

## DAFTAR PUSTAKA

- Abbas, A. K., Lichtman, A. H. dan Pillai, S. (2016) *Imunologi Dasar Abbas*. 5 ed. Singapore: Elsevier Ltd.
- Adefegha, S. A. (2018) "Functional Foods and Nutraceuticals as Dietary Intervention in Chronic Diseases; Novel Perspectives for Health Promotion and Disease Prevention," *Journal of Dietary Supplements*, 15(6), hal. 977–1009. doi: 10.1080/19390211.2017.1401573.
- Aghitia, M., Feri, K. dan Suguyono (2018) "Pengembangan Formula Susu Bubuk dengan Penambahan Kolagen Ikan Berdasarkan Penerimaan Mutu Sensori Formula Development of Powdered Milk with the Addition of Fish," *Jurnal Mutu Pangan*, 5(2), hal. 59–65.
- Almatsier, S. (2009) *Prinsip Dasar Ilmu Gizi*. 7 ed. Jakarta: Gramedia Pustaka Utama.
- Alongi, M. dan Anese, M. (2021) "Re-thinking functional food development through a holistic approach," *Journal of Functional Foods*, 81(December 2020), hal. 104466. doi: 10.1016/j.jff.2021.104466.
- Amaliya (2020) *Vitamin C dan Penyakit Periodontal Dari Scurvy Hingga Periodontitis*. 1 ed. Sukabumi: CV. Jejak.
- Ando, Y. *et al.* (2014) "Concanavalin A-mediated T cell proliferation is regulated by herpes virus entry mediator costimulatory molecule," *In Vitro Cellular and Developmental Biology - Animal*, 50(4), hal. 313–320. doi: 10.1007/s11626-013-9705-2.
- Antari, A. L. (2017) *Imunologi Dasar*. 1 ed. Yogyakarta: Deepublish.
- Bahuguna, A. *et al.* (2017) "MTT assay to evaluate the cytotoxic potential of a drug," *Bangladesh Journal of Pharmacology*, 12(2), hal. 115–118. doi: 10.3329/bjp.v12i2.30892.
- Betoret, E. *et al.* (2011) "Functional foods development: Trends and technologies," *Trends in Food Science and Technology*, 22(9), hal. 498–508. doi: 10.1016/j.tifs.2011.05.004.
- Bigliardi, B. dan Galati, F. (2013) "Innovation Trends in the Food Industry," *Trends Food Sci Tech*, 31, hal. 118–129. doi: 10.1016/j.tifs.2013.03.006.
- Bilek, S. E. dan Bayram, S. K. (2015) "Fruit juice drink production containing hydrolyzed collagen," *Journal of Functional Foods*, 14, hal. 562–569. doi: 10.1016/j.jff.2015.02.024.
- Boets, E. *et al.* (2015) "Quantification of in vivo colonic short chain fatty acid production from inulin," *Nutrients*, 7(11), hal. 8916–8929. doi: 10.3390/nu7115440.
- B POM (2020) *PERATURAN KEPALA BADAN PENGAWAS OBAT DAN MAKANAN REPUBLIK INDONESIA NOMOR 13 TAHUN 2016 TENTANG PENGAWASAN KLAIM PADA LABEL DAN IKLAN PANGAN OLAHAN*. Tersedia pada: <https://standarpangan.pom.go.id/> (Diakses: 1 Mei 2021).
- Brownawell, A. M. *et al.* (2012) "Prebiotics and the health benefits of fiber: Current regulatory status, future research, and goals," *Journal of Nutrition*, 142(5), hal. 962–974. doi: 10.3945/jn.112.158147.
- Calder, P. C. (2007) "Immunological parameters: What do they mean?," *Journal of Nutrition*, 137(3), hal. 773–780. doi: 10.1093/jn/137.3.773s.
- Cao, C. *et al.* (2021) "Animal by-products collagen and derived peptide, as

- important components of innovative sustainable food systems—a comprehensive review,” *Critical Reviews in Food Science and Nutrition*, 0(0), hal. 1–25. doi: 10.1080/10408398.2021.1931807.
