

DAFTAR PUSTAKA

- Abell, J. G., Kivimäki, M., Dugravot, A., Tabak, A. G., Fayosse, A., Shipley, M., Sabia, S., & Singh-Manoux, A. (2018). Association between systolic blood pressure and dementia in the Whitehall II cohort study: role of age, duration, and threshold used to define hypertension. *European Heart Journal*, 39(33), 3119–3125. <https://doi.org/10.1093/eurheartj/ehy288>
- Agustina, E., Andiarna, F., Lusiana, N., Purnamasari, R., & Hadi, Moch. I. (2018). Identifikasi Senyawa Aktif dari Ekstrak Daun Jambu Air (*Syzygium aqueum*) dengan Perbandingan Beberapa Pelarut pada Metode Maserasi. *Biotropic : The Journal of Tropical Biology*, 2(2), 108–118. <https://doi.org/10.29080/biotropic.2018.2.2.108-118>
- Akbar, R., Sukmawati, U. S., & Katsirin, K. (2024). Analisis Data Penelitian Kuantitatif. *Jurnal Pelita Nusantara*, 1(3), 430–448. <https://doi.org/10.59996/jurnalpelitanusantara.v1i3.350>
- Alford, S., Patel, D., Perakakis, N., & Mantzoros, C. S. (2018). Obesity as a risk factor for Alzheimer's disease: weighing the evidence. *Obesity Reviews*, 19(2), 269–280. <https://doi.org/10.1111/obr.12629>
- Ali-Shtayeh, M. S., Jamous, R. M., Abu Zaitoun, S. Y., & Qasem, I. B. (2014). In-vitro screening of acetylcholinesterase inhibitory activity of extracts from Palestinian indigenous flora in relation to the treatment of Alzheimer's disease. *Functional Foods in Health and Disease*, 4(9), 381. <https://doi.org/10.31989/ffhd.v4i9.149>
- Alzheimer's Disease International*. (n.d.). 2017. Retrieved December 10, 2024, from <https://www.alz.org/media/images/2017-facts-and-figures.pdf>
- Anggraini, D., Ilyas, S., Hasibuan, P., Machrina, Y., Widyawati, T., Rusdiana, R., Lumongga, F., & Mustika, S. (2024). The potential of Andaliman (*Zanthoxylum acanthopodium* DC) fruit as an ethanol extract for neuroprotection in aged model rat. *Journal of Advanced Veterinary and Animal Research*, 0, 1. <https://doi.org/10.5455/javar.2023.j713>
- Aprilianti, N. M., Purgiyanti, & Barlian, A. A. (2023). Penentuan Kadar Total Fenol Fraksi N-Heksan, Etil Asetat, dan Air Herba Pegagan (*Centella asiatica* (L) Urban). *Parapemikir: Jurnal Ilmiah Farmasi Program Studi D-3 Farmasi*, 12(1).

- Assagaf, M., Hastuti, P., Hidayat, C., Pengkajian Teknologi Pertanian Maluku Utara, B., Kusu, J., fi, S., & Tidore Kepulauan, K. (2012). Perbandingan Ekstraksi Oleoresin Biji Pala (*Myricitica Fragrans* Houtt) Asal Maluku Utara Menggunakan Metode Maserasi Dan Gabungan Distilasi – Maserasi. In *AGRITECH* (Vol. 32, Issue 3).
- Asworo, R. Y., & Widwastuti, H. (2023). Pengaruh Ukuran Serbuk Simplisia dan Waktu Maserasi terhadap Aktivitas Antioksidan Ekstrak Kulit Sirsak. *Indonesian Journal of Pharmaceutical Education*, 3(2). <https://doi.org/10.37311/ijpe.v3i2.19906>
- Ballard, C., Gauthier, S., Corbett, A., Brayne, C., Aarsland, D., & Jones, E. (2011). Alzheimer's disease. *The Lancet*, 377(9770), 1019–1031. [https://doi.org/10.1016/S0140-6736\(10\)61349-9](https://doi.org/10.1016/S0140-6736(10)61349-9)
- Ballarini, T., Melo van Lent, D., Brunner, J., Schröder, A., Wolfgruber, S., Altenstein, S., Brosseron, F., Buerger, K., Dechent, P., Dobisch, L., Düzel, E., Ertl-Wagner, B., Fliessbach, K., Freiesleben, S. D., Frommann, I., Glanz, W., Hauser, D., Haynes, J. D., Heneka, M. T., Wagner, M. (2021). Mediterranean Diet, Alzheimer Disease Biomarkers, and Brain Atrophy in Old Age. *Neurology*, 96(24). <https://doi.org/10.1212/WNL.0000000000012067>
- Barage, S. H., & Sonawane, K. D. (2015). Amyloid cascade hypothesis: Pathogenesis and therapeutic strategies in Alzheimer's disease. *Neuropeptides*, 52, 1–18. <https://doi.org/10.1016/j.npep.2015.06.008>
- Basnet, R., Khadka, S., Basnet, B. B., & Gupta, R. (2020). Perspective on Acetylcholinesterase: A Potential Target for Alzheimer's Disease Intervention. *Current Enzyme Inhibition*, 16(3), 181–188. <https://doi.org/10.2174/1573408016999200801021329>
- Begcevic, I., Brinc, D., Brown, M., Martinez-Morillo, E., Goldhardt, O., Grimmer, T., Magdolen, V., Batruch, I., & Diamandis, E. P. (2018). Brain-related proteins as potential CSF biomarkers of Alzheimer's disease: A targeted mass spectrometry approach. *Journal of Proteomics*, 182, 12–20. <https://doi.org/10.1016/j.jprot.2018.04.027>
- Borisovskaya, A., Pascualy, M., & Borson, S. (2014). Cognitive and Neuropsychiatric Impairments in Alzheimer's Disease: Current Treatment Strategies. *Current Psychiatry Reports*, 16(9), 470. <https://doi.org/10.1007/s11920-014-0470-z>
- Breijyeh, Z., & Karaman, R. (2020). Comprehensive Review on Alzheimer's Disease: Causes and Treatment. *Molecules (Basel, Switzerland)*, 25(24). <https://doi.org/10.3390/molecules25245789>

