

DAFTAR PUSTAKA

- Aewsiri, T., Benjakul, S., Visessanguan, W., Eun, J.B., Wierenga, P.A., Gruppen, H. (2009). Antioxidative activity and emulsifying properties of cuttlefish skin gelatin modified by oxidised phenolic compounds. *Food Chemistry*, 117, 160–168.
- Ahmad, M. and Benjakul, S. 2011. Characteristic of Gelatin from the Skin of Unicorn Leatherjacket (*Aluterus monoceros*) as Influenced by Acid Pretreatment and Extraction Time. *Food Hydrocolloids*. 25: 381–388.
- Almatsier, S. 2001. *Prinsip Dasar Ilmu Gizi*. Gramedia Pustaka Utama, Jakarta.
- Aviana, T. 2002. Pengaruh Jenis dan Konsentrasi Larutan Perendam Serta Metode Pengeringan Terhadap Sifat Fisik, Kimia dan Fungsional Gelatin Dari Kulit dan Tulang Cucut. Jurusan Teknologi Pangan dan Gizi IPB. *Skripsi*
- _____, 2017. Kenali Kolagen. (<http://sihathijau247.blogspot.com/2017/11/kenali-kolagen.html>). Diakses 21 Agustus 2017.
- _____, 2017. Kolagen (<http://www.liputankita.com/artikel-liputankita>) Diakses 5 Februari 2017.
- _____, 2017. en.m.wikipedia.org. Diakses 5 September 2017.
- Anonymous, 1994. Standart Nasional Indonesia. SNI 10.3547.1994. Departemen Perindustrian RI.
- Anonymous (2007a). Global halal food market. Available at. http://ats.agr.gc.ca/africa/4352_e.htm#_Toc171306542. Accessed 29.01.08.
- AOAC. (2006). Official methods of analysis of AOAC international (18th ed.). Virginia, USA: *Association of Official and Analytical Chemists International*.
- Arnesen, J. A. and Gildberg, A. (2007). Extraction and characterization of gelatine from Atlantic salmon (*Salmo salar*) skin. *Bioresour. Technol.* 98, 53–57.
- Arumsari, K. 2012. Karakteristik Gelatin Kulit Ikan Tuna (*Thunnus albacares*) Dan Aplikasinya Untuk Nanoenkapsulasi Vitamin C. *Tesis*. Universitas Gadjah Mada, Yogyakarta.
- Badii, F., & Howell, N. K. (2006). Fish gelatin: Structure, gelling properties and interaction with egg albumen proteins. *Food Hydrocolloids*, 20(5), 630–640.

- Baker, R.C., Hahn, P.W., and Robbins, K.R. 1994. *Fundamentals of New Food Product Development*. Elsevier ScienceB. V., New York.
- Balti, R., Jridi, M., Sila, A., Souissi, N., Arroume, N. N., Guillochon, D., Nasri, M., (2011). Extraction and functional properties of gelatin from the skin of cuttlefish (*Sepia officinalis*) using smooth hound crude acid protease-aided process. *Food Hydrocolloids*, 25, 943-950.
- Baziwane, D and Q. He. 2003. Gelatin : The Paramount Food Additive. *Food Reviews International*, (19). 423-435.
- Bennion, M. 1980. *The Science of Food*. New York. John Wiley and Sons.
- Binsi, P. K., Shamasundara, B. A., Dileepa, A. O., Badiib, F., & Howell, N. K. (2009). Rheological and functional properties of gelatin from the skin of bigeye snapper (*Priacanthus amrur*) fish: influence of gelatin on the gel-forming ability of fish mince. *Food Hydrocolloids*, 23, 132-145.
- BSI 755, 1975. British Standards Institution Specification for Gelatin. *Pentonville Rd*, London, UK.
- Buckle, K.A., Edward, R.A., Fleet, G.H. dan Wootton, M. 1987. *Ilmu Pangan* (terjemahan oleh Hari Purnomo dan Adiono). Penerbit Universitas Indonesia. Jakarta.
- Charoen, R. (2015).Development of Antioxidant Gummy Jelly Candy Supplemented with *Psidium guajava* Leaf Extract . *KMUTNB Int J Appl Sci Technol*, 8(2), pp. 145-151.
- Cheow, C. S., Norizah, M. S., Kyaw, Z. Y., and Howell, N. K. (2007). Preparation and characterization of gelatins from the skins of sin croaker (*Johnius dussumieri*) and short fin scad (*Decapterus macrosoma*). *Food Chem*. 101, 386–391.
- Chiou, B. S., Bustillos, R. J. A., Shey, J., Yee, E., Bechtel, P. J., Imam, S. H., Glenn, G. M., and Orts, W. J. (2006). Rheological and mechanical properties of cross linked fish gelatins. *Polymer* 47, 6379–6386.
- Choi, S.S. dan J.M. Regestein. 2000. Physicochemical and sensory characteristics of fish gelatin. *Journal of Food Science*. Vol 65, 194-199.
- Cho, S.M., Kwak, K.S., Park, D.C., Gu, Y.S., Ji, C.I., Jang, D.H., Lee,Y.B. dan Kim, S.B. 2004. Processing optimizatio and functional properties of gelatin from shark (*Isurus oxyrinchus*) cartilage. *Food Hydrocolloids* Vol 18, 573-579.