- Capitán-Cañadas, F. *et al.* (2014) “Prebiotic oligosaccharides directly modulate proinflammatory cytokine production in monocytes via activation of TLR4.,” *Molecular nutrition & food research*, 58(5), hal. 1098–1110. doi: 10.1002/mnfr.201300497.
- Carr, A. C. dan Maggini, S. (2017) “Vitamin C and immune function,” *Nutrients*, 9(11), hal. 1–25. doi: 10.3390/nu9112111.
- Chetoui, N. *et al.* (2011) “Discoidin domain receptor 1 expression in activated T cells is regulated by the ERK MAP kinase signaling pathway,” *Journal of cellular biochemistry*, 112(12), hal. 3666–3674.
- Christler, A. *et al.* (2020) “Semi-automation of process analytics reduces operator effect,” *Bioprocess and Biosystems Engineering*, 43. doi: 10.1007/s00449-019-02254-y.
- Clément, M. V *et al.* (2001) “The in vitro cytotoxicity of ascorbate depends on the culture medium used to perform the assay and involves hydrogen peroxide.,” *Antioxidants & redox signaling*, 3(1), hal. 157–163. doi: 10.1089/152308601750100687.
- Darlina, Kisananto, T. dan Mailani, W. (2012) “Proliferasi limfosit mencit yang diimunisasi dengan,” hal. 148–153.
- Davani-Davari, D. *et al.* (2019) “Prebiotics: Definition, types, sources, mechanisms, and clinical applications,” *Foods*, 8(3), hal. 1–27. doi: 10.3390/foods8030092.
- Descotes, J. (2014) *Immune System*. Third Edit, *Encyclopedia of Toxicology: Third Edition*. Third Edit. Elsevier. doi: 10.1016/B978-0-12-386454-3.00401-2.
- Desforges, J. P. *et al.* (2018) *Immunotoxic effects of environmental pollutants in marine mammals, Marine Mammal Ecotoxicology: Impacts of Multiple Stressors on Population Health*. Elsevier Inc. doi: 10.1016/B978-0-12-812144-3.00012-7.
- Devi, H. L. N. ., Suptijah, P. dan Nurilmala, M. (2017) “Efektifitas Alkali dan Asam Terhadap Mutu Kolagen dari Kulit Ikan Patin,” *Jphpi*, 20(2), hal. 256–265. Tersedia pada: [journal.ipb.ac.id/index.php/jphpi](http://journal.ipb.ac.id/index.php/jphpi).
- El-gamal, Y. M. *et al.* (2011) “Immunomodulatory effects of food,” *Egyptian Journal of Pediatric Allergy and Immunology (The)*, 9(1), hal. 3–13.
- Elango, J. *et al.* (2022) “The Molecular Interaction of Collagen with Cell Receptors for Biological Function,” *Polymers*, 14(5), hal. 1–25. doi: 10.3390/polym14050876.
- Engel, P. *et al.* (2015) “CD Nomenclature 2015: Human Leukocyte Differentiation Antigen Workshops as a Driving Force in Immunology,” *The Journal of Immunology*, 195(10), hal. 4555–4563. doi: 10.4049/jimmunol.1502033.
- Erniati, E. dan Ezraneti, R. (2020) “Aktivitas imunomodulator ekstrak rumput laut,” *Acta Aquatica: Aquatic Sciences Journal*, 7(2), hal. 79. doi: 10.29103/aa.v7i2.2463.
- Ernis, G. *et al.* (2021) “UJI IN VITRO AKTIVITAS IMUNOMODULATOR MINYAK ATSIRI SERAI DAPUR (*Cymbopogon citratus*) TERHADAP PROLIFERASI SEL LIMFOSIT MENCIT *Gustria*,” *Jurnal Pendidikan Biologi dan Sains*, 4, hal. 129.
