UNIVERSITAS
GADJAH MADA
Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari (Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abdullah, D., Mubarokah, S., Baiturrahmah, U. 2025. Potensi kayu manis sebagai terapi alami dalam mengelola diabetes melitus. *Nusantara Hasana Journal.* 4(10):54—61.

Afriansyah, A., & Cahyani, K. 2024. Hubungan panjang-berat dan faktor kondisi ikan seluang batang (*Rasbora lateristriata,* Bleeker 1854) dari daerah aliran sungai komering, kayuagung, sumatra selatan. *Jurnal Ilmu Perikanan Air Tawar (clarias).* 5(1):

Alasbily, H., Fahmi, F.A., Abdala, M.A., Asheibi, A.F., Amhidi, A.A., Elallegy, A.A., & Elamami, A.H. 2025. Metformin in diabetic retinopathy: mechanisms, therapeutic, potential, and barriers. *Cureus,* 17(7).

Ali, A.O.M., Khalaf-Allah, H. M. M., Hegazy, M.M., Alabssawy, A.N. 2024. Morphological and histological adaptations for retinal structure in eyes of the amphibious fish, *Alticus kirkii* and the Non-amphibious fish, *Gambusia affinis.* Egyptian Journal of Aquatic Biology & Fisheries. 28(5):1457—1469.

American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. 2009 Jan;32 Suppl 1(Suppl 1):S62-7. doi: 10.2337/dc09- S062. PMID: 19118289; PMCID: PMC2613584.

Avanesov, A & Malicki, J. 2014. Analysis of the retina in the zebrafish model. *Methods Cell Biol.* 153—204.

Boia, R., Ruzafa, N., Aires. L.D., Pereiro, X., Ambrosio, A.F., Vecino, E., Santiago, A.R. 2020. Neuroprotective strategies for retinal ganglion cell degeneration: Current Status and Challenges Ahead. *Int. J. Mol.Sci.* 21, 2262

Calette-Corcoran, T. F. J. 2023. *Metformin – StatPearls – NCBI Bookshelf.*

Claudia, R. A., Dewi, S., Sari, P., Safitri, Y. 2024. Preliminary study of *Cinnamomum burmannii* extracts to reduce fasting blood glucose level and body weight in type-2-DM-induced rats. 5(2):107—115. https://doi.org/10.24853/mmj.5.2.107--115.

Dachi, V. N. O., Rayyan, T. A., Utami, S. P., Mutia, R., Akbar, K., Lumbantobing, C. J. E., Kunardi, S., Jansen, J., Djuang, M. H. 2022. Pengaruh varian pemberian dosis aloksan terhadap angka kadar gula darah hewan coba. *Jurnal Prima Medika Sains.* 4(1):32—36.

Darwis, I., Windarti, I., & Prameswari, N. P. 2021. Efek pankreoprotektif kayu manis *(Cinnamomum burmannii)* pada tikus putih *(Rattus norvegicus)* diabetes yang diinduksi streptozotocin. *JK Unila,* 5(1):104—110.

Fadhlurrohman, I., Wulandari, C & Al-Ryadhi, M.R.A. 2023. Diversifikasi produk susu fermentasi dengan pemanfaatan kayu manis (*Cinnamomum burmannii)* sebagai inovasi pangan fungsional: Review. *Polbangtanmanokwari.*

Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari
(Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Farmaki, P., Damaskos, C., Garmpis, N., Garmpi, A., Savvanis, S., Diamantis, E. 2020. Complications of the Type 2 Diabetes Mellitus. *Curr Cardiol Rev*. 16(4):249-251.

Fatimah, R.N. 2015. Diabetes melitus tipe 2. *J Majority*. 4(5):93--101.

Galicia-Garcia, U., Benito-Vicente, A., Jebari, S., Larrea-Sebal, A., Siddiqi, H., Uribe, K.B., Ostolaza, H., Martin, C. 2020. Pathophysiology of Type 2 Diabetes Mellitus. *Int J Mol Sci.* 21(17):6275.

Gleeson, M., Connaughton, V & Arneson, L.S. 2007. Induction of hyperglycaemia in zebrafish *(Danio rerio)* leads to morphological changes in the retina. *Acta Diabetol,* 44:157—163.

Goyal, R., & Jialal I. Diabetes Mellitus Type 2. [Updated 2022 Jun 19]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan

Harahap, P.M., Subeki & Analianasari. 2022. Aktivitas antidiabetes ekstrak kayu manis pada mencit dengan metode induksi aloksan. *Jurnal Pengembangan Argoindustri Terapan*, 1(1).

