

## DAFTAR PUSTAKA

- Abenavoli, L., Milic, N., Luzza, F., Boccuto, L., De Lorenzo, A., 2017. Polyphenols treatment in patients with nonalcoholic fatty liver disease. *Journal of Translational Internal Medicine* 5, pp. 144–147.
- Agrawal, S., Duseja A.K., 2012. Non-alcoholic Fatty Liver Disease: East Versus West. *Journal of Clinical and Experimental Hepatology*, 2(2), pp. 122–134.
- Aguirre, L., Portillo, M.P., Hijona, E., Bujanda, L., 2014. Effects of resveratrol and other polyphenols in hepatic steatosis. *World Journal of Gastroenterology* 20, pp. 7366–7380.
- Ahmed, M., 2015. Non-alcoholic fatty liver disease in 2015. *World journal of hepatology*, 7(11), pp. 1450–1459.
- Ames, B., Shigenaga, M., Hagen, T., 1993. Oxidants, antioxidants, and the degenerative diseases of aging. *Proc Natl Acad Sci.* 1993; vol. 90, pp. 7915–7922.
- Aprikian, O., Duclos, V., Guyot, S., Besson, C., Manach, C., Bernalier, A., Morand, C., Rémésy, C., Demigné, C., 2003. Apple pectin and a polyphenol-rich apple concentrate are more effective together than separately on cecal fermentations and plasma lipids in rats. *The Journal of Nutrition* vol. 133, pp. 1860–1865.
- Beaumont, R., 2009. Research method and experimental design: A set of notes suitable for seminar use. diakses pada 22 Mei 2019, <http://www.floppybunny.org/robin/web/virtualclassroom/chap16/s1/sembk2.pdf>
- Boyer, J., Liu, R.H., 2004. Apple phytochemicals and their health benefits. *Nutrition journal*, 3, 5.
- Breinholt, V.M., Nielsen, S.E., Knuthsen, P., Lauridsen, S.T., Daneshvar, B., Sørensen, A., 2003. Effects of commonly consumed fruit juices and carbohydrates on redox status and anticancer biomarkers in female rats. *Nutrition and Cancer*, 45(1), pp. 46–52.
- Brunt, E.M., Janney, C.G., Di Bisceglie, A.M., Neuschwander-Tetri, B.A., Bacon, B.R., 1999. Nonalcoholic steatohepatitis: a proposal for grading and staging the histological lesions. *Am J Gastroenterol.* 1999; vol. 94: pp. 2467-2474.
- Brunt, E.M., Kleiner, D.E., Wilson, L.A., Unalp, A., Behling, C.E., Lavine, J.E., Yates, K., 2009. Portal chronic inflammation in nonalcoholic fatty liver disease (NAFLD): A histologic marker of advanced NAFLD - Clinicopathologic correlations from the nonalcoholic steatohepatitis clinical research network. *Hepatology* 49, pp. 809–820.
- Buzzetti, E., Pinzani, M., Tsochatzis, E.A., 2016. The multiple-hit pathogenesis of non-alcoholic fatty liver disease (NAFLD). *Metabolism: Clinical and Experimental*, 65(8), pp. 1038–1048.
- Cho, K.D., Han, C.K., Lee, B.H., 2013. Loss of body weight and fat and improved lipid profiles in obese rats fed apple pomace or apple juice concentrate. *Journal of Medicinal Food* 16, pp. 823–830.
- Cobbina, E., Akhlaghi, F., 2017. Non-alcoholic fatty liver disease (NAFLD) - pathogenesis, classification, and effect on drug metabolizing enzymes and transporters. *Drug metabolism reviews*, 49(2), pp. 197–211.