- Fajarningsih, N. D. *et al.* (2008) “Bioaktivitas Ekstrak *Turbinaria decurrens* Sebagai Antitumor (Hela Dan T47d) Serta Efeknya Terhadap Proliferasi Limfosit,” *Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan*, 3(1), hal. 21.

- doi: 10.15578/jpbkp.v3i1.6.
- Ganguly, S., Paul, I. dan Mukhopadhyay, S. K. (2010) "Application and effectiveness of immunostimulants, probiotics, and prebiotics in aquaculture: A review," *Israeli Journal of Aquaculture - Bamidgah*, 62(3), hal. 130–138.
- Gao, S. *et al.* (2019) "Immunomodulatory effects of collagen hydrolysates from yak (*Bos grunniens*) bone on cyclophosphamide-induced immunosuppression in BALB/c mice," *Journal of Functional Foods*, 60(June), hal. 103420. doi: 10.1016/j.jff.2019.103420.
- Gardjito, M. (2013) *Pangan Nusantara: Karakteristik dan Prospek untuk Percepatan Diversifikasi Pangan*. 1 ed. Jakarta: Kencana.
- Gerlier, D. dan Thomasset, N. (1986) "Use of MTT colorimetric assay to measure cell activation," *Journal of Immunological Methods*, 94(1–2), hal. 57–63. doi: 10.1016/0022-1759(86)90215-2.
- Gibson, G. R. *et al.* (2017) "Expert consensus document: The International Scientific Association for Probiotics and Prebiotics (ISAPP) consensus statement on the definition and scope of prebiotics," *Nature Reviews Gastroenterology and Hepatology*, 14(8), hal. 491–502. doi: 10.1038/nrgastro.2017.75.
- Harboe dan Ingild (1983) "Immunization, Isolation of Immunoglobulins and Antibody Titre Determination," *Scandinavian Journal of Immunology*, 17(10), hal. 345–351.
- Hashim, P. *et al.* (2015) "Collagen in food and beverage industries," *International Food Research Journal*, 22(1), hal. 1–8.
- Hidayat AS, S. (2015) "Sertifikasi halal dan sertifikasi nonhalal pada produk pangan industr," *Jurnal Ilmu Syariah*, 15, hal. 199–222.
- Hidayat, S. K. C. (2022) *Pengaruh Konsentrasi Hidrolisat Kolagen terhadap Sifat Sensoris dan Fisikokimia Bubuk Minuman Fungsional Prebiotik*. UGM.
- Hong, J.-M. *et al.* (2016) "Vitamin C is taken up by human T cells via sodium-dependent vitamin C transporter 2 (SVCT2) and exerts inhibitory effects on the activation of these cells in vitro.," *Anatomy & cell biology*, 49(2), hal. 88–98. doi: 10.5115/acb.2016.49.2.88.
- Hong, J. M. *et al.* (2016) "Vitamin C is taken up by human T cells via sodium-dependent vitamin C transporter 2 (SVCT2) and exerts inhibitory effects on the activation of these cells in vitro," *Anatomy and Cell Biology*, 49(2), hal. 88–98. doi: 10.5115/acb.2016.49.2.88.
- Hundie, G. B., Woldemeskel, D. dan Gessesse, A. (2016) "Evaluation of direct colorimetric MTT assay for rapid detection of rifampicin and isoniazid resistance in Mycobacterium tuberculosis," *PLoS ONE*, 11(12), hal. 1–14. doi: 10.1371/journal.pone.0169188.
- Ifalagma, D. *et al.* (2021) "Combination Of Tea-Ginger-Mint Extract Increase The Elderly Immunity," *International Conference of Health, Science and Technology*, hal. 1–3.
- Jafari, H. *et al.* (2020) "Fish collagen: Extraction, characterization, and applications for biomaterials engineering," *Polymers*, 12(10), hal. 1–37. doi: 10.3390/polym12102230.
- Janeway, C. A. *et al.* (2001) *Immunobiology: The Immune System in Health and Disease. 5th edition*. 5 ed. New York: Garland Science. Tersedia pada: <https://www.ncbi.nlm.nih.gov/books/NBK10757/>.
