

## DAFTAR PUSTAKA

- Abedinia, Ahmadreza, Ariffin, F., Huda, N. dan Nafchi, A. M. (2017). Extraction And Characterization Of Gelatin From The Feet Of Pekin Duck (*Anas Platyrhynchos Domestica*) As Affected By Acid, Alkaline, And Enzyme Pretreatment. *International Journal Of Biological Macromolecules* 98 (May): 586–94. <https://doi.org/10.1016/j.ijbiomac.2017.01.139>
- Abedinia, A., Mohammadi Nafchi, A., Sharifi, M., Ghalambor, P., Oladzadabbasabadi, N., Ariffin, F., & Huda, N. (2020). Poultry gelatin: Characteristics, developments, challenges, and future outlooks as a sustainable alternative for mammalian gelatin. *Trends in Food Science & Technology*, 104, 14–26. <https://doi.org/10.1016/j.tifs.2020.08.001>
- Abou-Taleb, K. A., & Galal, G. F. (2018). A comparative study between one-factor-at-a-time and minimum runs resolution-IV methods for enhancing the production of polysaccharide by *Stenotrophomonas daejeonensis* and *Pseudomonas geniculate*. *Annals of Agricultural Sciences*, 63(2), 173–180. <https://doi.org/10.1016/j.aosas.2018.11.00>
- Ahmad, Mehraj, & Benjakul, S. (2011). Characteristics of Gelatin from the Skin of Unicorn Leatherjacket (*Aluterus Monoceros*) as Influenced by Acid Pretreatment and Extraction Time. *Food Hydrocolloids*, 25, (3): 381–388. <https://doi.org/10.1016/j.foodhyd.2010.07.004>.
- Alfaro, T., Alexandre da, Fonseca, G.G., Balbinot, E., de Souza, N. E., & Carlos Prentice. (2014). Yield, Viscosity, and Gel Strength of Wami Tilapia (*Oreochromis Urolepis Hornorum*) Skin Gelatin: Optimization of the Extraction Process. *Food Science and Biotechnology*, 23, (3): 765–773. <https://doi.org/10.1007/s10068-014-0103-7>.
- Al-Hassan, A. A., A. M. Abdel-Salam, F. Al Nasiri, H. M. Mousa, & Nafchi, A. M. 2021. Extraction and Characterization of Gelatin Developed from Camel Bones. *Journal of Food Measurement and Characterization*, 15 (5): 4542–4551. <https://doi.org/10.1007/s11694-021-01029-y>.
- Ali, M. E. dan Ahamad, M. N. U. *Preparation And Processing Of Religious And Cultural Foods*. 215–39. Woodhead Publishing.
- Alipal, J., N. A. S. Mohd Pu'ad, T. C. Lee, N. H. M Nayan, N. Sahari, H. Basri, M. I. Idris dan H. Z. Abdullah. (2021). A Review Of Gelatin: Properties, Sources, Process, Applications, And Commercialisation. *Materials Today: Proceedings*, International Conference Of Chemical Engineering & Industrial Biotechnology.

- AL-Kahtani, H. A., Jaswir, I., Ismail, E. A., Ahmed, M. A., Monsur Hammed, A., Olorunnisola, S., & Octavianti, F. (2017). Structural Characteristics of Camel-bone Gelatin by Demineralization and Extraction. *International Journal of Food Properties*, 20 (11), 2559–2568. <https://doi.org/10.1080/10942912.2016.1244543>
- AOAC. (2005). Official Methods of Analysis of AOAC International. AOAC International.
- Arteaga, G. E., Li-Chan, E., Vazquez-Arteaga, M. C. and Nakai, S. 1996. Systematic experimental designs for product formula optimization. *Trends in Food Science and Technology* 5: 243–254.
- Asih, I. D., Kemala, T., & Nurilmala, M. (2019). Halal gelatin extraction from Patin fish bone (*Pangasius hypophthalmus*) by-product with ultrasound-assisted extraction. *IOP Conference Series: Earth and Environmental Science*, 299(1), 012061. <https://doi.org/10.1088/1755-1315/299/1/012061>
- Badan Standarisasi Nasional. 1995. “SNI Gelatin”. <https://www.bsn.go.id/>.
- Bahar, A, Rusijono, & Nita Kusumawati. (2018). Extraction and Characterization of The Base Halal Gelatin Based on Bovine Bone. *National Seminar on Chemistry*, 171. <https://doi.org/10.2991/snk-18.2018.10>
- Bahar, A., Rusijono, R., & Kusumawati, N. (2019). The Effect of Curing and Extraction Time against Yield and Quality of Type B Gelatin from Goat Bone. *Atlantis Highlights in Chemistry and Pharmaceutical Sciences*, 1: 5-9. <https://doi.org/10.2991/snk-19.2019.2>
- Barth, Andreas. (2007). Infrared Spectroscopy Of Proteins. *Biochimica Et Biophysica Acta (BBA) – Bioenergetics*. 1767 (9): 1073–1101.
- Bezerra, M.A.; Santelli, R.E.; Oliveira, E.P.; Villar, L.S.; Escaleira, L.A. Response surface methodology (RSM) as a tool for optimization in analytical chemistry. *Talanta* 2018, 76, 965–977.
- Bower, C. k., Avena-Bustillos, R. j., Olsen, C. w., McHugh, T. h., & Bechtel, P. j. (2006). Characterization of Fish-Skin Gelatin Gels and Films Containing the Antimicrobial Enzyme Lysozyme. *Journal of Food Science*, 71(5), M141–M145. <https://doi.org/10.1111/j.1750-3841.2006.00031.x>
- British Standard 757. (1975). Sampling and Testing of Gelatin. In Imeson: Thickening and Gelling Agents for Food. 1992. Academic Press, New York.