- Corcoran, M.P., McKay, D.L., Blumberg, J.B., 2012. Flavonoid basics: Chemistry, sources, mechanisms of action, and safety. *J. Nutr. Gerontol. Geriatr.* 2012;31: pp. 176–189.
- Faghihzadeh, F., Adibi, P., Rafiei, R., Hekmatdoost, A., 2014. Resveratrol supplementation improves inflammatory biomarkers in patients with nonalcoholic fatty liver disease. *Nutr Res.* 2014;34: pp. 837–43.
- Fan, J.G., Kim, S.U., Wong, V.W.S., 2017. New trends on obesity and NAFLD in Asia. *Journal of Hepatology.*
- Federer, W., 1991. *Statistics and Society: Data Collection and Interpretation.* 2nd Edition. New York: Marcel Dekker
- Jung, M., Triebel, S., Anke, T., Richling, E., Erkel, G., 2009. Influence of apple polyphenols on inflammatory gene expression. *Molecular Nutrition and Food Research*, 53(10), pp. 1263–1280.
- Koyama, Y., Brenner, D.A., 2017. Liver inflammation and fibrosis. *Journal of Clinical Investigation.*
- Krinke, G.J., 2000. The handbook of experimental animals: The laboratory rat. In: Bullock G, Bunton TE, editors. New York: Academic Press; 2000. p. 1.
- Leontowicz, H., Gorinstein, S., Lojek, A., Leontowicz, M., Ciz, M., Soliva-Fortuny, R., Park, Y., Jung, S., Trakhtenberg, S., Martin-Belloso, O., 2002. Comparative content of some bioactive compounds in apples, peaches, and pears and their influence on lipids and antioxidant capacity in rats. *J Nutr Biochem.* 2002;13: pp. 603–610.
- Li, D., Liu, F., Wang, X., Li, X., 2019. Apple Polyphenol Extract Alleviates High-Fat-Diet-Induced Hepatic Steatosis in Male C57BL/6 Mice by Targeting LKB1/AMPK Pathway. *Journal of Agricultural and Food Chemistry* 67, pp. 12208–12218.
- Li, J., Zou, B., Yeo, Y.H., Feng, Y., Xie, X., Lee, D.H., Fujii, H., Wu, Y., Kam, L.Y., Ji, F., Li, X., Chien, N., Wei, M., Ogawa, E., Zhao, C., Wu, X., Stave, C.D., Henry, L., Barnett, S., Takahashi, H., Furusyo, N., Eguchi, Y., Hsu, Y.C., Lee, T.Y., Ren, W., Qin, C., Jun, D.W., Toyoda, H., Wong, V.W.S., Cheung, R., Zhu, Q., Nguyen, M.H., 2019. 'Prevalence, incidence, and outcome of non-alcoholic fatty liver disease in Asia, 1999–2019: a systematic review and meta-analysis' *The Lancet Gastroenterology and Hepatology*, vol. 4, no. 5, pp. 389-398.
- Li, S., Tan, H. Y., Wang, N., Cheung, F., Hong, M., Feng, Y., 2018. The Potential and Action Mechanism of Polyphenols in the Treatment of Liver Diseases. *Oxidative Medicine and Cellular Longevity.* Hindawi Limited.
- Li, W., Zhang, K., Yang, H., 2018. Pectin Alleviates High Fat (Lard) Diet-Induced Nonalcoholic Fatty Liver Disease in Mice: Possible Role of Short-Chain Fatty Acids and Gut Microbiota Regulated by Pectin. *Journal of Agricultural and Food Chemistry* 66, pp. 8015–8025.
- McCarthy, E.M., Rinella, M.E., 2012. 'The Role of Diet and Nutrient Composition in Nonalcoholic Fatty Liver Disease' *Journal of the Academy of Nutrition and Dietetics*, vol. 112, no. 3, pp. 401-409.
- Metrakos, P., Nilsson, T., 2018. Non-alcoholic fatty liver disease--a chronic disease of the 21<sup>st</sup> century. *Journal of biomedical research*, 32(5), pp. 327–335.
- Mikolasevic, I., Filipec-Kanizaj, T., Mijic, M., Jakopcic, I., Milic, S., Hrstic, I., Burra, P., 2018. Nonalcoholic fatty liver disease and liver transplantation - Where do we stand?. *World journal of gastroenterology*, 24(14), pp. 1491–1506.