- Jatraningrum, D. A. (2015) *Peluang Adopsi Inovasi*. 1 ed. Diedit oleh D. A. Jatraningrum. Jakarta: LIPI PRESS.

- Juvan, S., Bartol, T. dan Boh, B. (2005) "Data structuring and classification in newly-emerging scientific fields," *Online Information Review*, 29(5), hal. 483–498. doi: 10.1108/14684520510628882.
- Kang, N., Pyo, S. dan Sohn, E. (2010) "In vitro Effects of L-Ascorbic Acid and Acrylamide on Lymphocyte Proliferation in Young and Aged Mice," 15, hal. 19–23. doi: 10.3746/jfn.2010.15.1.019.
- Kelly, G. (2008) "Inulin-type prebiotics—a review," *Med. Rev*, 12, hal. 315–329.
- Khairinal (2012) *Efek Kurkumin Terhadap Proliferasi Sel Limfosit dari Limpa Mencit C3H Bertumot Payudara Secara In Vitro*. Universitas Indonesia.
- Kim, E.-H., Kim, Y.-M. dan Suh, J.-H. (2018) "Effect of type II collagen extract on immunosuppression induced by methotrexate in rats," *Journal of exercise rehabilitation*. Department of Meridian and Acupoint, College of Korean Medicine, Semyung University, Jecheon, Korea., hal. 731–738. doi: 10.12965/jer.1836480.240.
- Koyama, Y. I. *et al.* (2015) "Supplemental ingestion of collagen peptide improves T-cell-related human immune status: -Placebo-controlled double-blind study-," *Japanese Pharmacology and Therapeutics*, 43(1), hal. 51–56.
- Kumar, L. V., Shakila, R. J. dan Jeyasekaran, G. (2019) "In vitro anti-cancer, anti-diabetic, anti-inflammation and wound healing properties of collagen peptides derived from unicorn leatherjacket (*Aluterus monoceros*) at different hydrolysis," *Turkish Journal of Fisheries and Aquatic Sciences*, 19(7), hal. 551–560. doi: 10.4194/1303-2712-v19\_7\_02.
- Kusmiyati, N. (2020) *Prebiotik Nutrisi Sehat Saluran Cerna*. 1 ed. Banyumas: CV. Pena Persana.
- Lebbink, R. J. *et al.* (2006) "Collagens are functional, high affinity ligands for the inhibitory immune receptor LAIR-1," *The Journal of experimental medicine*, 203(6), hal. 1419–1425.
- León-López, A. *et al.* (2019) "Hydrolyzed collagen-sources and applications," *Molecules*, 24(22), hal. 1–16. doi: 10.3390/molecules24224031.
- Lestari, L. A. *et al.* (2012) "Peningkatan aktivitas fagositosis dan produksi nitrit oksida pada makrofag peritoneum tikus Sprague Dawley yang diberi *Lactobacillus plantarum* Mut7 dan ekstrak serat ubi jalar," *Jurnal Gizi Klinik Indonesia*, 9(2), hal. 64. doi: 10.22146/ijcn.15381.
- Lin, P. *et al.* (2020) "Oral Collagen Drink for Antiaging: Antioxidation, Facilitation of the Increase of Collagen Synthesis, and Improvement of Protein Folding and DNA Repair in Human Skin Fibroblasts," *Oxidative Medicine and Cellular Longevity*, 2020. doi: 10.1155/2020/8031795.
- Liu, C. dan Sun, J. (2020) "The potential use of fish collagen as a new functional materials due to its good immune-compatibility," *Journal of Physics: Conference Series*, 1605(1). doi: 10.1088/1742-6596/1605/1/012174.
- De Luca, C. *et al.* (2016) "Skin antiageing and systemic Redox effects of supplementation with marine collagen peptides and plant-derived antioxidants: A single-blind case-control clinical study," *Oxidative Medicine and Cellular Longevity*, 2016. doi: 10.1155/2016/4389410.