Jarvill-Taylor, K.J. Anderson, R.A & Graves, D.J. 2001. A hydroxychalcone derived from cinnamon functions as a mimetic for insulin in 3T3-L1 adipocytes. *Journal of the American College of Nutrition,* 20(4):327—336.

Kalueff, A. V., Cachat, J. M. *Zebrafish Models in Neurobehavioral Research*, Neuromethods 52, DOI 10.1007/978-1-60761-922-2_1, © Springer Science+Business Media, LLC 2011

Keck, V.A., Edgerton, D.S., Hajizadeh, S., Swift, L.L., Dupont, W.D., Lawrence, C., Boyd, K.L. 2015. Effects of Habitat Complexity on Pair-Housed Zebrafish. *J Am Assoc Lab Anim Sci*. 54(4):378-83.

Kommula, S.R., Vadakattu, S.S., Myadara, S., Putcha, U.K., Tamanam, R.R., & Palla, S. 2020. Cinnamon attenuated long-term IGT-induced retinal abnormalities via regulation of glucose homeostasis in neonatal streptozotocin induced rat model. *Ind J Clin Biochem.* 35(4):442—450.

Kristof, V., Bregje, T., Joan, S., Will, W & Loon, V.L. 2006. Cinnamon supplementation does not improve glycemic control in postmenopausal type 2 diabetes patients. *The Journal of Nutrition,* 136(4):977-980.

Landani, A & Kurniawaty E. 2018. Pengaruh Pemberian Kayu Manis (Cinnamomum cassia) Terhadap Penurunan Gula Darah Pada Penderita Diabetes Melitus Tipe 2.

Lieschke, G. J., and Currie, P. D. 2007. Animal models of human disease: zebrafish swim into view. *Nat. Rev. Genet.* (8)353–367.

Lin, B., Ma, J., Fang, Y., Lei, P., Wang, L., Qu, L., Wu, W., Jin, L., Sun, D. Advances in Zebrafish for Diabetes Mellitus with WoundModel. *Bioengineering*. 2023; 10(3):330.

Lisabilla, A. F., Kalsum, U., Andarini, S. 2022. Pengaruh ekstrak kayu manis

Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari
(Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

(*Cinnamomum burmannii)* terhadap glucose transporter 1 (GLUT-1) dan panjang badan embrio ikan zebra *(Danio rerio*) model Hiperglikemia. Magister thesis, Universitas Brawijaya.

Lujan, B.J., Roorda, A., Croskrey, J.A., Dubis, A.M., Cooper, R.F., Bayabo, J., Duncan, J.L., Antony, B.J. & Caroll, J. 2015. Directional optical coherence tomography provides accurate outer nuclear layer and henle fiber layer measurements. *Retina,* 35(8):1511—1520.

Marín-Peñalver, J. J., Martín-Timón, I., Sevillano-Collantes, C., Del Cañizo-Gómez, F. J. 2016. Update on the treatment of type 2 diabetes mellitus. *World J Diabetes*. 7(17):354-95.

Mohsin, S.M., Saleem, F., Humayun, A., Tanweer, A & Muddassir, A. 2023. Prospective nutraceutical effects of cinnamon derivatives against insulin resistance in type II diabetes mellitus – evidence from the literature. *Dose-Response,* 21(3).

Mollazadeh, H & Hosseinzadeh, H. 2016. Cinnamon effects on metabolic syndrome: a review based on its mechanisms. *Iran J Basic Med Sci,* 19(12):1258—270.

Motooka, P. S. 2003. Cinnamomum burmannii. *Weeds of Hawaii's pastures and natural areas: an identification and management guide.* University of Hawaii at Manoa: College of Tropical Agriculture and Human Resources.

Menggala, S. R., Damme, P. V. 2018. Improving *Cinnamomum burmannii* Blume Value Chains for Farmer Livelihood in Kerinci, Indonesia. *European Journal of Medicine and Natural Sciences.* 2(1):22—42.

Najah. 2025. Aktivitas antidiabetes pada fitokimia Cinnamaldehyde dalam menurunkan kadar glukosa darah puasa, HbA1c, HOMA-IR, dan meningkatkan kadar insulin hewan coba tikus. *Antigen: Jurnal Kesehatan Masyarakat dan Ilmu Gizi.* 3(3):126—134.