- Burjanadze, N.D. (1982). "Stabilization Of Collagen Structure: Dependence Of Collagen Denaturation Enthalpy On The Imino Acid Content." *Biopolymers*, Vol. 21, 1587-1595.
- Cansu, U. dan Boran, G. (2015). Optimization of a Multi-Step Procedure for Isolation of Chicken Bone Collagen. *Korean Society for Food Science of Animal Resources*, 35, (4): 431- 440. <http://https://doi.org/10.5851/kosfa.2015.35.4.431>.
- Cao, Songmin, Yi Wang, Lujuan Xing, Wangang Zhang, dan Guanghong Zhou. (2020). Structure And Physical Properties Of Gelatin From Bovine Bone Collagen Influenced By Acid Pretreatment And Pepsin. *Food And Bioproducts Processing* 121 (May): 213–23.
- da Trindade Alfaro, A., Fonseca, G. G., Balbinot, E., de Souza, N. E., & Prentice, C. (2014). Yield, viscosity, and gel strength of wami tilapia (*Oreochromis urolepis hornorum*) skin gelatin: Optimization of the extraction process. *Food Science and Biotechnology*, 23(3), 765–773. <https://doi.org/10.1007/s10068-014-0103-7>
- Derkach, S. R., Kuchina, Y. A., Baryshnikov, A. V., Kolotova, D. S., & Voron'ko, N. G. (2019). Tailoring Cod Gelatin Structure and Physical Properties with Acid and Alkaline Extraction. *Polymers*, 11(10), Article 10. <https://doi.org/10.3390/polym11101724>
- Díaz-Calderón, P., Flores, E., González-Muñoz, A., Pepczynska, M., Quero, F., & Enrione, J. (2017). Influence of extraction variables on the structure and physical properties of salmon gelatin. *Food Hydrocolloids*, 71, 118–128. <https://doi.org/10.1016/j.foodhyd.2017.05.004>
- Direktur Jenderal Pelayanan Peternakan dan Kesehatan Hewan. (2023). Statistik Peternakan dan Kesehatan Hewan 2023. Jakarta: Direktorat Jenderal Peternakan dan Kesehatan Hewan.
- Duconseille, Anne, Astruc, T., Quintana, N., Meersman, F. dan Sante- Lhoutellier, V. (2015). Gelatin Structure And Composition Linked To Hard Capsule Dissolution: A Review. *Food Hydrocolloids* 43 (January): 360–76.
- Erge, A., & Zorba, Ö. (2018). Optimization of gelatin extraction from chicken mechanically deboned meat residue using alkaline pre-treatment. *LWT*, 97, 205–212. <https://doi.org/10.1016/j.lwt.2018.06.057>
- Fasya, A. G., Amalia, S., Imamudin, M., Nugraha, R. P., Ni'mah, N., & Yuliani, D. (2018). Optimasi Produksi Gelatin Halal dari Tulang Ayam Broiler (*Gallus Domesticus*) dengan Variasi Lama Perendaman dan Konsentrasi Asam Klorida (HCl). *Indonesia Journal of Halal*, 1(2), 102–108. <https://doi.org/10.14710/halal.v1i2.3665>