- Ma, T. *et al.* (2021) "Effects of co-fermented collagen peptide-jackfruit juice on the immune response and gut microbiota in immunosuppressed mice," *Food Chemistry*, 365(April), hal. 130487. doi: 10.1016/j.foodchem.2021.130487.
- Maasho, K. *et al.* (2005) "The inhibitory leukocyte-associated Ig-like receptor-1 (LAIR-1) is expressed at high levels by human naive T cells and inhibits TCR mediated activation," *Molecular immunology*, 42(12), hal. 1521–1530.

- Maeng, H. G. *et al.* (2009) "Vitamin C enters mouse T cells as dehydroascorbic acid in vitro and does not recapitulate in vivo vitamin C effects," *Immunobiology*, 214(4), hal. 311–320. doi: 10.1016/j.imbio.2008.09.003.
- Mahfudh, N., Sulistyani, N. dan Sabillah, D. A. (2020) "The effect of Zingiber cassumunar Roxb rhizome extract on in vitro phagocytic activity and lymphocyte proliferation," *Pharmaciana*, 10(2), hal. 231. doi: 10.12928/pharmaciana.v10i2.16311.
- Marliana, N. dan Widhyasih, R. M. (2018) *Imunoserologi*. 1 ed. Jakarta: Kementerian Kesehatan Republik Indonesia.
- Mazzoni, A. *et al.* (2006) "Dendritic cell modulation by mast cells controls the Th1/Th2 balance in responding T cells.," *Journal of immunology (Baltimore, Md. : 1950)*, 177(6), hal. 3577–3581. doi: 10.4049/jimmunol.177.6.3577.
- Mazzoni, A. dan Segal, D. M. (2004) "Controlling the Toll road to dendritic cell polarization.," *Journal of leukocyte biology*, 75(5), hal. 721–730. doi: 10.1189/jlb.1003482.
- Meraou, A. *et al.* (2016) "Vitamins C, E, and NADH on &lt;i>in Vitro</i> Lymphocyte Proliferation and Redox Status among Obese Patients," *Food and Nutrition Sciences*, 07(12), hal. 1082–1098. doi: 10.4236/fns.2016.712104.
- Meyer, D. dan Stasse-Wolthuis, M. (2009) "The bifidogenic effect of inulin and oligofructose and its consequences for gut health," *European Journal of Clinical Nutrition*, 63(11), hal. 1277–1289. doi: 10.1038/ejcn.2009.64.
- Mikusanti (2010) "Proliferasi Sel Limfosit Secara In Vitro oleh Minyak Atsiri Temu Kunci dan Film Edibel Anti Bakteri," *Jurnal Penelitian Sains*, 10(C), hal. 6–7.
- Molaae, N. *et al.* (2017) "Evaluating the Proliferation of Human Peripheral Blood Mononuclear Cells Using MTT Assay," *International Journal of Basic Science in Medicine*, 2(1), hal. 25–28. doi: 10.15171/ijbsm.2017.06.
- Molina, N. *et al.* (2014) "Comparative effect of fucoxanthin and vitamin C on oxidative and functional parameters of human lymphocytes," *International Immunopharmacology*, 22(1), hal. 41–50. doi: 10.1016/j.intimp.2014.06.026.
- Moskowitz, R. W. (2000) "Role of collagen hydrolysate in bone and joint disease," *Seminars in Arthritis and Rheumatism*, 30(2), hal. 87–99. doi: 10.1053/sarh.2000.9622.
- Mousavi, S., Bereswill, S. dan Heimesaat, M. M. (2019) "Immunomodulatory and antimicrobial effects of vitamin C," *European Journal of Microbiology and Immunology*, 9(3), hal. 73–79. doi: 10.1556/1886.2019.00016.
- Nadia, A., Penggalih, M. H. S. T. dan Huriyati, E. (2019) "Pengembangan Produk Susu yang Mengandung Kalsium, Inulin, dan Teripang sebagai Susu Kaya Prebiotik dan Kolagen," *agriTECH*, 38(4), hal. 442. doi: 10.22146/agritech.13603.
