



## DAFTAR PUSTAKA

- American Diabetes Association, 2004, *Diagnosis and Classification of Diabetes Mellitus*, Diabetes Care, vol 27, hal 5-10, USA.
- American Diabetes Association, 2011, *Definition and Description Of Diabetes Mellitus*, diakses melalui <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3006051/> pada tanggal 5 mei 2018 pukul 10.47 WIB.
- American Diabetes Association, 2017, *Standard of Medical Care in Diabetes*, Diabetes Care, Vol. 40, Suppl 1, USA.
- Anonim, 2000, *Parameter Standar Umum Ekstrak Tumbuhan Obat*, Cetakan Pertama, 5-10, Departemen Kesehatan Republik Indonesia, Jakarta.
- Anonim, 2008, *Farmakope Herbal Indonesia*, Edisi 1, Kementerian Kesehatan Republik Indonesia, Jakarta.
- Anonim, 2008, *Taksonomi Koleksi Tanaman Obat Kebun Tanaman Obat Citeureup*, Badan Pengawas Obat dan Makanan RI, Direktorat Obat Asli Indonesia, hal 69, Jakarta.
- Anonim, 2010, *Monografi Ekstrak Tumbuhan Obat Indonesia*, Revisi Vol 1, hal 157-165, Badan Pengawas Obat dan Makanan RI, Jakarta.
- Anonim, 2013, *Suplemen III Farmakope Herbal Indonesia*, Edisi 1, Kementerian Kesehatan Republik Indonesia, Jakarta.
- Anonim, 2015, *Konsensus Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 di Indonesia 2015*, hal 11-31, Perkumpulan Endokrinologi Indonesia, PB PERKENI.
- Anonim, 2018, *Drug Monograph: Glyburide*, diakses melalui [https://www-clinicalkey-com.ezproxy.ugm.ac.id/#!/content/drug\\_monograph/6-s2.0-279](https://www-clinicalkey-com.ezproxy.ugm.ac.id/#!/content/drug_monograph/6-s2.0-279) pada tanggal 29 September 2018 pukul 6.42 WIB.
- Anonim, 2018, *Islets of Langerhans*, Encyclopaedia Britannica, diakses melalui <https://www.britannica.com/science/islets-of-Langerhans> pada tanggal 9 April 2019 pukul 10.34 WIB.
- Astuti, P., Sarto, M., Fitria, L., Sudjadi, S., 2010, *Level Insulin of Diabetic Rat Model by Streptozotocin-induced*, 13<sup>th</sup> Association of Institutions for Tropical Veterinary Medicine (AITVM) Conference, hal 125-126, Bangkok.
- Bagalkotkar G., Sagineedu S.R., Saad M.S., Stanslas J, 2006, *Phytochemicals from Phyllanthus niruri Linn. and their pharmacological properties*, A



review, *Journal of Pharmacy & Pharmacology*, vol. 58, hal 1559–1570, University of Putra Malaysia, Malaysia.

Beckmann, C. R. B., Ling, F. W., Smith, R. P., 2005, *Obstetrics and Gynecology*, 5th Edition, Lippincott Williams & Wilkins, Philadelphia.

Bnouham, M., Ziyyat, A., Mekhfi, H., Tahri, A., Legssyer, A., 2006, *Medicinal Plants with Potential Antidiabetic Activity – A Review of Ten Years Of Herbal Medicine Research (1990 – 2000)*, international Journal Diabetes & Metabolism, University of Mohamed The First, Morocco.

Buraerah, H., Abdullah, A. Z., Hanis, M., 2010, *Analisis Faktor Risiko Diabetes Melitus tipe 2 di Puskesmas Tanrutedong, Sidenreg Rappan*, Jurnal Kedokteran Indonesia, vol. 35, no. 04, Universitas Katolik Atma Jaya, Jakarta.

Chairul, Jamal, Y., Zainul, Z., 2000, *Efek Hipoglikemik Ekstrak Alkohol Herba Meniran (*Phyllanthus niruri L.*) Pada Kelinci Putih Jantan*, Berita Biologi vol. 5, no. 1, Universitas Sebelas Maret, Solo.

Chatzigeorgiou, A., Halapas, A., Kalafatakis, K., & Kamper, E., 2009, *The Use of Animal Models in The Study of Diabetes Mellitus*, *In Vivo*, 23 (2), 245-258.