- Fatima, S., Mir, M. I., Khan, M. R., Sayyed, R. Z., Mehnaz, S., Abbas, S., Sadiq, M. B., & Masih, R. (2022). The Optimization of Gelatin Extraction from Chicken Feet and the Development of Gelatin Based Active Packaging for the Shelf-Life Extension of Fresh Grapes. *Sustainability*, 14(13), Article 13. <https://doi.org/10.3390/su14137881>
- Fatimah, Dewi dan Jannah, A. (2012). Efektivitas Penggunaan Asam Sitrat Dalam Pembuatan Gelatin Tulang Ikan Bandeng (*Chanos-Chanos Forskal*). *Alchemy*. <https://doi.org/10.18860/al.v0i0.1663>.
- Fatimah, Siti, Sarto, S., Fahrurrozi, M. dan Budhijanto, B. (2023). Characterization And Development Of Gelatin From Cow Bones: Investigation Of The Effect Of Solvents Used For Soaking Beef Bones. *Applied Sciences* 13 (3): 1550.
- Feng, Xu. (2009). Chemical And Biochemical Basis Of Cell-Bone Matrix Interaction In Health And Disease. *Current Chemical Biology* 3 (May): 189–96.
- GMIA. (2012). Gelatin Handbook. Gelatin Manufactures Institute of America.
- GMIA. (2019). Gelatin Handbook. Gelatin Manufactures Institute of America.
- Gómez-Guillén, M. C., B. Giménez, M. E. López-Caballero dan M. P. Montero. (2011). Functional And Bioactive Properties Of Collagen And Gelatin From Alternative Source. *Food Hydrocolloids, 25 Years Of Advances In Food Hydrocolloid Research* 25 (8): 1813–27.
- Gómez-Guillén, M. C., Turnay, J., Fernández-Díaz, M. D., Ulmo, N., Lizarbe, M. A., & Montero, P. (2002). Structural and physical properties of gelatin extracted from different marine species: A comparative study. *Food Hydrocolloids*, 16(1), 25–34. [https://doi.org/10.1016/S0268-005X\(01\)00035-2](https://doi.org/10.1016/S0268-005X(01)00035-2)
- Gorgieva, S., Kokol, V. (2011). *Collagen- Vs. Gelatine-Based Biomaterials And Their Biocompatibility: Review And Perspectives*. Biomaterials Applications for Nanomedicine. 18-52.
- Gudmundsson, M., & Hafsteinsson, H. (1997). Gelatin from cod skins as affected by chemical treatments. *Journal of Food Science*, 62(1), 37– 39, 47.
- Gu, H., Liang, L., Zhu, X. peng, Jiang, X., Du, M., & Wang, Z. (2023). Optimization of enzymatic extraction, characterization and bioactivities of Se-polysaccharides from Se-enriched *Lentinus edodes*. *Food Bioscience*, 51, 102346. <https://doi.org/10.1016/j.fbio.2022.102346>
- Gumilar, Jajang, Suryaningsih, L., & Setia, D. F. (2023). The Use of Various Hydrochloric Acid Concentration Levels on the Rabbit Bone Gelatin

- Quality. *Jurnal Ilmu Ternak Universitas Padjadjaran*, 23, (2): 154–160. <https://doi.org/10.24198/jit.v23i2.50861>.
- Hawkins, D. (2001). *Biomechanics of musculoskeletal tissues*. 106 p (volume dan edisi jika ada). University of California-Davis. CA, USA.
- Huda, Nurul, Seow, E., Nor, N., Muhammad, N. A. N., Fazilah, A. dan Easa, A. (2013). Effect Of Duck Feet Collagen Addition On Physicochemical Properties Of Surimi. *International Food Research Journal* 20 (January): 537–44.
- Intarasirisawat, R., Benjakul, S., Visessanguan, W., Prodpran, T., Tanaka, M., & Howell, N. K. (2007). Autolysis study of bigeye snapper (*Priacanthus macracanthus*) skin and its effect on gelatin. *Food Hydrocolloids*, 21(4), 537–544. <https://doi.org/10.1016/j.foodhyd.2006.05.012>
- Isaksson, H., Harjula, T., Koistinen, A., Iivarinen, J., Seppänen, K., Arokoski, J. P. A., Brama, P. A., Jurvelin, J. S., & Helminen, H. J. (2010). Collagen and mineral deposition in rabbit cortical bone during maturation and growth: Effects on tissue properties. *Journal of Orthopaedic Research*, 28(12), 1626–1633. <https://doi.org/10.1002/jor.21186>
- Ita Zuraida, Bagus F. Pamungkas. (2024). Effects of acid pretreatment and extraction temperature on the properties of gelatin from striped snakehead (*Channa striata*) scales. *ResearchGate*. 12 (5): 2937-2945.
- Jamilah, B., Harvinder, K.G. (2002). “Properties Of Gelatins From Skins Of Fish— Black Tilapia (*Oreochromis Mossambicus*) And Red Tilapia (*Oreochromis Nilotica*).” *Food Chemistry*. 77 (2002) 81–84.
- Jongjareonrak, A., Rawdkuen, S., Chaijan, M., Benjakul, S., Osako, K. Tanaka, M. (2010). “Chemical Compositions And Characterisation Of Skin Gelatin From Farmed Giant Catfish (*Pangasianodon Gigas*).”. *LWT - Food Science and Technology* 43 (2010) 161–165. <https://doi.org/doi:10.1016/j.lwt.2009.06.012>.
- Kaewruang, P., Benjakul, S., Prodpran, T., & Nalinanon, S. (2013). Physicochemical and functional properties of gelatin from the skin of unicorn leatherjacket (*Aluterus monoceros*) as affected by extraction conditions. *Food Bioscience*, 2, 1–9. <https://doi.org/10.1016/j.fbio.2013.03.002>
- Kanwate, B. W., & Kudre, T. G. (2022). Impact of different extraction conditions on yield, physicochemical and functional characteristics of gelatin from *Labeo rohita* swim bladder. *Food Science and Biotechnology*, 31(10), 1277–1287. <https://doi.org/10.1007/s10068-022-01121-z>