- Nikbakht, M., Pakbin, B. dan Nikbakht Brujeni, G. (2019) "Evaluation of a new lymphocyte proliferation assay based on cyclic voltammetry; an alternative method," *Scientific Reports*, 9(1), hal. 1–7. doi: 10.1038/s41598-019-41171-8.
- Nishikimi, A. *et al.* (2018) "Collagen-derived peptides modulate CD4+ T-cell differentiation and suppress allergic responses in mice," *Immunity Inflammation and Disease*, 6(2), hal. 245–255. doi: 10.1002/iid3.213.
- Noviendri, D. (2011) "Isolation of fucoxanthin and fatty acids analysis of *Padina australis* and cytotoxic effect of fucoxanthin on human lung cancer (H1299) cell lines," *AFRICAN JOURNAL OF BIOTECHNOLOGY*, 10, hal. 1885–

18862.

- Nur 'Aliah *et al.* (2016) "Functional bioactive compounds from freshwater fish, edible birdnest, marine seaweed and phytochemical," *American Journal of Food and Nutrition*, 6(2), hal. 33–38. doi: 10.5251/ajfn.2016.6.2.33.38.
- P3FNI (2020) *Apa Itu Pangan Fungsional*. Tersedia pada: <http://p3fni.org/apa-itu-pangan-fungsional/> (Diakses: 7 Juni 2021).
- Penggalih, M. H. S. T. (2015) *Pengaruh Prebiotik, Kalsium, dan Kolagen Terhadap Pembentukan Massa Tulang Tikus dengan Osteoporosis*. Yogyakarta.
- Pujari, R. dan Banerjee, G. (2021) "Impact of prebiotics on immune response: from the bench to the clinic," *Immunology and Cell Biology*, 99(3), hal. 255–273. doi: 10.1111/imcb.12409.
- Purwaningsih, I. *et al.* (2021) "Current Status of Functional Foods Research and Development in Indonesia: Opportunities and Challenges," *Jurnal Teknologi dan Industri Pangan*, 32(1), hal. 83–91. doi: 10.6066/jtip.2021.32.1.83.
- Putri, D. N. (2020) *Rancangan Penelitian Bidang Teknologi Pangan Analisa Data dengan SPSS dan Minitab*. 1 ed. Malang: UMMPress.
- Rengganis, I. dan Baratawidjaja, K. (2018) *Imunologi Dasar Edisi 12*. 12 ed. Jakarta: Badan Penerbit Fakultas Kedokteran Indonesia.
- Restiani, R. (2017) "Hidrolisis Secara Enzimatis Protein Bungkil Biji Nyamplung (*Calophyllum inophyllum*) Menggunakan Bromelain," *Biota: Jurnal Ilmiah Ilmu-Ilmu Hayati*, 1(3), hal. 103–110. doi: 10.24002/biota.v1i3.1226.
- Roitt, I. M. dan Delves (2001) *Essential Immunology*. 10 ed. London: Blackwell Science.
- Rolim, P. M. (2015) "Prebiotic Food Development," *Food Science and Technology*, 35(1), hal. 3–10.
- Roller, M., Rechkemmer, G. dan Watzl, B. (2004a) "Prebiotic inulin enriched with oligofructose in combination with the probiotics *Lactobacillus rhamnosus* and *Bifidobacterium lactis* modulates intestinal immune functions in rats.," *The Journal of nutrition*, 134(1), hal. 153–156. doi: 10.1093/jn/134.1.153.
- Roller, M., Rechkemmer, G. dan Watzl, B. (2004b) "Prebiotic Inulin Enriched with Oligofructose in Combination with the Probiotics *Lactobacillus rhamnosus* and *Bifidobacterium lactis* Modulates Intestinal Immune Functions in Rats," *Journal of Nutrition*, 134(1), hal. 153–156. doi: 10.1093/jn/134.1.153.
- Rømer, A. M. A., Thorseth, M. L. dan Madsen, D. H. (2021) "Immune Modulatory Properties of Collagen in Cancer," *Frontiers in Immunology*, 12(December), hal. 1–15. doi: 10.3389/fimmu.2021.791453.