- Cho, S. M., Gu, Y. S., and Kim, S. B. (2005). Extracting optimization and physical properties of yellowfin tuna (*Thunnus albacares*) skin gelatin compared to mammalian gelatins. *Food Hydrocolloid*. 19, 221–229.
- Cho, S. H., Jahncke, M. L., Chin, K. B., and Eun, J. B. (2006). The effect of processing conditions on the properties of gelatin from skate (*Raja kenojei*) skins. *Food Hydrocolloid*. 20, 810–816.
- Collette, B.B., dan C.E. Nauen.(1983). FAO species catalogue Scombrids of the World An Annotated and Illustrated Catalogue of Tunas Mackerels, Bonitos, and Related Species known to Date. FAO. Rome. *FAO Fis. Synop.* 125 (2) : 137 pp.
- David W.V.E., Baker MT. 2008. *The Chemistry Animal Glue System* (www.amstelproducts.nl/.../chemistry.htm). Diakses pada tanggal 14 Maret 2017.
- Dellman, H.D. and Brown, E.M. 1989. *Buku Teks Histologi Veteriner*. Penerbit Universitas Indonesia, Jakarta.
- DeMan, J.M. 1997. *Kimia Makanan* Edisi Kedua. Penerjemah Kosasi Padmawinata, ITB, Bandung.
- Direktorat Jenderal Perikanan Tangkap. 2012. Statistik Perikanan Tangkap Indonesia 2011. *Kementerian Kelautan dan Perikanan*, Jakarta. 190 pp.
- Djabourov, M., Lechaire, J., dan Gaill, F. 1993. Structure and rheology of gelatin and collagen Gels. *Biorheology*, Vol 30, 191–205.
- Duan, R., Zhang, J., Xing, F., Konno, K., Xu, B. (2011). Study on the properties of gelatins from skin of carp (*Cyprinus carpio*) caught in winter and summer season. *Food Hydrocolloids*, 25, 368–373.
- Eastoe, J. E. and Leach, A. A. (1977). Chemical constitution of gelatin. In “The Science and Technology of Gelatin”, (A. G. Ward and A. Courts, Eds), pp. 73–105. *Academic Press*, New York.
- Fernandez-Diaz, M. D., Montero, P., & Go`mez-Guille`n, M. C. (2001). Gel properties of collagens from skins of cod (*Gadus morhua*) and hake (*Merluccius merluccius*) and their modification by coenhancers magnesium sulphate, glycerol and transglutaminase. *Food Chemistry*, 74, 161–167.
- Fessenden, R. J., and Fessenden, J.S. 1986. *Kimia Organik*. Penerjemah Aloysius H. Pudjaatmaka. Erlangga, Jakarta.