- Myers, P., Armitage, D., 2004. *Rattus norvegicus*, Animal Diversity Web, diakses pada 22 Mei 2019, [http://animaldiversity.ummz.umich.edu/site/accounts/information/Rattus\\_norvegicus](http://animaldiversity.ummz.umich.edu/site/accounts/information/Rattus_norvegicus).
- Nakano, M., 2005. Histological study on comparison between NASH and ALD. *Hepatology Res* 2005;33:110–5.
- Nassir, F., Rector, R.S., Hammoud, G.M., Ibdah, J.A., 2015. Pathogenesis and prevention of hepatic steatosis. *Gastroenterology and Hepatology* 11, pp. 167–175.
- Nurman, Z., Masrul, Sastri, S., 2017. Pengaruh Pektin Buah Apel (*Malus Sylvestris Mill*) Terhadap Kadar LDL Kolesterol pada Tikus Putih Jantan (*Rattus Novergicus*) Hiperkolesterolemia. *Jurnal Kesehatan Andalas*. 2017; 6(3)
- Pappachan, J.M., Babu, S., Krishnan, B., Ravindran, N.C., 2017. Non-alcoholic Fatty Liver Disease: A Clinical Update. *Journal of clinical and translational hepatology*, 5(4), pp. 384–393.
- Petta, S., Gastaldelli, A., Rebelos, E., Bugianesi, E., Messa, P., Miele, L., Svegliati-Baroni, G., Valenti, L., Bonino, F., 2016. Pathophysiology of Non Alcoholic Fatty Liver Disease. *Int J Mol Sci*. 2016 Dec 11;17(12):2082.
- Rodriguez-Ramiro, I., Vauzour, D., Minihane, A.M., 2016. Polyphenols and non-alcoholic fatty liver disease: Impact and mechanisms. In *Proceedings of the Nutrition Society*, Vol. 75, pp. 47–60. Cambridge University Press.
- Sengupta, P., 2013. The Laboratory Rat: Relating Its Age With Human's. *International journal of preventive medicine*, 4(6), pp. 624–630.
- Shoji, T., Akazome, Y., Kanda, T., Ikeda, M., 2004. The toxicology and safety of apple polyphenol extract. *Food Chem. Toxicol.* 2004;42: pp. 959–967.
- Sirois, 2005. *Laboratory Animal Medicine: Principles and Procedures*, Elsevier, USA.
- Skinner, R.C., Warren, D.C., Lateef, S. N., Benedito, V. A., Tou, J.C., 2018. Apple pomace consumption favorably alters hepatic lipid metabolism in young female Sprague-Dawley rats fed a western diet. *Nutrients* 10.
- Skinner, R.C., Warren, D.C., Naveed, M., Agarwal, G., Benedito, V.A., Tou, J.C., 2019. Apple pomace improves liver and adipose inflammatory and antioxidant status in young female rats consuming a Western diet. *J. Funct. Foods*, 61, pp. 103741.
- Strable, M.S., Ntambi, J.M., 2010. Genetic control of de novo lipogenesis: Role in diet-induced obesity. *Critical Reviews in Biochemistry and Molecular Biology*.
- Streba, L.A., Vere, C.C., Rogoveanu, I., Streba, C.T., 2015. Nonalcoholic fatty liver disease, metabolic risk factors, and hepatocellular carcinoma: an open question. *World journal of gastroenterology*, 21(14), pp. 4103–4110.
- Sumantri, 2015. *Strategi pembelajaran*. Jakarta: Kharisma Putra Utama
- Sun, J., Chu, Y., Wu, X., Liu, R.H., 2002. Antioxidant and antiproliferative activities of common fruits. *J Agric Food Chem*. 2002;50: pp. 7449–7454.
- Tenore, G.C., Caruso, D., Buonomo, G., D'Urso, E., D'Avino, M., Campigli, P., Novellino, E., 2016. Annurca (*Malus pumilamiller cv. Annurca*) apple as a functional food for the contribution to a healthy balance of plasma cholesterol levels: Results of a randomized clinical trial. *Journal of the Science of Food and Agriculture*, 97(7), pp. 2107–2115.
- Thilakarathna, S.H., Rupasinghe, H.P.V., Needs, P.W., 2013. Apple peel bioactive rich extracts effectively inhibit in vitro human LDL cholesterol oxidation. *Food Chemistry*, 138(1), pp. 463–470.

- Tilg, H., Cani, P.D., Mayer, E.A., 2016. Gut microbiome and liver diseases. *Gut* 65, pp. 2035–2044.
- United State Department of Agricultural, NRCS. 2019. The PLANTS Database National Plant Data Team, Greensboro, NC 27401-4901 USA. Diakses pada 15 Mei 2019 <http://plants.usda.gov>
- Untung, 1996. Apel: Jenis dan Budidayanya. Penebar Swadaya, Jakarta.
- Vinson, J., Su, X., Zubik, L., Bose, P., 2001. Phenol antioxidant quantity and quality in foods: fruits. *J Agric Food Chem.* 2001;49: pp. 5315–5321.
- Wilkins, T., Tadmok, A., Hepburn, I., Schade, R.R., 2013. Nonalcoholic fatty liver disease: Diagnosis and management. *American Family Physician* 88, pp. 35–42.
- Wong, R.J., Aguilar, M., Cheung, R., Perumpail, R.B., Harrison, S.A., Younossi, Z.M., Ahmed, A., 2015. Nonalcoholic steatohepatitis is the second leading etiology of liver disease among adults awaiting liver transplantation in the United States. *Gastroenterology*, 148(3), pp. 547–555.
- Xu, Z.R., Li, J.Y., Dong, X.W., Tan, Z.J., Wu, W.Z., Xie, Q.M., Yang, Y.M., 2015. Apple Polyphenols Decrease Atherosclerosis and Hepatic Steatosis in ApoE<sup>-/-</sup> Mice through the ROS/MAPK/NF- $\kappa$ B Pathway. *Nutrients*, 7(8), pp. 7085–7105.
- Younossi, Z., Anstee, Q.M., Marietti, M., Hardy, T., Henry, L., Eslam, M., George, J., Bugianesi, E., 2018. Global burden of NAFLD and NASH: Trends, predictions, risk factors and prevention. *Nature Reviews Gastroenterology and Hepatology*.
- Younossi, Z.M., Koenig, A.B., Abdelatif, D., Fazel, Y., Henry, L., Wymer, M., 2016. Global epidemiology of nonalcoholic fatty liver disease—Meta-analytic assessment of prevalence, incidence, and outcomes. *Hepatology* 64, pp. 73–84.
- Zhao, Y., Liu, J., Hao, W., Zhu, H., Liang, N., He, Z., Ma, K.Y., Chen, Z.Yu, 2017. Structure-Specific Effects of Short-Chain Fatty Acids on Plasma Cholesterol Concentration in Male Syrian Hamsters. *Journal of Agricultural and Food Chemistry* 65, pp. 10984–10992.