- Cheignon, C., Tomas, M., Bonnefont-Rousselot, D., Faller, P., Hureau, C., & Collin, F. (2018). Oxidative stress and the amyloid beta peptide in Alzheimer's disease. *Redox Biology*, 14, 450–464. <https://doi.org/10.1016/j.redox.2017.10.014>
- Chen, W.-C., Wang, S.-W., Li, C.-W., Lin, H.-R., Yang, C.-S., Chu, Y.-C., Lee, T.-H., & Chen, J.-J. (2022). Comparison of Various Solvent Extracts and Major Bioactive Components from *Portulaca oleracea* for Antioxidant, Anti-Tyrosinase, and Anti- α -Glucosidase Activities. *Antioxidants*, 11(2), 398. <https://doi.org/10.3390/antiox11020398>
- Chen, X., Tian, L., Tian, J., Wang, G., Gong, X., Feng, S., & Wei, A. (2022). Extensive Sampling Provides New Insights into Phylogenetic Relationships between Wild and Domesticated *Zanthoxylum* Species in China. *Horticulturae*, 8(5), 440. <https://doi.org/10.3390/horticulturae8050440>
- Conti Filho, C. E., Loss, L. B., Marcolongo-Pereira, C., Rossoni Junior, J. V., Barcelos, R. M., Chiarelli-Neto, O., Silva, B. S. da, Passamani Ambrosio, R., Castro, F. C. de A. Q., Teixeira, S. F., & Mezzomo, N. J. (2023). Advances in Alzheimer's disease's pharmacological treatment. *Frontiers in Pharmacology*, 14. <https://doi.org/10.3389/fphar.2023.1101452>
- Cortes, N., Alvarez, R., Osorio, E. H., Alzate, F., Berkov, S., & Osorio, E. (2015). Alkaloid metabolite profiles by GC/MS and acetylcholinesterase inhibitory activities with binding-mode predictions of five Amaryllidaceae plants. *Journal of Pharmaceutical and Biomedical Analysis*, 102, 222–228. <https://doi.org/10.1016/j.jpba.2014.09.022>
- Dai, J., & Mumper, R. J. (2010). Plant Phenolics: Extraction, Analysis and Their Antioxidant and Anticancer Properties. *Molecules*, 15(10), 7313–7352. <https://doi.org/10.3390/molecules15107313>
- Dalimunthe, A., Satria, D., Sitorus, P., Harahap, U., Angela, I. F. D., & Waruwu, S. B. (2024). Cardioprotective Effect of Hydroalcohol Extract of Andaliman (*Zanthoxylum acanthopodium* DC.) Fruits on Doxorubicin-Induced Rats. *Pharmaceuticals*, 17(3), 359. <https://doi.org/10.3390/ph17030359>
- Devi, O., Rao, K., Bidalia, A., Wangkheirakpam, R., & Singh, O. (2015). GC-MS Analysis of Phytocomponents and Antifungal Activities of *Zanthoxylum acanthopodium* DC. Collected from Manipur, India. *European Journal of Medicinal Plants*, 10(1), 1–9. <https://doi.org/10.9734/EJMP/2015/19353>
- Dina, S., Herowati, R., & Nurrochmad, A. (2019). Uji In-Vitro Penghambatan Enzim Asetilkolinesterase Dan Identifikasi Fitokimia Fraksi Aktif Ekstrak Etanol Buah Mengkudu (*Morinda citrifolia* L.). *Jurnal Farmasains*, 6.

- Ding, X., Ouyang, M.-A., Liu, X., & Wang, R.-Z. (2013). Acetylcholinesterase Inhibitory Activities of Flavonoids from the Leaves of *Ginkgo biloba* against Brown Planthopper. *Journal of Chemistry*, 2013(1). <https://doi.org/10.1155/2013/645086>
- Dingova, D., Leroy, J., Check, A., Garaj, V., Krejci, E., & Hrabovska, A. (2014). Optimal detection of cholinesterase activity in biological samples: Modifications to the standard Ellman's assay. *Analytical Biochemistry*, 462, 67–75. <https://doi.org/10.1016/j.ab.2014.05.031>
- D'Onofrio, G., Sancarolo, D., Ruan, Q., Yu, Z., Panza, F., Daniele, A., Greco, A., & Seripa, D. (2017). Phytochemicals in the Treatment of Alzheimer's Disease: A Systematic Review. *Current Drug Targets*, 18(13). <https://doi.org/10.2174/1389450117666161102121553>
- Ellman, G. L., Courtney, K. D., Andres, V., & Featherstone, R. M. (1961). A new and rapid colorimetric determination of acetylcholinesterase activity. *Biochemical Pharmacology*, 7(2), 88–95. [https://doi.org/10.1016/0006-2952\(61\)90145-9](https://doi.org/10.1016/0006-2952(61)90145-9)
- Everette, J. D., Bryant, Q. M., Green, A. M., Abbey, Y. A., Wangila, G. W., & Walker, R. B. (2010). Thorough Study of Reactivity of Various Compound Classes toward the Folin–Ciocalteu Reagent. *Journal of Agricultural and Food Chemistry*, 58(14), 8139–8144. <https://doi.org/10.1021/jf1005935>
- Fadhli, H., & Ikhsan, D. (2019). Uji Fitokimia Dan Potensi Antioksidan Dari Ekstrak Kulit Kayu Garunggang *Cratoxylum arborecens* (Vahl) Blume. *Jurnal Farmasi Galenika*, 6(2).
- Fadhli, H., Nurdin, A. N., & Sandi, N. H. (2021). Aktivitas Inhibisi Enzim A-Glukosidase Dari Ekstrak Kulit Batang Bunga Kupu-Kupu (*Bauhinia Semibifida* Roxb) Secara *In vitro*. *Jurnal Ilmiah Ibnu Sina*, 6(2), 223–231.
- Ferreira, J., Santos, S., & Pereira, H. (2020). *In vitro* Screening for Acetylcholinesterase Inhibition and Antioxidant Activity of *Quercus suber* Cork and Corkback Extracts. *Evidence-Based Complementary and Alternative Medicine*, 2020(1). <https://doi.org/10.1155/2020/3825629>
- Ghenabzia, I., Hemmami, H., Ben Amor, I., Zeghoud, S., Ben Seghir, B., & Hammoudi, R. (2023). Different methods of extraction of bioactive compounds and their effect on biological activity: A review. *International Journal of Secondary Metabolite*, 10(4), 469–494. <https://doi.org/10.21448/ijsm.1225936>
- Grosso, G., Galvano, F., Marventano, S., Malaguarnera, M., Bucolo, C., Drago, F., & Caraci, F. (2014). Omega-3 Fatty Acids and Depression: Scientific Evidence