- Karim, A. A. dan Bhat, R. (2008). Gelatin Alternatives For The Food Industry: Recent Developments, Challenges And Prospects. *Trends In Food Science & Technology* 19 (12) : 644–56.
- Khirzin, Habib, S. Ton dan Fatkhurrohman, F. (2019). Ekstraksi Dan Karakterisasi Gelatin Tulang Itik Menggunakan Metode Ekstraksi Asam. *Jurnal Sain Peternakan Indonesia* 14 (July): 119–27.
- Kim et al.,. (2012). Effects of Soaking pH and Extracting Temperature on the Physicochemical Properties of Chicken Skin Gelatin. *ResearchGate*, 32(3), 316–322. <https://doi.org/10.5851/kosfa.2012.32.3.316>
- Kittiphattanabawon, P., Benjakul, S., Visessanguan, W., Nagai, T. dan Tanaka, M. (2005). Characterization of acid-soluble collagen from skin. *Food Chemistry* 89, 363–372.
- Kong, Jilie, & Yu, S. (2007). Fourier Transform Infrared Spectroscopic Analysis of Protein Secondary Structures. *Acta Biochimica Et Biophysica Sinica*, 39,(8): 549–559. <https://doi.org/10.1111/j.1745-7270.2007.00320.x>.
- Kumar, D. P., Chandra, M. V., Elavarasan, K., & Shamasundar, B. A. (2018). Structural properties of gelatin extracted from croaker fish (*Johnius* sp) skin waste. *International Journal of Food Properties*, 20(3), S2612–S2625. <https://doi.org/10.1080/10942912.2017.1381702>.
- Kuepethkaew, Sakonwat, Klomklao, S., Yi Zhang, Aryee, A., Benjakul, S., Betti, M., & Simpson, B. (2023). Characteristics of Gelatin from Lizardfish (*Saurida Micropectoralis*) and Threadfin Bream (*Nemipterus Hexodon*) Skins as Influenced by Extraction Conditions. *Journal of Food Science and Technology*, 60, (11): 2813–2824. <https://doi.org/10.1007/s13197-023-05799-9>.
- Lamers, Lazzaron, D., Riguetto, C. V. T., Krein, D. D. C., Loss, R. A., Dettmer, A., & Gutterres, M. (2024). Sequential Extraction and Characterization of Gelatin from Turkey (*Meleagris Gallopavo*) Feet. *Polymer Bulletin*, 81, (13): 12151–12167. <https://doi.org/10.1007/s00289-024-05283-0>.
- Li, X., He, Z., Xu, J., Zhang, L., Liang, Y., Yang, S., Wang, Z., Zhang, D., Gao, F., & Li, H. (2021). Effect of nanoprocessing on the physicochemical properties of bovine, porcine, chicken, and rabbit bone powders. *Food Science & Nutrition*, 9(7), 3580–3592. <https://doi.org/10.1002/fsn3.2312>
- Liu, T., Dai, H., Ma, L., Yu, Y., Tang, M., Li, Y., Hu, W., Feng, X., & Zhang, Y. (2019). Structure of Hyla rabbit skin gelatin as affected by microwave-assisted extraction. *International Journal of Food Properties*, 22(1), 1594–1607. <https://doi.org/10.1080/10942912.2019.1663871>



