T.N.M., 2013, Anti-diabetic and Anti-cataract Effects of *Chromolaena odorata* Linn. in Streptozotocin Induced Diabetic Rats, *J. Ethnopharmacol.*, 145, 363-372.
- Palmer, T., 1991, *Understanding Enzymes*, 3<sup>rd</sup> Ed., Ellis Horwood Limited, England.
- Pertiwi, M.G.P., 2016, Pemanfaatan Metabolit Sekunder Daun Paitan (*Tithonia diversifolia*) Sebagai Inhibitor Enzim  $\alpha$ -Glukosidase, *Skripsi*, FMIPA Universitas Gadjah Mada, Yogyakarta.
- Phan, T.T., Wang, L., See, P., Grayer, R.J., Chan, S.Y., and Lee, S.T., 2001, Phenolic Compounds of *Chromolaena odorata* Protect Cultured Skin Cells from Oxidative Damage: Implication for Cutaneous Wound Healing, *Biol. Pharm. Bull*, 24, 1373–1379.
- Pinto, M.S., Carvalho, J.E., Lajolo, F.M., Genovese, M.I., and Shetty, K., 2010, Evaluation of Antiproliferative, Anti-Type 2 Diabetes, and Antihypertension Potentials of Ellagitannins from Strawberries (*Fragaria xananassa* Duch.) Using *In Vitro* Models, *J. Med. Food*, 13(5), 1027-1035.
- Prawiradiputra, B.R., 2007, Kirinyuh (*Chromolaena odorata* (L) R.M. King dan H. Robinson): Gulma Padang Rumput yang Merugikan, *WARTAZOA*, 1(17).
- Purwatresna, E., 2012, Aktivitas Antidiabetes Ekstrak Air dan Etanol Daun Sirsak Secara *In Vitro* Melalui Inhibisi Enzim  $\alpha$ -Glukosidase, FMIPA ITB, Bogor.

- Raman, B.V., Krishna, A.N., Rao, B.N., Saradhi, M.P., and Rao M.V.B., 2012, Plant with Antidiabetic Activities and Their Medicinal Values, *IRJP*, 3(3), 11-15.
- Risma, D., 2012, Isolasi dan Karakterisasi Enzim  $\alpha$ -Glukosidase dari Beras Lapuk (*Oryza sativa*), *Skripsi*, Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Indonesia, Depok.
- Samson, S.L., and Garber, A.J., 2016, Prevention Of Type 2 Diabetes Mellitus: Potential of Pharmacological Agents, *Clin. Endocrinol. Meta.*, 30,1-15.
- Shinde, J., Taldone, T., Barletta, M., Kunaparaju, N., Bo, H., and Kumar, S., 2008,  $\alpha$ -Glucosidase Inhibitory Activity of *Syzygium Cumini* (Linn) Skeel seed Kernel In Vitro an In Goto-Kakizaki (GK) Rats, *Carbohydr. Res.*, 343, 1278-1281.
- Shuler, M.L., dan Kargi, F., 1992, *Bioprocess Engineering: Basic Concepts*, Prentice Hall, Michigan.
- Sirait, M., 2007, *Penuntun Fitokimia dalam Farmasi*, Penerbit ITB, Bandung.
- Steenis, V., 2005, *Flora "Untuk Sekolah di Indonesia"*, Pradnya Paramita, Jakarta.
- Sukandar, E.Y., 2006, *Tren dan Paradigma Dunia Farmasi, Industri-Klinik-Teknologi Kesehatan*, [http://itb.ac.id/focus/focus\\_file/orasi-ilmiah-dies-45.pdf](http://itb.ac.id/focus/focus_file/orasi-ilmiah-dies-45.pdf) (diakses pada 21 Mei 2017).
- Suksamrarn, A., 2002, Antimycobacterial Activity and Cytotoxicity of Flavonoids from the Flowers of *Chromolaena odorata*, *Arc. Pharmacol. Res.*, 27(5), 507-511.
- Surya, S., Salam, A.D., Tomy, D.V., Carla, B., Kumar, R.A., and Sunil, C., 2014, Dibetes Mellitus and Medical Plant-A Review, *Asian Pac. J. Trop. Dis.*, 4(5), 337-347.
- Tadera, K., Minami, Y., Takamatsu, K., and Matsuoka, T., 2006, Inhibition  $\alpha$ -Glucosidase and  $\alpha$ -Amylase by Flavonoids, *J. Nutr. Sci. Vitaminol.*, 52, 149-153.
- Tan, C., Wang, Q., Luo, C., Chen, S., Li, Q., and Li, P., 2013, Yeast  $\alpha$ -Glucosidase Inhibitory Phenolic Compounds Isolated from *Gynura Medica* Leaf, *International Journal of Molecular sciences*, 14, 2551-2558.
- Thamrin, M., Asikin, S., dan Willis, M., 2013. Tumbuhan Kirinyu *Chromolaena odorata* (L) (Asteraceae: Asterales) Sebagai Insektisida Nabati untuk Mengendalikan Ulat Grayak *Spodoptera litura*, *J. Litbang. Pert.*, 32(3), 112-121.



- Tiwari, A.K., and Rao, J.M., 2002, Diabetes Mellitus and Multiple Therapeutic Approaches of Phytochemicals: Present Status and Future Prospect, *Curent Science*, 83, 30-38.
- Tjokroprawiro A., 1980, *Pravalensi Diabetes Melitus Dewasa di Kodya Surabaya.*, Lembaga Penelitian Universitas Airlangga, Surabaya.
- Tjokroprawiro A., 1986, *Diabetes Melitus Aspek Klinik dan Epidemiologi*, Airlangga University Press, Surabaya.
- Ventakaraman, K., 1962, *Methods for Determining The Structure of Flavonoid Compounds*, The Macmillan Company, New York.
- Vessal, M., Hemati, M., and Vasei, M., 2003, Antidibetic Effects of Quersetin in Streptozocin Induced Diabetic Rats, *Comp. Biochem. Physiol. C. Toxicol Pharmacol.*, 135,357-364.
- Vital, P.G., and Rivera, W.L., 2009, Antimicrobial Activity and Cytotoxicity of *Chromolaena odorata* (L. f.) King and Robinson and *Uncaria Perrottetii* (A. Rich) Merr. Extracts, *J. Med. Plants Res.*, 3(7), 511-518.
- Voet, D., dan Voet, J.G., 2008, *Biochemistry*, John Wiley and Sons Inc., New York.
- Wiesman, M.M, 1989, Increasing Rates of Depression, *J.A.M.A.*, 261(15), 2239-35.
- Wijayakusuma, H., 2004, *Atasi Diabetes Mellitus dengan Tanaman Obat*, Puspa Sehat, Jakarta.
- Winarno, F.G., 1986, *Enzim Pangan*, Gramedia, Jakarta.
- Woodley, M. dan Whelan, A., 1995, *Pedoman Pengobatan. Edisi I*, Yayasan Essentia Medica dan Penerbit Andi Offset, Yogyakarta.
- Yamasaki, Y., and Haruyoshi, K., 1992, Wall-Bound  $\alpha$ -Glucosidase of Suspension-Cultured Sugar-Beet Cells, *Phytochem*, 31, 2605-2607.