- and Biological Mechanisms. *Oxidative Medicine and Cellular Longevity*, 2014, 1–16. <https://doi.org/10.1155/2014/313570>
- Gubler, H., Schopfer, U., & Jacoby, E. (2013). Theoretical and Experimental Relationships between Percent Inhibition and IC50 Data Observed in High-Throughput Screening. *SLAS Discovery*, 18(1), 1–13. <https://doi.org/10.1177/1087057112455219>
- Guo, L., Tian, J., & Du, H. (2017). Mitochondrial Dysfunction and Synaptic Transmission Failure in Alzheimer's Disease. *Journal of Alzheimer's Disease : JAD*, 57(4), 1071–1086. <https://doi.org/10.3233/JAD-160702>
- Gust, C., Pugliese, N., & Stern, G. (2020). Suspected donepezil toxicity: A case report. *Clinical Case Reports*, 8(12), 2817–2822. <https://doi.org/10.1002/ccr3.3245>
- H. Ferreira-Vieira, T., M. Guimaraes, I., R. Silva, F., & M. Ribeiro, F. (2016). Alzheimer's disease: Targeting the Cholinergic System. *Current Neuropsychopharmacology*, 14(1), 101–115. <https://doi.org/10.2174/1570159X13666150716165726>
- Hampel, H., Mesulam, M.-M., Cuello, A. C., Farlow, M. R., Giacobini, E., Grossberg, G. T., Khachaturian, A. S., Vergallo, A., Cavado, E., Snyder, P. J., & Khachaturian, Z. S. (2018a). The cholinergic system in the pathophysiology and treatment of Alzheimer's disease. *Brain : A Journal of Neurology*, 141(7), 1917–1933. <https://doi.org/10.1093/brain/awy132>
- Hampel, H., Mesulam, M.-M., Cuello, A. C., Farlow, M. R., Giacobini, E., Grossberg, G. T., Khachaturian, A. S., Vergallo, A., Cavado, E., Snyder, P. J., & Khachaturian, Z. S. (2018b). The cholinergic system in the pathophysiology and treatment of Alzheimer's disease. *Brain*, 141(7), 1917–1933. <https://doi.org/10.1093/brain/awy132>
- Hana, A. (2024). *Optimasi Ekstrak Buah Andaliman (Zanthoxylum acanthopodium DC) dengan Response Surface Methodology terhadap Kadar Flavonoid Total dan Aktivitas Inhibisi Enzim Asetilkolinesterase*, Skripsi. Fakultas Kedokteran. Universitas Pembangunan Nasional “Veteran” Jakarta.
- Harahap, F. A. A., Yulandari, M., Asshiddiqi, M. H., & Putri, H. (2024). Skrining Fitokimia Dan Identifikasi Senyawa Metabolit Sekunder Tanin Secara Kromatografi Lapis Tipis Ekstrak Etanol Daun Afrika (Vernonia Amygdalina Del.). *Jurnal Kesehatan Unggul Gemilang*, 8(1).

- Hasairin, A., Pulungan, A., & Hartono, A. (2022). Phytochemical Screening Of Lichens Extract Usnea Sp. On Pines In The Barrian Hill Forest, North Sumatra. *JBIO: Jurnal Biosains (The Journal of Biosciences)*, 8(3).
- Heiss, C., Jahn, S., Taylor, M., Real, W. M., Angeli, F. S., Wong, M. L., Amabile, N., Prasad, M., Rassaf, T., Ottaviani, J. I., Mihardja, S., Keen, C. L., Springer, M. L., Boyle, A., Grossman, W., Glantz, S. A., Schroeter, H., & Yeghiazarians, Y. (2010). Improvement of Endothelial Function With Dietary Flavanols Is Associated With Mobilization of Circulating Angiogenic Cells in Patients With Coronary Artery Disease. *Journal of the American College of Cardiology*, 56(3), 218–224. <https://doi.org/10.1016/j.jacc.2010.03.039>
- Hendriks, S., Peetoom, K., Bakker, C., van der Flier, W. M., Papma, J. M., Koopmans, R., Verhey, F. R. J., de Vugt, M., Köhler, S., Withall, A., Parlevliet, J. L., Uysal-Bozkir, Ö., Gibson, R. C., Neita, S. M., Nielsen, T. R., Salem, L. C., Nyberg, J., Lopes, M. A., Dominguez, J. C., Ruano, L. (2021). Global Prevalence of Young-Onset Dementia. *JAMA Neurology*, 78(9), 1080. <https://doi.org/10.1001/jamaneurol.2021.2161>
- Hidayatullah, M., Rakhmatullah, A. N., & Perdana, D. (2023). Penetapan Kadar Fenolik Total Dan Flavonoid Total Ekstrak Etanol Batang Bajakah Tampala (*Spatholobus littoralis* Hassk.). *Journal of Pharmacopolium*, 6(2), 41–52.
- Hole, K. L., & Williams, R. J. (2021). Flavonoids as an Intervention for Alzheimer's Disease: Progress and Hurdles Towards Defining a Mechanism of Action1. *Brain Plasticity*, 6(2), 167–192. <https://doi.org/10.3233/BPL-200098>
- Hussain, G., Rasul, A., Anwar, H., Aziz, N., Razzaq, A., Wei, W., Ali, M., Li, J., & Li, X. (2018). Role of Plant Derived Alkaloids and Their Mechanism in Neurodegenerative Disorders. *International Journal of Biological Sciences*, 14(3), 341–357. <https://doi.org/10.7150/ijbs.23247>
- Indarti, K., Apriani, E. F., Wibowo, A. E., & Simanjuntak, P. (2019). Antioxidant Activity of Ethanolic Extract and Various Fractions from Green Tea (*Camellia sinensis* L.) Leaves. *Pharmacognosy Journal*, 11(4), 771–776. <https://doi.org/10.5530/pj.2019.11.122>
- Ira Syaputri, Ermi Girsang, & Linda Chiuman. (2022). Test of Antioxidant And Antibacterial Activity of Ethanol Extract of Andaliman Fruit (*Zanthoxylum Acanthopodium* Dc.) With Dpph (1.1-Diphenyl-2-Picrylhydrazil) Trapping Method And Minimum Inhibitory Concentration. *International Journal of Health and Pharmaceutical (IJHP)*, 2(2), 215–224. <https://doi.org/10.51601/ijhp.v2i2.36>