- M. Nik, Huda, N., Easa, A. dan Fazilah, A. (2014). Poultry As An Alternative Source Of Gelatin. *Health & The Environment Journal* 5 (January): 37–49.
- Ma, M., Ma, L., Yu, W., Zhang, X., Shen, Y., & Zhang, Y. (2018). Research on rapid gelatinization of rabbit skin collagen as effect of acid treatment. *Food Hydrocolloids*, 77, 945–951. <https://doi.org/10.1016/j.foodhyd.2017.11.042>
- Ma, Yanli, Zeng, X., Ma, X., Yang, R., dan Zhao, W. (2019). A Simple And Eco-Friendly Method Of Gelatin Production From Bone: One-Step Biocatalysis. *Journal Of Cleaner Production* 209 (February): 916–26.
- Mada, T., Duraisamy, R. dan Guesh, F. (2022). Optimization and characterization of pectin extracted from banana and papaya mixed peels using response surface methodology. *Food Science & Nutrition* 10(4) : 1222-1238.
- Mahmoodani, F., Ardekani, V. S., See, F. S., Yusop, S. M. dan Babji, A. S. (2014). Optimization And Physical Properties Of Gelatin Extracted From Pangasius Catfish (*Pangasius Sutchi*) Bone. *Journal Of Food Science And Technology* 51 (11): 3104–13.
- Mariod, A. A., & Adam, H. F. (2013). Review: Gelatin, Source, Extraction and Industrial Applications. *Cta Sci. Pol., Technol. Aliment*, 12(2), 135–147.
- Matulessy, D. N., Erwanto, Y., Suryanto, E. (2021). Characterization and Functional Properties of Gelatin from Goat Bone through Alcalase and Neutrase Enzymatic Extraction. *Veterinary World*. 14, (9): 2397-2409. <https://www.doi.org/10.14202/vetworld.2021.2397-240>.
- Matulessy, D. N., Erwanto, Y., Nurliani, & Suryanto, E. (2020). Ekstraksi dan Karakterisasi Gelatin Tulang Kambing Kacang Menggunakan Neutrase. *Agrinimal*, 8(1), 24–32.
- Meyers, M. A., Chen, P., Lin, A. Y. dan Seki, Y. (2008) Biological materials: Structure and mechanical properties. *Prog. Mater. Sci* 53, 1-206.
- Milano, F., Masi, A., Madaghiele, M., Sannino, A., Salvatore, L., & Gallo, N. (2023). Current Trends in Gelatin-Based Drug Delivery Systems. *Pharmaceutics*, 15(5), Article 5. <https://doi.org/10.3390/pharmaceutics15051499>
- Moreno-Piraján, Juan, Giraldo, M., dan Cuello, S. (2011). Study Of The Textural Properties Of Bovine Bones Char Under Different Conditions. *Journal Of Water Resource And Protection* 03 (January).
- Mulyani, S., Setyabudi, F. M. C. S., Pranoto, Y., & Santoso, U. (2017a). Physicochemical Properties of Gelatin Extracted from Buffalo Hide

Pretreated with Different Acids. *Food Science of Animal Resources*, 37(5), 708–715. <https://doi.org/10.5851/kosfa.2017.37.5.708>

Mulyani, S., Setyabudi, F. M. C. S., Pranoto, Y., & Santoso, U. (2017b). The effect of pretreatment using hydrochloric acid on the characteristics of buffalo hide gelatin. *Journal of the Indonesian Tropical Animal Agriculture*, 42(1), 14–22. <https://doi.org/10.14710/jitaa.42.1.14-22>

Myers, R.H.; Montgomery, D.C.; Anderson-Cook, C.M. Response Surface Methodology: Process and Product Optimization Using Designed Experiments, 3rd ed.; John Wiley & Sons: London, UK, 2016.

Nagarajan, Muralidharan, Benjakul, S., Prodpran, T., Songtipya, P. dan Kishimura, H. (2012). Characteristics and Functional Properties of Gelatin from Splendid Squid (*Loligo Formosana*) Skin as Affected by Extraction Temperatures. *Food Hydrocolloids* 29 (2): 389–97.

Nikoo, M., S. Benjakul, D. Ocen, N. Yang, B. Xu, L. Zhang, & X. Xu. (2013). Physical and Chemical Properties of Gelatin from the Skin of Cultured Amur Sturgeon (*Acipenser Schrenckii*). *Journal of Applied Ichthyology*, 29, (5): 943–950. <https://doi.org/10.1111/jai.12238>.

Niu, Lihong, Zhou, X., Yuan, C., Bai, Y., Lai, K., Yang, F., & Huang, Y. (2013). Characterization of Tilapia (*Oreochromis Niloticus*) Skin Gelatin Extracted with Alkaline and Different Acid Pretreatments. *Food Hydrocolloids*, 33, (2): 336–341. <https://doi.org/10.1016/j.foodhyd.2013.04.014>.

Noor, Mohd, N. Q. I., Razali, R.S., Ismail, N. K., Ramli, R. A., Razali, U. H. M., Bahauddin, A. R., Zaharudin, N., Rozzamri, A., Bakar, J. dan Shaarani, S. M. (2021). Application Of Green Technology In Gelatin Extraction: A Review. *Processes* 9 (12) : 2227.

Norziah, M. H., Kee, H. Y., & Norita, M. (2014). Response surface optimization of bromelain-assisted gelatin extraction from surimi processing wastes. *Food Bioscience*, 5, 9–18. <https://doi.org/10.1016/j.fbio.2013.10.001>

Nugroho, A., & Suprayitno, E. (2019). Effect of Extraction Time on Gel Strengh, Viscosity and Amino Acid of Gelatin Fish Bones Pangasius hypophthalmus. *International Journal of Scientific and Research Publications (IJSRP)*, 9(9), p9388. <https://doi.org/10.29322/IJSRP.9.09.2019.p9388>

Nur Hanani, Z. A., Roos, Y. H. dan Kerry, J. P. (2014). Use And Application Of Gelatin As Potential Biodegradable Packaging Materials For Food Products. *International Journal Of Biological Macromolecules*, 71 (November): 94–102.