Corwin, E. J., 2008, *Handbook of Pathophysiology*, Edisi 3, hal 558-559, Lippincott Williams & Wilkins, Ohio.

Departemen Kesehatan RI, 2005, *Pharmaceutical Care untuk Penyakit Diabetes Melitus*, Direktorat Bina Farmasi Komunitas dan Klinik, Jakarta.

Dinas Kesehatan Kota Semarang, 2009, *Profil Kesehatan Kota Semarang 2009*, Dinas Kesehatan Kota Semarang, Semarang.

Diwan, A. D., Panche, A. N., Chandra, S. R., 2016, *Flavonoids: an overview*, *Journal of Nutritional Science*, MGM's Institute of Biosciences and Technology, Mahatma Gandhi Mission, India.

Effendi, A., Waspadji, S., 2013. *Aspek Biomolekuler Diabetes Melitus II*, Badan Penerbit FK UI, Jakarta.

Eizirik, D. L., Strandell, E., Benutzen, K., Sandler, S., 1988, *Functional Characteristics of Rat Pancreatic Islets Maintained in Cultured After Exposure to Human Interleukin 1*, *Diabetes*, 37: 916-919.

Eugène, A. S., Amina, M. D., Machioud, S. M., Félix, G., Rodrigue, A., Madjid, A. A., Latifou, L., Lamine, B. M., Seri, B., dan Khan, N. A., 2018, *Molecular Mechanisms of Hypoglycemic and Antioxidative Effects of*



*Phyllanthus Amarus on Streptozotocin-Induced Diabetic Rats*, Journal of Endocrinology and Diabetes, 5(4): 1-16.

Fitriani, N. E., Akhmad, S. A., dan Lestariana, W., 2014, *Efek Kuersetin Terhadap Kadar Glukosa Darah Puasa Pada Tikus Diabetes Melitus Tipe 2 Yang Diinduksi Dengan Streptozotocin-Nicotinamide*, JKKI, Vol 6, No. 2, Universitas Islam Indonesia.

Freitas, A., Schor, N., Boim, M.A., 2002, *The effect of Phyllanthus niruri on urinary inhibitors of calcium oxalate crystallization and other factors associated with renal stone formation*. BJU International, vol. 89, issue 9, Sao Paulo, Brazil.

Gandjar, I. G., dan Rohman, A., 2007, *Kimia Farmasi Analisis*, Pustaka Pelajar, Yogyakarta.

Gilmartin, A. B., Ural, S. H., Repke, J. T., 2008, *Gestational Diabetes Mellitus, Reviews in Obstetrics & Gynecology*, Vol. 1 & 3, Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, Penn State College of Medicine, Hershey, PA.

Guyton, A. C., & Hall, J. E., 2006, *Textbook of Medical Physiology*, Edisi 11, Elsevier Saunders, Philadelphia.

Guyton, A. C., Hall, J. E., 2016, *Insulin, Glucagon, and Diabetes Mellitus*, Guyton and Hall Textbook of Medical Physiology, Edisi 13, Bab 79, hal 983-999, Mississippi Center for Obesity Research, University of Mississippi Medical Center, Jackson, Mississippi.

Hailu, Zhao, 2002, *Characterisation of Pathological Changes in the Pancreas and Kidneys in Type 2 Diabetes Mellitus*, The Chinese University of Hong Kong, Hong Kong.

Hatware, K., & Annapurna, A., 2014, *The Effect of Quercetin on Blood Glucose Level of Normal and Streptozotocin Induced Diabetic (Type I & Type II) Rats*, International Journal of Pharmaceutical, Chemical, and Biological Sciences, 4 (3), 613-619.

Heyne, K., 1987, *Tumbuhan Berguna Indonesia*, Yayasan Sarana Wana, Edisi II, hal. 1138-1140, diterjemahkan oleh Badan Litbang Kehutanan, Jakarta.

Jadhav, R., Puchchakayala, G., 2012, *Hypoglycemic and Antidiabetic Activity Of Flavonoids: Boswellic Acid, Ellagic Acid, Quercetin, Rutin On Streptozotocin Nicotinamide Induced Type 2 Diabetic Rats*, International Journal of Pharmacy and Pharmaceutical Sciences, Vol 4, Issue 2, 251-256.



Junqueira, L. C., & Carneiro, J., 2003, *Basic Histology: Text & Atlas*, Edisi 10, diterjemahkan oleh Tambayong, J., & Dany, F., hal 315-319, Penerbit Buku Kedokteran EGC, Jakarta.