- Ittner, A., & Ittner, L. M. (2018). Dendritic Tau in Alzheimer's Disease. *Neuron*, 99(1), 13–27. <https://doi.org/10.1016/j.neuron.2018.06.003>
- Kaczmarek, M., Zhang, N., Buzhansky, L., Gilead, S., & Gazit, E. (2023). Optimization Strategies for Mass Spectrometry-Based Untargeted Metabolomics Analysis of Small Polar Molecules in Human Plasma. *Metabolites*, 13(8), 923. <https://doi.org/10.3390/metabo13080923>
- Kalaria, R. N., Maestre, G. E., Arizaga, R., Friedland, R. P., Galasko, D., Hall, K., Luchsinger, J. A., Ogunniyi, A., Perry, E. K., Potocnik, F., Prince, M., Stewart, R., Wimo, A., Zhang, Z.-X., & Antuono, P. (2008). Alzheimer's disease and vascular dementia in developing countries: prevalence, management, and risk factors. *The Lancet Neurology*, 7(9), 812–826. [https://doi.org/10.1016/S1474-4422\(08\)70169-8](https://doi.org/10.1016/S1474-4422(08)70169-8)
- Kementerian Kesehatan RI. (2017). Farmakope Herbal Indonesia Edisi II. *Kementrian Kesehatan Republik Indonesia*, 2.
- Kementerian Kesehatan RI. (2023). https://yankes.kemkes.go.id/view_artikel/2819/mengenal-demensia-Alzheimer
- Khademi, F. (2023). Beyond The Present: Future Research Directions On The Extraction And Fractionation Of Bioactives, With The Focus On Phytochemicals. *IOSR Journal of Biotechnology and Biochemistry (IOSR-JBB)*, 9(6), 1–12. <https://doi.org/10.9790/264X-0906010112>
- Khafid, A., Wiraputra, M., Putra, A., & Khoirunnisa, N. (2023). Uji Kualitatif Metabolit Sekunder pada Beberapa Tanaman yang Berkehasiat sebagai Obat Tradisional. *Buletin Anatomi Dan Fisiologi*, 8(1).
- Khalid, S., Zahid, M. A., Ali, H., Kim, Y. S., & Khan, S. (2018). Biaryl scaffold-focused virtual screening for anti-aggregatory and neuroprotective effects in Alzheimer's disease. *BMC Neuroscience*, 19(1), 74. <https://doi.org/10.1186/s12868-018-0472-6>
- Khan, H., Marya, Amin, S., Kamal, M. A., & Patel, S. (2018). Flavonoids as acetylcholinesterase inhibitors: Current therapeutic standing and future prospects. *Biomedicine & Pharmacotherapy*, 101, 860–870. <https://doi.org/10.1016/j.biopha.2018.03.007>
- Kim, M., Kim, S.-H., & Yang, W. (2014). Mechanisms of Action of Phytochemicals from Medicinal Herbs in the Treatment of Alzheimer's Disease. *Planta Medica*, 80(15), 1249–1258. <https://doi.org/10.1055/s-0034-1383038>

- Konrath, E. L., Passos, C. dos S., Klein-Júnior, L. C., & Henriques, A. T. (2013). Alkaloids as a source of potential anticholinesterase inhibitors for the treatment of Alzheimer's disease. *Journal of Pharmacy and Pharmacology*, 65(12), 1701–1725. <https://doi.org/10.1111/jphp.12090>
- Krakovska, O., Christie, G. J., Farzan, F., Sixsmith, A., Ester, M., & Moreno, S. (2021). Healthy memory aging - the benefits of regular daily activities increase with age. *Aging*, 13(24), 25643–25652. <https://doi.org/10.18632/aging.203753>
- Kumar, A., Sidhu, J., Lui, F., & Tsao, J. W. (2024). *Alzheimer Disease*.
- Kumar, A., Singh, A., & Ekavali. (2015). A review on Alzheimer's disease pathophysiology and its management: an update. *Pharmacological Reports*, 67(2), 195–203. <https://doi.org/10.1016/j.pharep.2014.09.004>
- Kyriacou, M. C., El-Nakhel, C., Graziani, G., Pannico, A., Soteriou, G. A., Giordano, M., Ritieni, A., De Pascale, S., & Roupheal, Y. (2019). Functional quality in novel food sources: Genotypic variation in the nutritive and phytochemical composition of thirteen microgreens species. *Food Chemistry*, 277, 107–118. <https://doi.org/10.1016/j.foodchem.2018.10.098>
- Leanza, G., Gulino, R., & Zorec, R. (2018). Noradrenergic Hypothesis Linking Neurodegeneration-Based Cognitive Decline and Astroglia. *Frontiers in Molecular Neuroscience*, 11, 254. <https://doi.org/10.3389/fnmol.2018.00254>
- Lee, H. J., Seo, H. I., Cha, H. Y., Yang, Y. J., Kwon, S. H., & Yang, S. J. (2018). Diabetes and Alzheimer's Disease: Mechanisms and Nutritional Aspects. *Clinical Nutrition Research*, 7(4), 229. <https://doi.org/10.7762/cnr.2018.7.4.229>
- Li, X., Feng, X., Sun, X., Hou, N., Han, F., & Liu, Y. (2022). Global, regional, and national burden of Alzheimer's disease and other dementias, 1990–2019. *Frontiers in Aging Neuroscience*, 14. <https://doi.org/10.3389/fnagi.2022.937486>
- Liu, C.-H., Coleman, J. E., Davoudi, H., Zhang, K., & Hussain Shuler, M. G. (2015). Selective Activation of a Putative Reinforcement Signal Conditions Cued Interval Timing in Primary Visual Cortex. *Current Biology*, 25(12), 1551–1561. <https://doi.org/10.1016/j.cub.2015.04.028>
- Liu, J., Chang, L., Song, Y., Li, H., & Wu, Y. (2019). The Role of NMDA Receptors in Alzheimer's Disease. *Frontiers in Neuroscience*, 13. <https://doi.org/10.3389/fnins.2019.00043>
- Liu, Z., Zhou, T., Ziegler, A. C., Dimitrion, P., & Zuo, L. (2017). Oxidative Stress in Neurodegenerative Diseases: From Molecular Mechanisms to Clinical

