

DAFTAR PUSTAKA

- Adisakwattana, S., Charoenlertkul, P., and Yibchok-anun, S., 2009, α -Glucosidase inhibitory activity of cyanidin-3-galactoside and synergistic effect with acarbose, *J. of Enzyme Inhibition and Med. Chem.*, 24:1, 65-69.
- Aguirre, L., Arias, N., Macarulla, M.T., Gracia, A., and Portillo, M.P., 2011, Beneficial effects of quercetin on obesity and diabetes, *The Open Nutraceut. J.*, 4, 189–198.
- Azizi, M., Mendard, J., Bissery, A., Guyenne, T., Bura-rivie, A., Vaidyanathan, S., and Camisasca, R.P., 2004, Pharmacologic demonstration of the synergistic effects of a combination of the renin inhibitor aliskiren and the at1 receptor antagonist valsartan on the angiotensin II–renin feedback interruption. *J. Am. Soc. Nephrol.*, 15, 3126–3133.
- Cao, A., Li, Q., Yin, P., Dong, Y., Shi, H., Wang, L., Ji, G., Xie, J., and Wu, D., 2013, Curcumin induces apoptosis in human gastric carcinoma AGS cells and colon carcinoma HT-29 cells through mitochondrial dysfunction and endoplasmic reticulum stress. *Apoptosis*, 18, 1391–1402.
- Chou, T.C., and Talalay, P., 1984, Quantitative analysis of dose-effect relationships : the combined effects of multiple drugs or enzyme inhibitors, *Anal. of Multiple Drug Effects*, 27-55.
- Chou, T.C., 2010, Drug combination studies and their synergy quantification using the Chou-Talalay method, *Cancer Res.*, 70, 440–446.
- Darmawan, P.A., 2016. Mempelajari reaksi inhibisi dari kayu manis dan sinamaldehida terhadap α -amilase sebagai agen anti diabetes, *Tesis*, FMIPA UGM, Yogyakarta.
- Du, Z., Liu, R., Shao, W., Mao, X., Ma, L., Gu, L., Huang, Z., and Chan, A.S.C., 2006, α -Glucosidase inhibition of natural curcuminoids and curcumin analogs, *Eur. J. of Med. Chem.*, 41, 213–218.
- Fessenden, R.J., and Fessenden, J.S., 1986, *Organic Chemistry*, 3th Ed, Wadsworth Inc, California.
- Ghosh, S., Basak, P., Dutta, S., Chowdhury, S., and Sil, P.C., 2017, New insights into the ameliorative effects of ferulic acid in pathophysiological conditions. *Food Chem. Toxicol.*, 103, 41–55.
- Hawaiz, F.E., and Omer, D.A.S., 2009, Ultrasound-assisted synthesis of some new curcumin analogs and their corresponding pyrazoline derivatives, *ARO-The Sci. J. of Koya Univ.*, 5, 30–35.

- Horváthová, V., Janeček, Š., and Šturdík, E., 2001, Amylolytic enzymes: their specificities, origins and properties, *Biolog. Bratis.*, 55, 605–615.
- Hu, G., Lin, H., Lian, Q., Zhou, S., Guo, J., Zhou, H., Chu, Y., and Ge, R., 2013, Curcumin as a potent and selective inhibitor of 11 β -hydroxysteroid dehydrogenase 1: improving lipid profiles in high-fat-diet-treated rats, *PLoS ONE*, 8(3): 8, 1–7.
- Kumar, S., Kumar, V., Rana, M., and Kumar, D., 2012, Enzymes inhibitors from plants: an alternate approach to treat diabetes. *Pharmacogn. Commun.*, 2, 18–33.
- Liang, G., Li, X., Chen, L., Yang, S., Wu, X., Studer, E., Gurley, E., Hylemon, P., B., Ye, F., Li, Y., and Zhou, H., 2008, Synthesis and anti-inflammatory activities of mono-carbonyl analogues of curcumin. *Bioorganic Med. Chem. Lett.*, 18, 1525–1529.
- Maradana, M.R., Thomas, R., and O’Sullivan, B.J., 2013, Targeted delivery of curcumin for treating type 2 diabetes. *Mol. Nutr. Food Res.*, 57, 1550–1556.
- Mardiana, L., Ardiansah, B., Septiarti, A., Bakri, R., and Kosamagi, G., 2017, Ultrasound-assisted synthesis of curcumin analogs promoted by activated chicken eggshells, *AIP Conf. Proc.*, 1862, 1–6.
- McMurry, J., 2008, *Organic Chemistry*, 7th Ed., Brooks/Cole Thomson Learning Inc., USA.
- Najafian, M., 2015, The effects of curcumin on alpha amylase in diabetics rats, *Zahedan J. Res. Med. Sci.*, 17, 5198.
- Ogurtsova, K., Fernandes, J.D.R, Huang, Y., Linnenkamp, U., Guariguata, L., Cho, N.H., Cavan, D., Shaw, J. E., and Makaroff, L. E., 2017, IDF Diabetes atlas: global estimates for the prevalence of diabetes for 2015 and 2040. *Diabetes Res. Clin. Pract.*, 128, 40–50.
- Patel, D.K., Kumar, R., Laloo, D., and Hemalatha, S., 2012, Diabetes mellitus: an overview on its pharmacological aspects and reported medicinal plants having antidiabetic activity, *Asian Pac. J. Trop. Biomed.*, 2, 411–420.
- Pavia, D.L., Lampman, G.M., Kriz, G.S., and Vyvyan, J.R., 2009. *Introduction to Spectroscopy*, 4th Ed, Brooks/Cole Cengage Learning, California.
- Prabhakar, P.K., Kumar, A., and Doble, M., 2014, Combination therapy: a new strategy to manage diabetes and its complications. *Phytomedicine*, 21, 123–130.
- Prabhakar, P.K., Prasad, R., Ali, S., and Doble, M., 2013, Synergistic interaction of ferulic acid with commercial hypoglycemic drugs in streptozotocin