Khairunnisa, Silvia, 2012, *Uji Aktivitas Anti Diabetes Fraksi – Fraksi Ekstrak Etanol Herba Meniran (*Phyllanthus niruri L.*) Melalui Penghambatan Aktivitas  $\alpha$ -Glukosidase dan Identifikasi Golongan Senyawa Kimia Dari Fraksi yang Aktif*, Skripsi, Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Indonesia, Depok.

Kourlas, H., and Papadopulas, J., 2007, *Clinical Pharmacy Corner: How Do Sulfonylureas Work?*, Pharmacology Section Editors, Clinical Correlations, diakses melalui <https://www.clinicalcorrelations.org/2007/10/17/clinical-pharmacy-corner-sulfonylureas/> pada tanggal 27 Oktober 2018 pukul 16.00 WIB.

Kumar, S., dan Pandey, A., 2013, *Chemistry and Biological Activities of Flavonoids: An Overview*, The Scientific World Journal, Departemen Biokimia, Universitas Allahabad, India.

Linn, W. D., Wofford, M. R., O'keefe, M. E., Posey, L. M., 2009, *Pharmacotherapy in Primary Care*, hal 279-290, McGraw Hill, New York.

Longnecker, D., 2014, *Anatomy and Histology of Pancreas*, Pancreapedia, American Pancreatic Association, USA.

Lucier, J., dan Weinstock, R. S., 2018, *Diabetes Mellitus type 1*, StatPearls Publishing, SUNY Upstate Medical University.

Mohan, D., Raj, D., Shanthirani, C.S., Datta, M., Unwin, N.C., Kapur, A., 2005, *Awareness and knowledge of diabetes in Chennai - the Chennai urban rural epidemiology study (CURES-9)*, The Journal of Association of Physicians India, India.

Morgan, N. G., Cable, H. C., Newcombe, N. R., Williams, G. T., 1994, *Treatment of Cultured Pancreatic B-cells with streptozotocin induces cell death by apoptosis*, Bioscience Reports, 14: 243-250.

Mukhopadhyay, P., Prajapati, A.K., *Quercetin in anti-diabetic research and strategies for improved quercetin bioavailability using polymer-based carriers – a review*, Royal Society of Chemistry Advances, Vol 5, 97547-97562.

Murugesan, N., Snehalatha, C., Shobhana, R., Roglic, G., Ramachandran, A., 2007, *Awareness About Diabetes and Its Complications In The General*



*And Diabetic Population In A City In Southern India. Diabetes Research and Clinical Practice, India.*

Nadkarni, P., Weinstock, R. S., 2017, *Carbohydrates*, Henry's Clinical Diagnosis and Management by Laboratory Methods, Edisi 23, Bab 16, hal 206-220, St. louis, Missouri.

Nara, T. K., Cleye, J., Lavergne de Cerval, L., Stanislas, E., 1977, *Flavonoïdes de Phyllanthus niruri L., P. urinaria L. et P. orbiculatus L. Rich*, Plantes Médicinales et Phytothérapie, vol. 11, hal. 82-86, Faculté mixte de médecine et de pharmacie.

National Center for Biotechnology Information, 2004, *Glyburide*, PubChem Compound Database; CID=3488, diakses melalui <https://pubchem.ncbi.nlm.nih.gov/compound/3488> pada tanggal 28 September 2018 pukul 10.26 WIB.

National Center for Biotechnology Information, 2005, *Streptozotocin*, PubChem Compound Database; CID=5300, diakses melalui <https://pubchem.ncbi.nlm.nih.gov/compound/5300> pada tanggal 9 September 2018 pukul 13.31 WIB.

National Plant Data Center, 1996, *Phyllanthus niruri L.*, National Resources Conservation Service, United States Department Of Agriculture, diakses melalui <https://plants.usda.gov/core/profile?symbol=PHNI2> tanggal 17 September 2018 pukul 6.31 WIB.

Novrial, D., 2007, *Kerusakan Sel  $\beta$  Pankreas Akibat Induksi Streptozotosin: Tinjauan Patologi Eksperimental*, Fakultas Kedokteran dan Ilmu Kesehatan, Universitas Jenderal Soedirman, Purwokerto.