- Applications. *Oxidative Medicine and Cellular Longevity*, 2017(1). <https://doi.org/10.1155/2017/2525967>
- Livingston, G., Huntley, J., Sommerlad, A., Ames, D., Ballard, C., Banerjee, S., Brayne, C., Burns, A., Cohen-Mansfield, J., Cooper, C., Costafreda, S. G., Dias, A., Fox, N., Gitlin, L. N., Howard, R., Kales, H. C., Kivimäki, M., Larson, E. B., Ogunniyi, A., ... Mukadam, N. (2020). Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. *The Lancet*, 396(10248), 413–446. [https://doi.org/10.1016/S0140-6736\(20\)30367-6](https://doi.org/10.1016/S0140-6736(20)30367-6)
- Loera, V., Cedazo, M., Kenigsberg, P. A., Page, G., Duarte, A. I., Giusti, P., Zusso, M., Robert, P., Frisoni, G. B., Cattaneo, A., Zille, M., Boltze, J., Cartier, N., Buee, L., Johansson, G., & Winblad, B. (2019). Current and emerging avenues for Alzheimer's disease drug targets. *Journal of Internal Medicine*, 286(4), 398–437. <https://doi.org/10.1111/joim.12959>
- Longo, R., Blackman, J. W., Antalick, G., Torley, P. J., Rogiers, S. Y., & Schmidtke, L. M. (2018). A comparative study of partial dealcoholisation versus early harvest: Effects on wine volatile and sensory profiles. *Food Chemistry*, 261, 21–29. <https://doi.org/10.1016/j.foodchem.2018.04.013>
- Loy, C. T., Schofield, P. R., Turner, A. M., & Kwok, J. B. (2014). Genetics of dementia. *The Lancet*, 383(9919), 828–840. [https://doi.org/10.1016/S0140-6736\(13\)60630-3](https://doi.org/10.1016/S0140-6736(13)60630-3)
- Luca, M., Di Mauro, M., Di Mauro, M., & Luca, A. (2019). Gut Microbiota in Alzheimer's Disease, Depression, and Type 2 Diabetes Mellitus: The Role of Oxidative Stress. *Oxidative Medicine and Cellular Longevity*, 2019, 1–10. <https://doi.org/10.1155/2019/4730539>
- Luo, J., Si, H., Jia, Z., & Liu, D. (2021). Dietary Anti-Aging Polyphenols and Potential Mechanisms. *Antioxidants*, 10(2), 283. <https://doi.org/10.3390/antiox10020283>
- Mahalakshmi, P. S., Reddy, S. H., Nowshin, S. K., Veena, C. H., Divya, P., Sahithya, B., Harinadha Baba, K., & Ramasubramania Raja, R. (2019). A REVIEW ON LC-MS METHOD DEVELOPMENT AND VALIDATION. In *International Journal of Research and Analytical Reviews* (Vol. 6). <http://ijrar.com/>
- Maharadingga, Pahriyani, A., & Arista, D. (2021). Uji Aktivitas Ekstrak Etanol 70% Daun Ketapang (*Terminalia catappa* L.) Pada Hamster Syrian Jantan Hiperqlikemia Dan Hiperkolesterolemia Dengan Parameter Pengukuran Kolesterol Total Dan LDL. *Lambung Farmasi: Jurnal Ilmu Kefarmasian*, 2(2).
- Mardiyah, I., Marcelia, S., & Winahyu, D. (2021). Uji Efektivitas Ekstrak Etanol Kulit Pisang Kepok (*Musa paradisiaca*) dalam Sediaan Semprot sebagai

- Pengusir Nyamuk *Aedes Aegypti*. *JOURNAL OF Pharmacy and Tropical Issues*, 1(2). <https://doi.org/https://doi.org/10.56922/pti.v1i02.73>
- Martha, R. D., Danar, D., Safitri, Y. D., & Parbuntari, H. (2024). Identifikasi Senyawa Flavonoid Daun Jinten (*Plectranthus amboinicus*) Menggunakan Liquid Chromatography-Mass Spectrometry (LC-MS) dan Potensinya sebagai Antikanker Secara In-Vitro. *Sainteks*, 21(1), 67. <https://doi.org/10.30595/sainteks.v21i1.21171>
- Medhi K, Deka M, & Bhau BS. (2013). The Genus *Zanthoxylum* - A Stockpile of Biological and Ethnomedicinal Properties. *Open Access Scientific Reports*, 2(3).
- Melsi, K., Vivin, N., & Rejeki, E. (2020). Uji Aktivitas Antioksidan Fraksi N-Heksan, Etil Asetat, Dan Air Ekstrak Daun Biwa (*Eriobotrya Japonica* (Thunb.) Lindl.) Dengan Metode DPPH. *Journal As-Syifaa Farmasi by Faculty of Pharmacy, Muslim University*, 14(2), 83–88.
- Mendili, M., Smach, M. A., Husein, N., & Khadhri, A. (2020). Comparison of Antioxidant and Antiacetylcholinesterase Activities of Different Extracts of Tunisia *Maclura pomifera* (Rafin.) Schneid Fruit *In vitro* and *In Vivo*. *Avicenna Journal of Medical Biochemistry*, 8(2), 64–73. <https://doi.org/10.34172/ajmb.2020.10>
- Monteiro, A. R., Barbosa, D. J., Remião, F., & Silva, R. (2023). Alzheimer's disease: Insights and new prospects in disease pathophysiology, biomarkers and disease-modifying drugs. *Biochemical Pharmacology*, 211, 115522. <https://doi.org/10.1016/j.bcp.2023.115522>
- Muzafri, A., Julianti, E., & Rusmarilin, H. (2018). The extraction of antimicrobials component of andaliman (*Zanthoxylum acanthopodium* DC.) and its application on catfish (*Pangasius sutchi*) fillet. *IOP Conference Series: Earth and Environmental Science*, 122, 012089. <https://doi.org/10.1088/1755-1315/122/1/012089>
- Ogino, E., Manly, J. J., Schupf, N., Mayeux, R., & Gu, Y. (2019). Current and past leisure time physical activity in relation to risk of Alzheimer's disease in older adults. *Alzheimer's & Dementia*, 15(12), 1603–1611. <https://doi.org/10.1016/j.jalz.2019.07.013>
- Ompusunggu, N. P., & Irawati, W. (2021a). Andaliman (*Zanthoxylum Acanthopodium* DC.), a Rare Endemic Plant from North Sumatra that Rich in Essential Oils and Potentially as Antioxidant and Antibacterial. *Jurnal Biologi Tropis*, 21(3), 1063–1072. <https://doi.org/10.29303/jbt.v21i3.2961>