induced diabetic rats. *Phytomedicine*, 20, 488–494.

- Samaan, N., Zhong, Q., Fernandez, J., Chen, G., Hussain, A.M., Zheng, S., Wang, G., and Chen, Q., 2014, Design, synthesis, and evaluation of novel heteroaromatic analogs of curcumin as anti-cancer agents. *Eur. J. Med. Chem.*, 75, 123–131.
- Sardjiman, S.S., Reksohadiprodjo, M.S., Hakim, L., Goot, H., and Timmerman, H., 1997, 1,5-Diphenyl-1,4-pentadiene-3-ones and cyclic analogues as antioxidative agents. Synthesis and structure-activity relationship, *Eur. J. Med. Chem.*, 32, 625-630.
- Saryono, 2011, *Biokimia Enzim*, Nuha Medika, Yogyakarta.
- Sohilait, M., 2013, Sintesis analog kurkumin dari piperonal, veratraldehida a, dan p-dimetilaminobenzaldehida serta perbandingan elusidasi struktur antara eksperimen dan hasil kajian spektroskopi didasarkan metode DFT-B3LYP/6-31G(d), *Tesis*, FMIPA UGM, Yogyakarta.
- Sumner, J.B., and Myrbäck K., 1950, *The Enzymes: Chemistry and Mechanism of Action*, Academic Press Inc. Publisher, New York.
- Tadera, K., Minami, Y., Takamatsu, K., and Matsuoka, T., 2006, Inhibition of α -glucosidase and α -amylase by flavonoids. *J. Nutr. Sci. Vitaminol.*, 52, 149–153.
- Thakkar, A., Chenreddy, S., Wang, J., and Prabhu, S., 2015, Ferulic acid combined with aspirin demonstrates chemopreventive potential towards pancreatic cancer when delivered using chitosan-coated solid-lipid nanoparticles. *Cell Biosci.*, 5, 1–14.
- Uddin, N., Hasan, M. R., Hossain, M.M., Sarker, A., Hasan, A.H.M.N., Islam, A.F.M.M., Chowdhury, M.M.H., and Rana, M.S., 2014, In vitro α -amylase inhibitory activity and in vivo hypoglycemic effect of methanol extract of *Citrus macroptera* Montr. fruit. *Asian Pac. J. Trop. Biomed.*, 4, 473–479.
- Wang, H., Du, Z., Zhang, C., Tang, Z., He, Y., Zhang, Q., Zhao, J., and Zheng, X., 2014, Biological evaluation and 3D-QSAR studies of curcumin analogues as aldehyde dehydrogenase 1 inhibitors. *Int. J. Mol. Sci.*, 15, 8795–8807.
- World Health Organization, 2016, *Global Report on Diabetes*, WHO Press, Switzerland.
- Xiao, Z., Storms, R., and Tsang, A., 2006, A quantitative starch–iodine method for measuring alpha-amylase and glucoamylase activities. *Anal. Biochem.*, 362, 146–148.

- Yao, E.C. and Xue, L., 2014, Therapeutic effects of curcumin on alzheimer's disease. *Adv. in Alzheimer's Disease*, 3, 145–159.
- Yin, S., Zheng, X., Yao, X., Wang, Y., and Liao, D., 2013, Synthesis and anticancer activity of mono-carbonyl analogues of curcumin. *J. Cancer Ther.*, 2013, 113–123.
- Yuan, X., Li, H., Bai, H., Su, Z., Xiang, Q., Wang, C., Zhao, B., Zhang, Y., Zhang, Q., Chu, Y., and Huang, Y., 2014, Synthesis of novel curcumin analogues for inhibition of 11 β -hydroxysteroid dehydrogenase type 1 with anti-diabetic properties. *Eur. J. Med. Chem.*, 77, 223–230.
- Zhang, Y., Liu, Z., Wu, J., Bai, B., Chen, H., Xiao, Z., Chen, L., Zhao, Y., Lum, H., Wang Y., Zhang, H., and Liang, G., 2018, New MD2 inhibitors derived from curcumin with improved anti-inflammatory activity. *Eur. J. Med. Chem.*, 148, 291–305.