- Safithri, M. *et al.* (2019) "Karakteristik Fisikokimia Kolagen Larut Asam dari Kulit Ikan Parang - parang (*Chirocentrus dorab*)," *Jurnal Pengolahan Hasil Perikanan Indonesia*, 22(3), hal. 441–452.
- Schmidt, M. M. *et al.* (2016) "Collagen extraction process," *International Food Research Journal*, 23(3), hal. 913–922.
- Seifert, S. dan Watzl, B. (2007) "Inulin and Oligofructose : Review of Experimental Data on Immune Modulation 1 – 4," (2), hal. 2563–2567.
- Sibilla, S. *et al.* (2015) "An overview of the beneficial effects of hydrolysed collagen as a nutraceutical on skin properties: Scientific background and clinical studies," *Open Nutraceuticals Journal*, 8(1), hal. 29–42. doi: 10.2174/1876396001508010029.
- Siró, I. *et al.* (2008) "Functional food. Product development, marketing and consumer acceptance-A review," *Appetite*, 51(3), hal. 456–467. doi: 10.1016/j.appet.2008.05.060.

- Sousa, V. M. C. de, Santos, E. F. dos dan Sgarbieri, V. C. (2011) "The Importance of Prebiotics in Functional Foods and Clinical Practice," *Food and Nutrition Sciences*, 02(02), hal. 133–144. doi: 10.4236/fns.2011.22019.
- Steed, H. dan Macfarlane, S. (2009) "Mechanisms of Prebiotic Impact on Health," in *Prebiotics and Probiotics Science and Technology*, hal. 135–161. doi: 10.1007/978-0-387-79058-9\_5.
- Subhan, F. *et al.* (2017) "Fish Scale Collagen Peptides Protect against CoCl<sub>2</sub> TNF- $\alpha$ Induced Cytotoxicity and Inflammation via Inhibition of ROS,.pdf," 2017.
- Sumbono, A. (2016) *Biokimia Pangan Dasar*. Yogyakarta: Deepublish.
- Suptijah, P., Indriani, D. dan Wardoyo, S. E. (2018) "ISOLASI DAN KARAKTERISASI KOLAGEN DARI KULIT IKAN PATIN (*Pangasius sp.*)," *Jurnal Sains Natural*, 8(1), hal. 8. doi: 10.31938/jsn.v8i1.106.
- Suradi, R. (2016) "Tata laksana Bayi dari Ibu pengidap HIV/AIDS," *Sari Pediatri*, 4(4), hal. 180. doi: 10.14238/sp4.4.2003.180-5.
- Takahashi, Y. dan Fukusato, T. (2017) "Chapter 13 - Animal Models of Liver Diseases," in Conn, P. M. B. T.-A. M. for the S. of H. D. (Second E. (ed.). Academic Press, hal. 313–339. doi: <https://doi.org/10.1016/B978-0-12-809468-6.00013-9>.
- Tarabella, A. (2019) *Food Products Evolution: Innovation Drivers and Market Trends*. 1 ed. Pisa, Italy: Springer International Publishing.
- Trushina, E. N. *et al.* (2005) "[The influence of dietary inulin and oligofructose on the cell-mediated and humoral immunity in rats].," *Voprosy pitaniia*, 74(3), hal. 22–27.
- Ulfah, M., Octaviani, D. P. dan Sasmito, E. (2016) "Jamur Kombucha Terhadap Proliferasi Sel Limfosit Mencit Galur Balb / C Secara in Vitro," *Jurnal Farmasi Universitas Wahid Hasyim Semarang*, 1(1), hal. 49–56.
- Vattem, D. A. dan Maitin, V. (2016) *Functional Foods, Nutraceuticals and Natural Products: Concept and Application*. Lancaster, Pennsylvania: DEStech Publications, Incorporated.
- Vogt, L. *et al.* (2015) "Immunological Properties of Inulin-Type Fructans," *Critical Reviews in Food Science and Nutrition*, 55(3), hal. 414–436. doi: 10.1080/10408398.2012.656772.