- Oprescu, E.-E., Enascuta, C.-E., Radu, E., Ciltea-Udrescu, M., & Lavric, V. (2022). Does the ultrasonic field improve the extraction productivity compared to classical methods – Maceration and reflux distillation? *Chemical Engineering and Processing - Process Intensification*, 179, 109082. <https://doi.org/10.1016/j.cep.2022.109082>
- Ota, T., Shinotoh, H., Fukushi, K., Kikuchi, T., Sato, K., Tanaka, N., Shimada, H., Hirano, S., Miyoshi, M., Arai, H., Suhara, T., & Irie, T. (2010). Estimation of Plasma IC50 of Donepezil for Cerebral Acetylcholinesterase Inhibition in Patients With Alzheimer Disease Using Positron Emission Tomography. *Clinical Neuropharmacology*, 33(2), 74–78. <https://doi.org/10.1097/WNF.0b013e3181c71be9>
- Panche, A. N., Diwan, A. D., & Chandra, S. R. (2016). Flavonoids: an overview. *Journal of Nutritional Science*, 5, e47. <https://doi.org/10.1017/jns.2016.41>
- Paniagua-García, A. I., Ruano-Rosa, D., & Díez-Antolínez, R. (2023). Fractionation of High-Value Compounds from Hops Using an Optimised Sequential Extraction Procedure. *Antioxidants*, 13(1), 45. <https://doi.org/10.3390/antiox13010045>
- Patel, D., Kumar, R., Prasad, S., Sairam, K., & Hemalatha, S. (2011). Antidiabetic and *in vitro* antioxidant potential of Hybanthus enneaspermus (Linn) F. Muell in streptozotocin-induced diabetic rats. *Asian Pacific Journal of Tropical Biomedicine*, 1(4), 316–322. [https://doi.org/10.1016/S2221-1691\(11\)60051-8](https://doi.org/10.1016/S2221-1691(11)60051-8)
- Plaza, M., & Turner, C. (2017). *Pressurized Hot Water Extraction of Bioactives* (pp. 53–82). <https://doi.org/10.1016/bs.coac.2016.12.005>
- Pratiwi, D. N., Utami, N., & Pratimasari, D. (2022). Characterization and determination of total flavonoid content of extract and fraction of papaya jantan flower (*Carica papaya* L.) using UV-Vis spectrophotometry. *Jurnal Ilmiah Farmasi (Scientific Journal of Pharmacy)*, 18(2), 219–233.
- Putri, A. Y., Nurhidayah, M., Aridha, A., Razak, R., Aminah, & Abidin, Z. (2024). Penentuan Kadar Fenolik, Tanin, Flavonoid, dan Saponin Ekstrak Etanol Daun Kenikir (*Cosmos caudatus* Kunth.). *Makassar Pharmaceutical Science Journal*, 2(2), 344–355.
- Putri, R. A. (2017). *Uji Aktivitas Daun Bidara Arab (Ziziphus spina-christ L.) sebagai Antikanker pada Sel Kanker Kolon (WiDr) Melalui Metode MTT dan Identifikasi Senyawa Aktif dengan Metode LCMS, Skripsi*. Fakultas Sains dan Teknologi Universitas Islam Negeri Malang.
- Raharjo, D. (2022). Efektivitas Penghambatan Enzim Xantin Oksidase Ekstrak Etanol Dan Fraksi Etanol, Fraks Etil Asetat Serta Fraksi N-Heksane Kulit

- Batang Mangrove Merah (*Rhizophora mucronata*). *Jurnal Ilmiah Kesehatan*, 15(1), 63–70. <https://doi.org/10.48144/jiks.v15i1.869>
- Rahayu, S., Kurniasih, N., & Amalia, V. (2015). Ekstraksi Dan Identifikasi Senyawa Flavonoid Dari Limbah Kulit Bawang Merah Sebagai Antioksidan Alami. *Jurnal Ilmu Kimia Dan Terapan*, 2(1).
- Rajan, K. B., Weuve, J., Barnes, L. L., McAninch, E. A., Wilson, R. S., & Evans, D. A. (2021). Population estimate of people with clinical Alzheimer's disease and mild cognitive impairment in the United States (2020–2060). *Alzheimer's & Dementia*, 17(12), 1966–1975. <https://doi.org/10.1002/alz.12362>
- Rienoviar, Heliawati, L., & Khoiriyah, A. (2019). Aktivitas Antioksidan dan Identifikasi Senyawa Aktif dalam Ekstrak Buah Andaliman (*Zanthoxylum acanthopodium* DC.). *Journal of Agro-Based Industry*, 36(2), 124–130.
- Rifkia, V., & Prabowo, I. (2020). Pengaruh Variasi Suhu dan Waktu terhadap Rendemen dan Kadar Total Flavonoid pada Ekstraksi Daun Moringa oleifera Lam. dengan Metode Ultrasonik. *Pharmacy: Jurnal Farmasi Indonesia (Pharmaceutical Journal of Indonesia)*, 17(2), 387. <https://doi.org/10.30595/pharmacy.v17i2.7752>
- Riwanti, P., & Izazih, F. (2020). Pengaruh Perbedaan Konsentrasi Etanol pada Kadar Flavonoid Total Ekstrak Etanol 50,70 dan 96% Sargassum polycystum dari Madura. *J-PhAM Journal of Pharmaceutical Care Anwar Medika*, 2(2), 82–95.
- Rodsamran, P., & Sothornvit, R. (2019). Extraction of phenolic compounds from lime peel waste using ultrasonic-assisted and microwave-assisted extractions. *Food Bioscience*, 28, 66–73. <https://doi.org/10.1016/j.fbio.2019.01.017>
- Rosyid, A. L., Fachriyah, E., & Kusriani, D. (2016). Isolasi, Identifikasi dan Uji Aktivitas Senyawa Triterpenoid Rimpang Bengle (*Zingiber cassumunar* Roxb.) sebagai Antibakteri. *Jurnal Kimia Sains Dan Aplikasi*, 19(1), 1. <https://doi.org/10.14710/jksa.19.1.1-6>
- Santos, C. Y., Snyder, P. J., Wu, W., Zhang, M., Echeverria, A., & Alber, J. (2017). Pathophysiologic relationship between Alzheimer's disease, cerebrovascular disease, and cardiovascular risk: A review and synthesis. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, 7(1), 69–87. <https://doi.org/10.1016/j.dadm.2017.01.005>
- Santos, T. C. dos, Gomes, T. M., Pinto, B. A. S., Camara, A. L., & Paes, A. M. de A. (2018). Naturally Occurring Acetylcholinesterase Inhibitors and Their Potential Use for Alzheimer's Disease Therapy. *Frontiers in Pharmacology*, 9. <https://doi.org/10.3389/fphar.2018.01192>