Maurer, E., Tschopp, M., Tappeiner, C., Sallin, P., Jazwinska, A., Enzmann, V. 2014. Methylnitrosourea (MNU)-induced retinal degeneration and regeneration in the zebrafish: histological and functional characteristics. *Journal of Visualized Experiments,* 92:1—7.

Mengling, Ye., Ye, Chen. 2020. Zebrafish as an emerging model to study gonad development. *Computational and Structural Biotechnology Journal*, 18:2373-2380.

Mohammadi, H., Manouchehri, H., Changizi, R., Bootorabi, F., Khorramizadeh, M.R. 2020. Concurrent metformin and silibinin therapy in diabetes: assessments in zebrafish (*Danio rerio*) animal model. *Journal of Diabetes & Metabolic Disorders.* 19:1233—1244.

Olokoba, A.B., Obateru, O.A., Olokoba, L.B. 2012. Type 2 diabetes mellitus: a

UNIVERSITAS
GADJAH MADA
Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari (Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

review of current trends. *Oman Med J*. (4):269-73.

Ozougwu, J. & Obimba, K.C., Belonwu, C.D., Unakalamba, C.B.. 2013. The pathogenesis and pathophysiology of type 1 and type 2 diabetes mellitus. *Academic Journals*. 4:46-57.

Patel, D.K., Prasad, S.K., Kumar, R., Hemalatha, S. 2012. An overview on antidiabetic medicinal plants having insulin mimetic property. *Asian Pac J Trop Biomed.* 2(4):320-30.

Pfeiffer, A.F., & Klein, H.H. 2014. The treatment of type 2 diabetes. *Dtsch Arztebl Int.* 111(5):69-81.

Puppala, M., Godisela, K.K., Geereddy, B.R., Chandrashaker, A. & Gangula, R. 2018. Effect of cinnamon and its Procyanidin-B2 on diabetic retinopathy in rats. *The Indian Journal of Nutrition and Dietetics.* 56(2):109—123.

Raharjeng, A & Retnoaji, B. 2021. The effect of Dioscorea alata extract on the early development of zebrafish embryo (Danio rerio) and Rasbora lateristriata. *Advances in Social Science, Education and Humanities Research.* 536:601-611.

Rahayu, D.U.C., Hakim, R.A., Mawarni, S.A., Satriani, A.R. 2022. Indonesian Cinnamon (*Cinnamomum burmannii*): Extraction, Flavonoid Content, Antioxidant Activity, and Stability in the Presence of Ascorbic Acid. *Cosmetics*. *9*(57).

Rena, G., Hardie, D. G., Pearson, E. R. 2017. *The mechanisms of action of metformin.* 1577—1585. https://doi.org/10.1007/s00125-017-4342-z

Retnoaji, B., Nanda, F., Sartika, D., Eunike, N., Oktaviani, D.D., Afriani, D. 2016. The effect of volcanic dust on on the histological structure of wader pari (*Rasbora lateristriata* Bleeker, 1854) organs. AIP Conference Proceedings, 1(1):1744.

Retnoaji, B., Nurhidayat, L., Pratama, S.F., Anshori, K., Hananya, A., Sofyantoro, F and Bessho, Y. 2023. Embryonic development of Indonesian native fish yellow rasbora (*Rasbora lateristriata). Journal of King Saud University-Science.* 35(7):102810.

Rohmah, W., Widodo, M. S. 2022. Respon hormon stress dan glukosa darah benih ikan maru *Channa marulioides)* terhadap suhu berbeda. *Syntax Idea.* 4(5).

Satriano, A., Martucci, A., Adornetto, A., Benfatto, E., Tettamanti, G., Bruno, D., Corasaniti, M.T., Bagetta, G., Nucci, C & Russo, R. 2025. Metformin protects retinal ganglion cells in a preclinicalmodel of retinal ischemia/reperfusion injury and stabilizes visual field in diabetic patients with glaucoma. *Cell Death Discovery,* 11:546.

Schlegel, A., Gut, P. 2015. Metabolic insights from zebrafish genetics, physiology, and chemical biology. *Cell. Mol. Life Sci.* **72**, 2249–2260.

UNIVERSITAS GADJAH MADA
Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari (Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Sharchil, C., Vijay, A., Ramachandran, V., Bhagavatheeswaran, S., Devarajan, R., Koul, B., Yadav, D., Balakrishnan, A. 2022. Zebrafish: A Model to Study and Understand the Diabetic Nephropathy and Other Microvascular Complications of Type 2 Diabetes Mellitus. *Vet Sci*. 9(7):312.