- Wang, S. *et al.* (2020) "Rational use of prebiotics for gut microbiota alterations: Specific bacterial phylotypes and related mechanisms," *Journal of Functional Foods*, 66(February). doi: 10.1016/j.jff.2020.103838.
- Watzl, B., Girrbach, S. dan Roller, M. (2005) "Inulin, oligofructose and immunomodulation," *British Journal of Nutrition*, 93(S1), hal. S49–S55. doi: 10.1079/bjn20041357.
- Wibawa, J. C., Wati, L. H. dan Arifin, M. Z. (2020) "Mekanisme Vitamin C Menurunkan Stres Oksidatif Setelah Aktivitas Fisik," *JOSSAE: Journal of Sport Science and Education*, 5(1), hal. 57. doi: 10.26740/jossae.v5n1.p57-63.
- Widyaningsih, T. D., Wijayanti, N. dan Nugrahini, N. I. P. (2017) *Tri Dewanti Widyaningsih, Novita Wijayanti, Nur Ida Panca Nugrahini*. 1 ed. Diedit oleh T. U. Press. Malang: UB Press.
- Widyanto, R. M. *et al.* (2021) *Gizi Molekuler*. Malang: UB Press.
- Wijaya, W. P., Gozali, T. dan Septiadji, M. R. (2020) "PENAMBAHAN KOLAGEN SISIK DAN TULANG IKAN GURAMI (*Osphronemus goramy*) PADA MINUMAN JUS JAMBU BIJI (*Psidium guajava L.*)," *Pasundan Food Technology Journal*, 6(3), hal. 175–182. doi: 10.23969/pftj.v6i3.2174.

- Winarno, F. G. (2008) *Kimia Pangan dan Gizi*. 1 ed. Bogor: M-Brio Press.
- Woods, M. L. dan Shimizu, Y. (2001) "Signaling networks regulating  $\beta$ 1 integrin-mediated adhesion of T lymphocytes to extracellular matrix," *Journal of leukocyte biology*, 69(6), hal. 874–880.
- Xiao, S. dan Li, J. (2020) "Study on Functional Components of Functional Food Based on Food Vitamins," *Journal of Physics: Conference Series*, 1549(3). doi: 10.1088/1742-6596/1549/3/032002.
- Yadav, K. *et al.* (2014) "Cell Proliferation Assays," *eLS*. doi: 10.1002/9780470015902.a0002566.
- Yemelyanov, A. Y. *et al.* (1998) "Low Molecular Weight Collagen Peptides Affect Migration, Proliferation and Apoptosis of Mouse Spleen Lymphocytes.," *Russian journal of immunology: RJI: official journal of Russian Society of Immunology*, 3(1), hal. 69–78.
- Ying, S., Kikuchi, Y. dan Meng, Q. (2002) "TH1/TH2 Cytokines & Inflammatory Cells in Skin Biopsy Specimens from Patients with Chronic Idiopathic Urticaria: Comparison with the Allergen-induced Late-Phase Cutaneous Reaction," *J Allergy Clin Immunol*, 7(1), hal. 87–90.
- Yu, F. *et al.* (2020) "Immunomodulatory activity of low molecular-weight peptides from *Nibe japonica* skin in cyclophosphamide-induced immunosuppressed mice," *Journal of Functional Foods*, 68(October 2019), hal. 103888. doi: 10.1016/j.jff.2020.103888.
- Yunianto, A. E. *et al.* (2021) *Ekologi Pangan dan Gizi*. 1 ed. Diedit oleh R. Watrionthos dan J. Simarmata. Medan: Yayasan Kita Menulis.
- Zenhom, M. *et al.* (2011) "Prebiotic oligosaccharides reduce proinflammatory cytokines in intestinal Caco-2 cells via activation of PPAR $\gamma$  and peptidoglycan recognition protein 3.," *The Journal of nutrition*, 141(5), hal. 971–977. doi: 10.3945/jn.110.136176.