- Saputra, D. A., Rahman, A., & Kusumawati, I. (2015). Aktivitas Penghambat Asetilkolinesterase Ekstrak Etanol 96% Daun *Syzygium cumini*, *Syzygium aromaticum*, *Syzygium polyanthum* Dan *Syzygium aquaeum*. *Jurnal Farmasi Dan Ilmu Kefarmasian Indonesia*, 2(1).
- Saragih, D., & Arsita, E. (2019). Kandungan fitokimia *Zanthoxylum acanthopodium* dan potensinya sebagai tanaman obat di wilayah Toba Samosir dan Tapanuli Utara, Sumatera Utara. *PROS SEM NAS MASY BIODIV INDON*, 5(1), 71–76.
- Sari, N. (2017). *Penentuan Kadar Total Fenol Dan Total Flavonoid Dari Ekstrak Etanol Buah Andaliman (Zanthoxylum acanthopodium DC.)*, Skripsi. Fakultas Farmasi Univeritas Sumatera Utara.
- Sathya, S., & Pandima Devi, K. (2018). The Use of Polyphenols for the Treatment of Alzheimer's Disease. In *Role of the Mediterranean Diet in the Brain and Neurodegenerative Diseases* (pp. 239–252). Elsevier. <https://doi.org/10.1016/B978-0-12-811959-4.00015-8>
- Schneider, Y. K., Jørgensen, S. M., Andersen, J. H., & Hansen, E. H. (2021). Qualitative and Quantitative Comparison of Liquid–Liquid Phase Extraction Using Ethyl Acetate and Liquid–Solid Phase Extraction Using Poly-Benzyl-Resin for Natural Products. *Applied Sciences*, 11(21), 10241. <https://doi.org/10.3390/app112110241>
- Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation Coefficients: Appropriate Use and Interpretation. *Anesthesia & Analgesia*, 126(5), 1763–1768. <https://doi.org/10.1213/ANE.0000000000002864>
- Sharma, K. (2019). Cholinesterase inhibitors as Alzheimer's therapeutics (Review). *Molecular Medicine Reports*. <https://doi.org/10.3892/mmr.2019.10374>
- Simbolon, W., Kardhinata, E. H., Bangun, M. K., & Simatupang, S. (2018a). Identifikasi Karakter Morfologis Andaliman (*Zanthoxylum acanthopodium* DC.) di Beberapa Kabupaten di Sumatera Utara. *Jurnal Agroekoteknologi FP USU*, 6(4), 745–756.
- Simbolon, W., Kardhinata, E. H., Bangun, M., & Simatupang, S. (2018b). Identifikasi Karakter Morfologis Andaliman (*Zanthoxylum acanthopodium* DC.) di Beberapa Kabupaten di Sumatera Utara. *Jurnal Agroekoteknologi FP USU*, 6(4), 745–756.
- Siregar, T., & Amadea, G. (2021). Pengaruh Jenis Daun Dan Konsentrasi Etanol Terhadap Aktivitas Inhibisi α -Glukosidase Dan Antioksidan Ekstrak Daun Belimbing. *Jurnal Sains Dan Teknologi*, 5(1).

- Streimikyte, P., Viskelis, P., & Viskelis, J. (2022). Enzymes-Assisted Extraction of Plants for Sustainable and Functional Applications. *International Journal of Molecular Sciences*, 23(4), 2359. <https://doi.org/10.3390/ijms23042359>
- Sulistyarini, I., Sari, D., & Wicaksono, T. (2020). Skrining Fitokimia Senyawa Metabolit Sekunder Batang Buah Naga (*Hylocereus polyrhizus*). *Cendekia Eksakta*.
- Sumarlin, L. O., Ernita, N., & Hajar. (2023). Potensi Madu Dan Ekstrak Ampas Teh Sebagai Penghambat Tirosinase Untuk Bahan Aktif Kosmetika Pemutih. *Alchemy: Journal of Chemistry*, 11(2), 7–18.
- Suriani, C., Prasetya, E., Harsono, T., & Handayani, D. (2019). Habitat characteristics of Andaliman (*Zanthoxylum acanthopodium* DC) in North Sumatra using a GIS (Geographical Information System) approach. *Journal of Physics: Conference Series*, 1317(1), 012097. <https://doi.org/10.1088/1742-6596/1317/1/012097>
- Suryawanshi, M. V., Gujarathi, P. P., Mulla, T., & Bagban, I. (2024). *Hypericum perforatum*: a comprehensive review on pharmacognosy, preclinical studies, putative molecular mechanism, and clinical studies in neurodegenerative diseases. *Naunyn-Schmiedeberg's Archives of Pharmacology*, 397(6), 3803–3818. <https://doi.org/10.1007/s00210-023-02915-6>
- Takaeb, M. J., & Leo, M. I. (2023). Identifikasi Metabolit Sekunder pada Sopi Kualin (SOKLIN) yang Dibuat Dengan dan Tanpa Fermentasi di Desa Kualin Nusa Tenggara Timur. *Jurnal Sains Dan Edukasi Sains*, 6(2), 111–116.
- Tivani, I., Amananti, W., & Putri, A. (2021). Uji Aktivitas Antibakteri Handwash Ekstrak Daun Turi (*Sesbania Grandiflora* L) Terhadap *Staphylococcus aureus*. *Jurnal Ilmiah Manuntung*, 7, 86–91.
- Vakalopoulos, C. (2017). Alzheimer's Disease: The Alternative Serotonergic Hypothesis of Cognitive Decline. *Journal of Alzheimer's Disease : JAD*, 60(3), 859–866. <https://doi.org/10.3233/JAD-170364>
- Venkatesan, R., Ji, E., & Kim, S. Y. (2015). Phytochemicals That Regulate Neurodegenerative Disease by Targeting Neurotrophins: A Comprehensive Review. *BioMed Research International*, 2015, 1–22. <https://doi.org/10.1155/2015/814068>
- Wahyudi, D., Raharjo, D., & Wardani, T. (2022). Penetapan Kadar Flavonoid Dan Uji Aktivitas Penghambat Enzim A-Amilase Ekstrak Etanol Dan Fraksi Akar Kersen (*Muntingia Calabura* L.) Secara *In vitro*. *Duta Pharma Journal*, 2(2), 67–79.