Nugrahani, S. S., 2013, *Analisis Perbandingan Efektifitas Ekstrak Akar, Batang, Dan Daun Herba Meniran Dalam Menurunkan Kadar Glukosa Darah Mencit*, Unnes Journal of Public Health, <http://journal.unnes.ac.id/sju/index.php/ujph>, diakses pada 8 Mei 2018 pukul 10.22 WIB.

Portha, B., Levacher, C., Picon, L., Rosselin, G., 1974, *Diabetogenic Effect of Streptozotocin in The Rat During The Perinatal Period*, Diabetes, 23(11): 889-895.

Porte, D., Jr., 1996, *Normal Physiology and Phenotypic Characterization of Beta-Cell Function in Subjects at Risk for Non-Insulin-Dependent Diabetes Mellitus*, Diabetic Medicine: A Journal of The British Diabetic Association, Department of Medicine, Department of Veterans Affairs Puget Sound Health Care System, Seattle, Washington, USA.



Pramono, S., 1989, *Pemisahan Flavonoid*, Tesis, Pascasarjana Fakultas Farmasi, Universitas Gadjah Mada, Yogyakarta.

Putri, M., 2011, *Tanaman Obat Yang Harus Ada Di Pekarangan Rumah Kita*, Sinar Ilmu, Yogyakarta.

Ramachandran, A., 2014, *Know the signs and symptoms of diabetes*, Indian Journal of Medical Research, vol. 140, hal. 579–581, India.

Rani, S., Kumar, B., 2015, *Efficacy of Phyllanthus niruri Linn. Extract in the management of type-2 diabetes mellitus associated hypercholesterolemia in mice diabetic model*, International Journal of Current Microbiology Applied Science, vol. 4, hal. 507–513, Patna, India.

Rivai, H., Septika, R., dan Boestari, A., 2013, *Karakterisasi Ekstrak Herba Meniran (Phyllanthus Niruri Linn) Dengan Analisa Fluoresensi*, Jurnal Farmasi Higea, vol. 5, no. 2, hal. 15 – 23.

Robinson, T., 1995, *Kandungan Organik Tumbuhan Tinggi*, ITB, Bandung.

Russell, S. J., Sluss, P. M., Kahanovitz, L., 2017, *Type 1 Diabetes - A Clinical Perspective*, Pathology Department, Massachusetts General Hospital, Harvard Medical School, Boston, USA.

Sacher, R. A., & McPherson, R. A., 2000, *Tinjauan Klinis Hasil Pemeriksaan, Laboratorium, Edisi 11*, diterjemahkan oleh Pendit, B. U., dan Wulandari, D., hal 286-289, Penerbit Buku Kedokteran EGC, Jakarta.

Setiawan, B., dan Suhartono, E., 2005, *Stres Oksidatif dan Peran Antioksidan pada Diabetes Melitus*, Majalah Kedokteran Indonesia, Volum 55, Nomor 2: 86-91.

Shanmugam, B., Shanmugam, K.R., Ravi, S., Subbaiah, G.V., Ramakrishana, C., Mallikarjuna, K., Reddy, K.S., 2017, *Exploratory studies of (−)-Epicatechin, a bioactive compound of Phyllanthus niruri, on the antioxidant enzymes and oxidative stress markers in D-galactosamine-induced hepatitis in rats: A study with reference to clinical prospective*, Pharmacognosy Magazine, vol. 13, suppl 1:S56-S62.

Subarnas, A., & Sidik, S., 1993, *Phyllanthus niruri Linn., Kimia, Farmakologi, dan Penggunaannya Sebagai Obat Tradisional*, Warta Tumbuhan Obat Indonesia, Vol 2, No 4, diakses melalui [ejournal.litbang.depkes.go.id/index.php/wtoi/article/view/2827](http://ejournal.litbang.depkes.go.id/index.php/wtoi/article/view/2827) pada tanggal 25 April 2019 pukul 14.02 WIB.

Subiyono, Martsiningsih, M. A., dan Gabrela, D., 2016, *Gambaran Kadar Glukosa Darah Metode GOD-PAP (Glucose Oxidase-Peroxidase*



*Aminoantipyrine) Sampel Serum dan Plasma EDTA (Ethylen Diamin Tertia Acetat), Jurnal Teknologi Laboratorium, 5 (1), 45-48.*

Szkudelski, T., 2001, *The Mechanism of Alloxan and Streptozotocin Action in B Cells of the Rat Pancreas*, Physiol. Res., 50:536-546.