- Nurilmala, Mala, Nasirullah, M., Nurhayati, T. dan Darmawan, N. (2021). Karakteristik Fisik-Kimia Gelatin Dari Kulit Ikan Patin, Ikan Nila, Dan Ikan Tuna. *Jurnal Perikanan Universitas Gadjah Mada* 23 (June): 71. (kurang volume dan halaman)
- Nurilmala, M., Sriwahyuni, D., Nugraha, R., Ridzna Kartika, V., Darmawan, N., Apriliani Wulandari Putri, E., Wirabudi Pranata, A., & Ochiai, Y. (2023). Response surface methodology (RSM) for optimization of gelatin extraction from pangasius fish skin and its utilization for hard capsules. *Arabian Journal of Chemistry*, 16(8), 104938. <https://doi.org/10.1016/j.arabjc.2023.104938>
- Nurwantoro, N., Hintono, A., Legowo, A. M., Mulyani, S., Quna, T. R., & Sutaryo, S. (2022). The Functional Properties of Rabbit Skin Gelatin Compared to Commercial Gelatin and Its Application in Jelly Candy. *Jurnal Ilmu Dan Teknologi Hasil Ternak*, 17(1), 1–9. <https://doi.org/10.21776/ub.jitek.2022.017.01.1>
- Ockerman, H. W dan Hansen, C. L. (1988). Animal by-product processing. 366 p (volume dan edisi jika ada). Ellis Horwood Ltd. Chichester, UK
- Ogawa, M., Moody, M.W., Portier, R.J., Bell, J., Schexnayder, M.A., Losso, J.N., 2003. Biochemical Properties of Black Drum and Sheepshead Seabream Skin Collagen. *J. Agric. Food Chem.* 2003, (51) 8088–8092. <https://doi.org/10.1021/jf034350r>.
- Pang, S, Su, F. Y, Green, A, Salim, J, McKittrick, J, & Jasiuk, I. (2021). Comparison of diferent protocols for demineralization of cortical bone. *Scientific Reports*, 11(7012), 1–10. <https://doi.org/10.1038/s41598-021-86257-4>.
- Pertiwi, Mega, Atma, Y., Mustopa, A. dan Maisarah, R. (2018). Physical And Chemical Characteristics Of Gelatin From Pangasius Catfish Bone With Pre-Treatment Of Citric Acid. *Jurnal Aplikasi Teknologi Pangan* 7 (September): 83–91.
- Rather, Jahangir, A., Akhter, N., Ashraf, Q. S., Mir, S. A., Makroo, H. A., Majid, D., Barba, F. J., Khaneghah, A. M. dan Dar, B. N. (2022). A Comprehensive Review On Gelatin: Understanding Impact Of The Sources, Extraction Methods, And Modifications On Potential Packaging Applications. *Food Packaging And Shelf Life* 34 (December): 100945.
- Rajewski, J., & Dobrzyńska-Inger, A. (2021). Application of Response Surface Methodology (RSM) for the Optimization of Chromium(III) Synergistic Extraction by Supported Liquid Membrane. *Membranes*, 11(11), Article 11. <https://doi.org/10.3390/membranes11110854>

- Ramli, R. A., Mohamad Razali, U. H., & Izzreen Mohd Noor, N. Q. (2023). Optimization of extraction conditions of gelatin from buffalo (*Bubalus bubalis*) skins using response surface methodology. *Heliyon*, e14367. <https://doi.org/10.1016/j.heliyon.2023.e14367>
- Rusli, A., Peranginangin, R, Haq, N, & Ma'ruf, W. F. (2004). Ekstraksi Gelatin dari Kulit Ikan Patin (*Pangasius Hypophthalmus*) secara Proses Asam. *Jurnal Penelitian Perikanan Indonesia*, 10(3), 75–84. <https://doi.org/10.15578/jpbkp.v10i3.376>
- Rýglová, Š., Braun, M., & Suchý, T. (2017). Collagen and Its Modifications—Crucial Aspects with Concern to Its Processing and Analysis. *Macromolecular Materials and Engineering*, 302(6), 1600460. <https://doi.org/10.1002/mame.201600460>
- M.I. Said, J.C.Likadja dan M.Hatta (2011). “Pengaruh Waktu Dan Konsentrasi Bahan Curing Terhadap Kuantitas Dan Kualitas Gelatin Kulit Kambing Yang Diproduksi Melalui Proses Asam.” 1(2): 120-128.
- Said, Saadah, N. dan Sarbon, N. M. (2022). Physical And Mechanical Characteristics Of Gelatin-Based Films As A Potential Food Packaging Material. *Membranes* 12 (5): 442.
- Saenmuang, Soraya, Phothiset, S., & Chumnanka, C. (2020). Extraction and Characterization of Gelatin from Black-Bone Chicken by-Products. *Food Science and Biotechnology*, 29, (4): 469–78. <https://doi.org/10.1007/s10068-019-00696-4>.
- Samatra, M. Y., Razali, U. H. M., Shaarani, S. M., Roslan, J., Ramli, R. A., & Nor Qhairul Izzreen, M. N. (2024). Physicochemical and functional properties of buffalo (*Bubalus bubalis*) bone gelatin extracted using acid pre-treatment. *Future Foods*, 10, 100428. <https://doi.org/10.1016/j.fufo.2024.100428>
- Sanaei, A., Mahmoodani, F., See, S. F., Yusop, S. M. dan Babji, A. (2013). Optimization Of Gelatin Extraction And Physico-Chemical Properties Of Catfish (*Clarias Gariepinus*) Bone Gelatin. *International Food Research Journal* 20 (January): 423–30.
- Santoso C., Surti T., Sumardianto S. (2015). Differences in the use of the concentration of citric acid solution in the manufacture of stingray cartilage gelatin (*Himantura gerrardi*). *J. Processing and Biotechnology Fishery Products*. 4: 106-114. <https://ejournal3.undip.ac.id/index.php/jpbhp/article/view/9200>.
- Sealy, J., Johnson, M., Richards, M. dan Nehlich, O. (2014). Comparison of two methods of extracting bone collagen for stable carbon and nitrogen