- Wang, Z., Zhang, Z., Liu, J., Guo, M., & Li, H. (2023). Panax Ginseng in the treatment of Alzheimer's disease and vascular dementia. *Journal of Ginseng Research*, 47(4), 506–514. <https://doi.org/10.1016/j.jgr.2023.03.001>
- Wongta, A., Hongsibsong, S., Anand, P., Jaitum, U., Sawarng, N., Wongwilai, W., & Dhumtanom, P. (2023). Developing an in-house colorimetric method for detecting organophosphate and carbamate residue using cricket cholinesterase. *Chemical and Biological Technologies in Agriculture*, 10(1), 65. <https://doi.org/10.1186/s40538-023-00442-3>
- Wu, J., Wang, Y., Zhang, Z., & Yu, B. (2015). Herbal medicine in the treatment of Alzheimer's disease. *Chinese Journal of Integrative Medicine*, 21(2), 102–107. <https://doi.org/10.1007/s11655-014-1337-y>
- Xuliang, X., Florenly, Johannes Bastira Ginting, & Fioni. (2021). Analysis of Wound Healing from Andaliman Fruit Essential Oil Ointment (*Zanthoxylum Canthopodium* Dc.) on Wistar Rats (*Rattus Norvegicus*). *Britain International of Exact Sciences (BioEx) Journal*, 4(1), 31–42. <https://doi.org/10.33258/bioex.v4i1.542>
- Yahya, N. A., Attan, N., & Wahab, R. A. (2018). An overview of cosmeceutically relevant plant extracts and strategies for extraction of plant-based bioactive compounds. *Food and Bioproducts Processing*, 112, 69–85. <https://doi.org/10.1016/j.fbp.2018.09.002>
- Yang, J., Yuan, Y., Gu, J., Li, A., Wei, Z., & Ouyang, Q. (2021). Drug Synthesis and Analysis of an Acetylcholinesterase Inhibitor: A Comprehensive Medicinal Chemistry Experience for Undergraduates. *Journal of Chemical Education*, 98(3), 991–995. <https://doi.org/10.1021/acs.jchemed.0c01223>
- Yanti, Y. (2016). Active fractions from *Zanthoxylum acanthopodium* fruit modulate inflammatory biomarkers in lipopolysaccharide-induced macrophages *in vitro*. *International Journal of Infectious Diseases*, 45, 289. <https://doi.org/10.1016/j.ijid.2016.02.639>
- Yoshikawa, T., Nakamura, T., Shibakusa, T., Sugita, M., Naganuma, F., Iida, T., Miura, Y., Mohsen, A., Harada, R., & Yanai, K. (2014). Insufficient Intake of L-Histidine Reduces Brain Histamine and Causes Anxiety-Like Behaviors in Male Mice. *The Journal of Nutrition*, 144(10), 1637–1641. <https://doi.org/10.3945/jn.114.196105>

- Yu, J., Kwon, H., Cho, E., jeon, J., Kang, R. H., Youn, K., Jun, M., Lee, Y. C., Ryu, J. H., & Kim, D. H. (2019). The effects of pinorexinol on cholinergic dysfunction-induced memory impairments and synaptic plasticity in mice. *Food and Chemical Toxicology*, 125, 376–382. <https://doi.org/10.1016/j.fct.2019.01.017>
- Zhang, N., Wang, M., Li, Y., Zhou, M., Wu, T., & Cheng, Z. (2021). TLC–MS identification of alkaloids in Leonuri Herba and Leonuri Fructus aided by a newly developed universal derivatisation reagent optimised by the response surface method. *Phytochemical Analysis*, 32(3), 242–251. <https://doi.org/10.1002/pca.2970>
- Zhang, X., Zhou, Y., Xiong, W., Ma, J., & Jiang, W. (2022). Critical role of solvent extraction sequence in the fractional separation of alkaline lignin. *Fuel*, 322, 124268. <https://doi.org/10.1016/j.fuel.2022.124268>
- Zhong, G., Wang, Y., Zhang, Y., Guo, J. J., & Zhao, Y. (2015). Smoking Is Associated with an Increased Risk of Dementia: A Meta-Analysis of Prospective Cohort Studies with Investigation of Potential Effect Modifiers. *PLOS ONE*, 10(3), e0118333. <https://doi.org/10.1371/journal.pone.0118333>
- Ziani, I., Bouakline, H., Yahyaoui, M. I., Belbachir, Y., Fauconnier, M.-L., Asehrou, A., Tahani, A., Talhaoui, A., & El Bachiri, A. (2023). The effect of ethanol/water concentration on phenolic composition, antioxidant, and antimicrobial activities of Rosmarinus tournefortii de Noé hydrodistillation solid residues. *Journal of Food Measurement and Characterization*, 17(2), 1602–1615. <https://doi.org/10.1007/s11694-022-01722-6>
- Zuraida Sagala, Pratiwi, R., & Azmi, N. (2019). Uji Aktivitas Inhibisi Terhadap Enzim Tirosinase Dari Ekstrak Etanol Daun Pepaya(Carica Papaya.) Secara *In vitro*. *Jurnal Penelitian Farmasi Indonesia*, 7(1).
- Zweig, J. A., Brandes, M. S., Brumbach, B. H., Caruso, M., Wright, K. M., Quinn, J. F., Soumyanath, A., & Gray, N. E. (2021). Prolonged Treatment with Centella asiatica Improves Memory, Reduces Amyloid- β Pathology, and Activates NRF2-Regulated Antioxidant Response Pathway in 5xFAD Mice. *Journal of Alzheimer's Disease*, 81(4), 1453–1468. <https://doi.org/10.3233/JAD-210271>