- Foegeding, E., Lanier, T. C., & Hultin, H. O. (1996). Characteristics of edible muscle tissue. In O. R. Fennema (Ed.), *Food chemistry* (pp. 879–942). New York: Marcel Dekker.
- Francis, F.J. 1999. Di dalam : Cai Y dan Corke H. *Amaranthus betacyanin pigments applied in model food system. Journal of Food Science*. Vol 64, 869-873.
- Gaman, P.M dan Sherrington K.B. 1992. *Ilmu Pangan- Pengantar Ilmu Pangan Nutrisi dan Mikrobiologi*, UGM. Press.
- Gelse, K, Pöschl, E., and Aigner, T. 2003. Collagens : Structure, function, and biosynthesis. *Advanced Drug Delivery Reviews*, 55 : 1531 – 1546.
- Gennadios, A., McHugh, T.H., Weller, C.L., and Krochta, J.M. 1994. *Edible coatings and films based on proteins*. (Dalam *Edible Coatings and Films to Improve Food Quality*. Krotcha, J.M., Baldwin, E.A., and Carriedo, M.O.N. Eds.). CRC Press. New York. 201-277.
- Gime´ nez, B., Go´ mez-Guille´ n, M. C., & Montero, P. (2005a). The role of salt washing of fish skins in chemical and rheological properties of gelatin extracted. *Food Hydrocolloids*, 19, 951–957.
- Glicksman, M. 1969. *Gum Technology in the Food Industry*. Academic Press, New York.
- GMIA. 2012. Gelatin. *Gelatin Manufactures Institut of America, inc., New York*. NY.
- Go´ mez-Guille´ n, M. C., Turnay, J., Ferna´ ndez-Dı´ az, M. D., Olmo, N., Lizarbe, M. A., & Montero, P. (2002). Structural and physical properties of gelatin extracted from different marine species: A comparative study. *Food Hydrocolloids*, 16, 25–34.
- Gomez-Guillen, M.C. and P. Montero. 2001. Extraction of gelatin from megrim (*Lepidorhombus boscii*) skins with several organic acids. *Journal of Food Science*, Vol. 66 No. 2, 213-216.
- Gómez-Guillén, M.C., B. Gimenez, M.E. Lopez-Caballero, dan M.P. Montero. 2011. Functional and bioactive properties of collagen and gelatin from alternative sources: A review. *Food Hydrocolloids*, 1-15.
- Grobbs, A.H.; P.J. Steele; R.A. Somerville; and D.M. Taylor. 2004. Inactivation of the Bovine-Spongiform-Encephalopathy (BSE) agent by the acid and

alkali processes used the manufacture of bone gelatin. *Biotechnology and Applied Biochemistry*, Vol 39, 329 – 338.

Grossman, S., Bergman, M., (1992). Process for the production of gelatin from fish skins. *US Patent* 5,093,474.

Gudmundsson, M., & Hafsteinsson, H. (1997). Gelatin from cod skins as affected by chemical treatments. *Journal of Food Science*, 62, 37–47.

Hall, M.G. 2011. *Fish Processing Sustainability and New Opportunities*. Willey Blackwell. New York.

Hidayat, N. dan Ikarisztiana, K. 2002. Membuat Permen Jelly. *Surabaya*.

Hinterwaldner, R. 1977. Raw Material (In Science and Technology of Gelatin, Edited by Ward A.G. and Courts A.). *Academic Press*. New York. 297-316.

Hunaefi, D. 2002. Aplikasi Gelatin Dari Kulit Ikan Cucut dan Ikan Pari pada Pembuatan Permen Jelly. *Skripsi*. Institut Pertanian Bogor. Bogor

Imerson, A. 1999. *Thickening and Gelling Agent for Food*. Aspen Publisher, Inc, New York.

Jamilah, B. and Harvinder, K. G. (2002). Properties of gelatins from skins of fish: Black tilapia (*Oreochromis mossambicus*) and red tilapia (*Oreochromis nilotica*). *Food Chem.* 77, 81–84.