isotope analysis: comparing whole bone demineralization with gelatinization and ultrafiltration. *J. Archaeol. Sci* 47, (kurang volume) 64-69.

Sinthusamran, S., Benjakul, S., Hemar, Y., & Kishimura, H. (2018). Characteristics and Properties of Gelatin from Seabass (*Lates calcarifer*) Swim Bladder: Impact of Extraction Temperatures. *Waste and Biomass Valorization*, 9(2), 315–325. <https://doi.org/10.1007/s12649-016-9817-5>

Sinthusamran, S., Benjakul, S., & Kishimura, H. (2014). Characteristics and gel properties of gelatin from skin of seabass (*Lates calcarifer*) as influenced by extraction conditions. *Food Chemistry*, 152, 276–284. <https://doi.org/10.1016/j.foodchem.2013.11.109>

Siregar, G.R.M., Suprayitno, E. (2019). N.D. “Amino Acid Composition Of Gelatin From Ephinephelus Sp.” *IOSR Journal of Agriculture and Veterinary Science*. 12 (4) 1: 51-54

S. Raissi, & R.E. Farzani. (2009). Statistical Process Optimization Through Multi-Response Surface Methodology, *World Academy of Science, Engineering and Technology*, 3 (3): 197-201.

Stock, S. R. (2015). The Mineral–Collagen Interface In Bone. *Calcified Tissue International* 97 (3): 262–80.

Sugihartono, Erwanto, Y., & Wahyuningsih, R. (2019). *Kolagen Dan Gelatin Untuk Industri Makanan Dan Kesehatan*. Yogyakarta: Penerbit Lily.

Sugita, P, Rifai, M, Ambarsari, L, Rahayu, D.U.C, & Dianhar, H. (2024). Gelatin Extraction and Characterization from Femur Bones of Bovine and Porcine with Acid Process. *Jurnal Jamu Indonesia*, 6(1), 32–41. <https://doi.org/10.29244/jji.v6i1.188>

Sultana, Sharmin, Ali, M. E. dan Ahamad, M. N. U. (2018). 11 - Gelatine, Collagen, And Single Cell Proteins As A Natural And Newly Emerging Food Ingredients.

Suptijah, Pipih, Suseno, S. H. dan Anwar, C. (2013). Analisis Kekuatan Gel (Gel Strength) Produk Permen Jelly Dari Gelatin Kulit Ikan Cucut Dengan Penambahan Karaginan Dan Rumput Laut. *Jurnal Pengolahan Hasil Perikanan Indonesia* 16 (2).

Suryanti, Marseno, D. W., Indrati, R. dan Irianto, H. E. (2017). Pengaruh Jenis Asam Dalam Isolasi Gelatin Dari Kulit Ikan Nila (*Oreochromis niloticus*) Terhadap Karakteristik Emulsi. *Agritech* 37 (4): 410–19.

Tang, C., Zhou, K., Zhu, Y., Zhang, W., Xie, Y., Wang, Z., Zhou, H., Yang, T., Zhang, Q., & Xu, B. (2022). Collagen and its derivatives: From structure

and properties to their applications in food industry. *Food Hydrocolloids*, 131, 107748. <https://doi.org/10.1016/j.foodhyd.2022.107748>.

Tkaczewska, Joanna, Morawska, M., Kulawik, P. dan Zajac, M. (2018). Characterization of Carp (*Cyprinus Carpio*) Skin Gelatin Extracted Using Different Pretreatments Method. *Food Hydrocolloids*, 81 (2018):169-179. <https://doi.org/10.1016/j.foodhyd.2018.02.048>.