Shihabudeen H.M.S., Priscilla D. H., Thirumurugan, K. 2011. Cinnamon extract inhibits α-glucosidase activity and dampens postprandial glucose excursion in diabetic rats. *Nutr Metab (Lond).* 8(1):46.

Silva, M.L., Bernardo, M.A., Singh, J., & Mesquita, M.F. 2022. Cinnamon as a complementary therapeutic approach for dysglycemia and dyslipidemia control in type 2 diabetes mellitus and its molecular mechanism of action: a review. *Nutrients,* 14(13):2773.

Starr, F., Starr, K., Loope, L. 2003. *Cinnamomum burmannii.*

Suryathi, A.N.M., Andayani, A., Sukmawati, N.L.P., Pantjawati, N.L.D., Yuliawati, P., Juliari, I.G.A.M., & Widiana, IGR. 2025. Differences of retinal nerve fiber layer and ganglion cell layer-inner plexiform layer, thickness in patients without diabetes mellitus, with diabetes mellitus type 2, without diabetic retinopathy and with diabetic retinopathy. *International Journal of Retina*, 8(1):1—15.

Tauhid, I. S., Arsal, K. F., Syamsul, R. F., Nasruddin, H., Bima, I. H., Rismayanti, Sujuthi, P., Rahmy A. 2022. Pengaruh pemberian ekstrak kayu manis (*Cinnamomum burmannii*) terhadap penurunan kadar glukosa darah pada mencit (*Mus musculus*). *Fakumi Medical Journal:*2(2):59—67.

Tsegay T., Zhen Z., Chao R., Hongling Z., Yalin Y., Qianwen D., Minxu X., Chenchen G., Yongan Y., Ming D., Zhigang Z. 2019. The use of zebrafish (*Danio rerio*) as biomedical models, *Animal Frontiers*, 9:3(68–77).

Usmadi. 2020. Pengujian Persyaratan Analisis *(*Uji Homogenitas dan Uji Normalitas). *Inovasi Pendidikan.* 7(1):50—62.

Wahyuningsih, E. S., Sukmawati, I., Septiani, R. A. 2023. Keefektifan pengobatan diabetes mellitus secara obat sintesis dan bahan alam: *Literature Review Artikel*. 6:81—85.

UNIVERSITAS
GADJAH MADA
Pengaruh Ekstrak Kayu Manis (Cinnamomum burmannii (Nees & T.Nees) Blume) pada Ikan Wader Pari (Rasbora lateristriata (Bleeker, 1854)) Hiperglikemik
NADHIRA HUSNADINI N., Prof. Dr. Bambang Retnoaji, S.Si., M.Sc.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Wang, S., Li, W., Chen, M., Cao, Y., Lu, W., & Li, X. 2024. The retinal pigment epithelium: Functions and roles in ocular diseases. Fundamental research 4. 1710—1718.

Widiastuti R., Widodo, M.S., & Faqih, A.R. 2022. Respon hormon stress dan glukosa darah benih ikan maru (*Channa marulioides)* terhadap suhu berbeda. *Syntax Idea,* 4(5):843—851.

Yagihashi, S. 2016. Diabetes and pancreas sice, does it matter?. *Journal of Diabetes Investigation,* 8(4):413—415.

Yang, S., Zhou, J & Li, D. 2021. Functions and diseases of the retinal pigment epithelium. *Front Pharmacol,*

Zhang, H., Wang, X., Wang, T., Chen, K., Wang, H., Jia, Q., Li, Y. 2018. Enhancement of Berberine Hypoglycemic Activity by Oligomeric Proanthocyanidins. *Molecules*. 23(12):3318.

Zhang, Y., Yang, Y., Trujillo, C., Zhong, W. & Leung Y.F. 2012. The expression of irx7 in the inner nuclear layer of zebrafish retina is essential for a proper retinal development and lamination. *PlosOne,* 7(4).

Zhao, H., Kong, H., Wang, W., Chen, T., Zhang, Y., Zhu, J., Feng, D & Cui, Y. 2022. High glucose aggravates retinal endothelial cell dysfunction by activating the RhoA/ROCK1/pMLC/Connexin43 signaling pathway. *Investigative Ophthalmology & Visual Science,* 63(8):22. doi: 10.1167/iovs.63.8.22

Zang, L., Maddison, L.A., Chen, W. Zebrafish as a Model for Obesity and Diabetes. 2018. *Front Cell Dev Biol*. 6:91.