Szkudelski, T., 2012, *Streptozotocin–nicotinamide-induced diabetes in the rat, Characteristics of the experimental model*, Department of Animal Physiology and Biochemistry, Poznan University of Life Science, Polandia.

The Plant List, 2013, *Phyllanthus niruri L.*, diakses melalui <http://www.theplantlist.org/tpl1.1/record/kew-154454> pada tanggal 25 April 2019 pukul 14.15 WIB.

Thomas, 2007, *Tanaman Obat Tradisional 2*, hal 81, Kanisius, Yogyakarta.

Thulesen, J., Orskov, C., Holst, J.J., Poulsen, S.S., 1997, *Short-term Insulin Treatment Prevent the Diabetogenic Action of Streptozotocin in Rats*, Endocrinology, 136:62-68.

Tjandrawinata, R. R., 2016, *Patogenesis Diabetes Melitus Tipe 2: Resistensi Insulin dan Defisiensi Insulin*, Molecular Pharmacologist, Dexa Laboratories of Biomolecular Sciences, Dexa Medica Group.

Tomescu, A., Cadar, E., Emiria, C. L., Mustafa, A., Sirbu, R., 2015, *The Impact of Alkaloids Structures from Natural Compounds on Public Health*, European Journal of Social Science Education and Research, Volume 2, Ovidus University of Constanta, Romania.

Trinder, P., 1969, *Determination of Glucose in Blood Using Glucose Oxidase with an Alternative Oxygen Acceptor*, Annals of Clinical Biochemistry, 6 (1), 24-27.

Ullah, A., Khan, A., Khan, I., 2015, *Diabetes mellitus and oxidative stress—A concise review*, Saudi Pharmaceutical Journal, Volume 24: 547-553.

Wagner, H., & Bladt, S., 1996, *Plant Drug Analysis: A Thin Layer Chromatography Atlas*, Springer Science & Business Media, Munich.

Wahjuni, S., 2017, *Ekstrak daun meniran (*Phyllanthus niruri. L*) memperbaiki kerusakan sel-β pankreas dan menurunkan kadar gula darah tikus wistar hiperglikemia diinduksi aloksan*, Intisari Sains Medis, Volume 8, Number 2: 160-163, DiscoverSys.

Widowati, W., 2008, Potensi Antioksidan Sebagai Antidiabetes, Jurnal Kesehatan Masyarakat, Volum 7, Nomor 2.



UNIVERSITAS  
GADJAH MADA

PENGARUH EKSTRAK ETANOLIK HERBA MENIRAN (*Phyllanthus niruri L.*) TERHADAP KADAR GLUKOSA DARAH DAN HISTOPATOLOGI PANKREAS PADA TIKUS DIABETES DIINDUKSI STREPTOZOTOSIN  
Rizqi Dinni Fauzia, Prof. Dr. Agung Endro Nugroho, M.Si., Apt. ; Prof. Dr. Suwidjiyo Pramono, DEA., Apt.  
Universitas Gadjah Mada, 2019 | Diunduh dari <http://etd.repository.ugm.ac.id/>

Wilcox, Gisela, 2005, *Insulin and Insulin Resistance*, The Clinical Biochemist Review, 26(2), Melbourne Pathology, Monash University, Australia.

Wolfensohn, S. & Lloyd, M., 2013, *Handbook of Laboratory Animal Management and Welfare*, 4th Ed., 234, Wiley-Blackwell, West Sussex.

World Health Organization, 1999, *Definition, Diagnosis and Classification of Diabetes Mellitus and Its Complications*. Part 1: Diagnosis and Classification Of Diabetes Mellitus., Geneva, Report Number: WHO/NCD/NCS/99.2.

World Health Organization, 2006, *Definition And Diagnosis Of Diabetes Mellitus And Intermediate Hyperglycaemia*, diakses melalui [http://www.who.int/diabetes/publications/Definition%20and%20diagnosis%20of%20diabetes\\_new.pdf](http://www.who.int/diabetes/publications/Definition%20and%20diagnosis%20of%20diabetes_new.pdf) pada tanggal 5 mei 2018 pukul 11.24 WIB.

World Health Organization, 2016, *Global Report On Diabetes*, WHO Press, 20 Avenue Appia, 1211 Geneva 27, Switzerland. ISBN 978 92 4 156526 7.