Toniasso, D. P. W., Giacomelli da Silva, C., de Souza Brum Junior, B., Somacal, S., Emanuelli, T., Hashime Kubota, E., Cristina Prestes Dornelles, R., & Mello, R. (2022). Collagen extracted from rabbit: Meat and by-products: Isolation and physicochemical assessment. *Food Research International*, 162, 111967. <https://doi.org/10.1016/j.foodres.2022.111967>

Venkatesan, J., Lowe, B., Manivasagan, P., Kang, K.H., Chalisserry, E., Anil, S., Kim, D. dan Kim, S.-K. (2015). Isolation and characterization of nano-hydroxyapatite from salmon fish bone. *Materials* (apakah ini nama jurnal?), 8, 54265439. (kurang volume)

Venupriya, V., Krishnaveni, V., & Ramya, M. (2023). Effect of acidic and alkaline pretreatment on functional, structural and thermal properties of gelatin from waste fish scales. *Polymer Bulletin*, 80(9), 10533–10567. <https://doi.org/10.1007/s00289-022-04600-9>

Wahyono, Teguh, Sadarman, S., Handayani, T., Trinugraha, A. dan Priyoatmojo, D. (2021). Evaluasi Performa Karkas Kelinci Lokal Dan New Zealand White Jantan Pada Berat Potong Yang Berbeda. *Jurnal Peternakan* 18 (February): 51.

Wang, Y. & Regenstein, J.M. (2009). Effect of EDTA, HCl, and Citric Acid on Ca Salt Removal from Asian (Silver) Carp Scales Prior to Gelatin Extraction. *Journal of Food Science*, 74(6), 426–431. <https://doi.org/doi:10.1111/j.1750-3841.2009.01202.x>.

Wangtueai, S. and Noomhorm, A. 2009. Processing optimization and characterization of gelatin from lizardfish (*Saurida* spp.) scales. *LWT - Food Science and Technology* 42: 825–834.

Wardhani, D. H., Rahmawati, E., Arifin, G. T., & Cahyono, H. (2017). Characteristics of Demineralized Gelatin from Lizardfish (*Saurida* spp.) Scales Using NaOH-NaCl solution. *Jurnal Bahan Alam Terbarukan*, 6 (2), Article 2. <https://doi.org/10.15294/jbat.v6i2.9621>

Widyasari, R., & Rawdkuen, S. (2014). Extraction and characterization of gelatin from chicken feet by acid and ultrasound assisted extraction. *Food and Applied Bioscience Journal*, 2.

- Wulandari, D., Hermiyati, I., Iswahyuni, I., & Tawarniate, A. Z. (2022). Production and characterization of gelatin from rabbit bone as bioplastics material by acid pre-treatment. *World Rabbit Science*, 30 (1), 83–93. <https://doi.org/10.4995/wrs.2022.16639>
- Wulandari, W. (2013). The Effect of Defatting and Extraction Temperature on the Physical Properties of Snakehead Fish Bone Gelatin (*Channa striata*). *Fishtech*, 2, 38–45.
- Yamaguchi, T., Kato, Y., Okuda, T., Rokushima, M., Izawa, T., Kuwamura, M., & Yamate, J. (2018). Visualization of specific collagen-producing cells by Col1-GFP transgenic mice revealed novel type I collagen-producing cells other than fibroblasts in systemic organs/tissues. *Biochemical and Biophysical Research Communications*, 505(1), 267–273. <https://doi.org/10.1016/j.bbrc.2018.09.082>.
- Yang, W., Meyers, M. A., & Ritchie, R. O. (2019). Structural architectures with toughening mechanisms in Nature: A review of the materials science of Type-I collagenous materials. *Progress in Materials Science*, 103, 425–483.
- Yannas, I.V., Huang, C. (1972). Fracture Of Tendon Collagen. *Journal Of Polymer Science*. 10, 577-584
- Zhang, Y., Olsen, K., Grossi, A. dan Otte, J. (2013). Effect Of Pretreatment On Enzymatic Hydrolysis Of Bovine Collagen And Formation Of ACE-Inhibitory Peptides. *Food Chemistry* 141 (3): 2343–2354.
- Zhang, W., Zhu, Z., Jaffrin, M. Y., & Ding, L. (2014). Effects of Hydraulic Conditions on Effluent Quality, Flux Behavior, and Energy Consumption in a Shear-Enhanced Membrane Filtration Using Box-Behnken Response Surface Methodology. *Industrial & Engineering Chemistry Research*, 53(17), 7176–7185. <https://doi.org/10.1021/ie500117u>
- Zhao, Q., Kennedy, J. F., Wang, X., Yuan, X., Zhao, B., Peng, Y., & Huang, Y. (2011). Optimization of ultrasonic circulating extraction of polysaccharides from *Asparagus officinalis* using response surface methodology. *International Journal of Biological Macromolecules*, 49(2), 181–187. <https://doi.org/10.1016/j.ijbiomac.2011.04.012>
- Zhu, H., Fu, Y., Jiang, R., Yao, J., Xiao, L., & Zeng, G. (2014). Optimization of Copper(II) Adsorption onto Novel Magnetic Calcium Alginate/Maghemite Hydrogel Beads Using Response Surface Methodology. *Industrial & Engineering Chemistry Research*, 53(10), 4059–4066. <https://doi.org/10.1021/ie4031677>.