Jamilah, B., Tan, K. W., UmiHartina, M. R., & Azizah, A. (2011). Gelatins from three cultured freshwater fish skins obtained by liming process. *Food Hydrocolloids*, 25(5), 1256-1260.

John, P. and A. Courts. 1977. Relationship Between Collagen and Gelatin (In Science and Technology of Gelatin, Edited by A.G. Ward and A. Courts). *Academic Press*. New York. 140

Jones, N.R. 1977. *Uses of gelatin in edible products*. di dalam Ward, A.G dan A. Courts (ed). The science and technology of gelatin. Academic Press, New York.

Jongjareonrak, A., Benjakul, S., Visessanguan, W., Prodpran, T., & Tanaka, M. (2006). Characterization of edible films from skin gelatin of brownstripe red snapper and bigeye snapper. *Food Hydrocolloids*, 20, 492–501.

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, 161–165.

Kaewruang, P., Benjakul, S., dan Prodpran, T. 2013. Molecular and Functional Properties of Gelatin from the Skin of Unicorn Leatherjacket as Affected by Extracting Temperatures. *Food Chemistry*. 138: 1431-1437.

Karim, A. A., & Bhat, R. (2009). Fish gelatins: Properties, challenges, and prospects as an alternative to mammalian gelatins. *Food Hydrocolloids*, 23, 563–576.

Kasankala, L.M., Xue, Y., Weilong, Y., Hong, S.D., He, Q. (2007). Optimization of gelatine extraction from grass carp (*Ctenopharyngodon idella*) fish skin by response surface methodology. *Bioresource Technology*, 98, 3338–3343.

Kolodziejska, I., K. Kaczorowski, B. Piotrowska and M. Sadowska. 2004. Modification of the properties of gelatin from skin of baltic cod (*Gadus mohua*) with transglutaminase. *Food Chemistry*, Vol 86, 203-209.

Kemenperin. 2012. Perkembangan Ekspor Komoditi Hasil Industri Ke Negara Tertentu<http://www.kemenperin.go.id/statistik/query_komoditi.php?komoditi=gelatin&negara=&jenis=&action=Tampilkan>. Diakses 6 Agustus 2017.

Kurniawan, T. 2006. Aplikasi Gelatin Tulang Ikan Kakap Merah (*Lutjanus sp*) Pada Pembuatan Permen Jelly. *Institut Pertanian Bogor*. Bogor.

Laemmli, U. K. (1970). Cleavage of structural proteins during assembly of head of bacteriophage T4. *Nature*, 227, 680-685.

Ledward, D. A. (1986). Gelation of gelatin. In J. R. Mitchell, & D. A. Ledward (Eds.), *Functional properties of food macromolecules* (pp. 233–289). London: *Elsevier Applied Science Publishers*.

Lee, C.H, Singla, A., and Lee, Y. 2001. Biomedical applications of collagen. *International Journal of Pharmaceutics*, 22 : 1 - 22.

Lees, R and E.B. Jackson. 1983. *Sugar Confectionary and Chocolate Manufacture*. Thomson Litho Ltd., East Kilbride, Scotland, 379 p.

Lehninger, A.L. 1982. *Dasar-dasar Biokimia. Jilid 1*. Erlangga. Jakarta.

Liu H., D. Li and Guo. S 2008. Rhological properties of channel catfish (*Ictalurus punctatus*) gelatin from fish skin preserved by different methods. *LWT-Food Scince and Technology*, Vol 41, 414-419.

- Maryani., Surti, T., Ibrahim, R. (2010). Gelatin Application of Nile Tilapia (*Oreochromis niloticus*) Bone to The Quality of The Jelly Candy. *Jurnal Saintek Perikanan* , 6, 62 – 70.
- Mohtar, N.F., Perera , C., Young Quek, S. (2010). Optimisation of gelatine extraction from hoki (*Macruronus novaezelandiae*) skins and measurement of gel strength and SDS–PAGE. *Food Chemistry*, 122, 307–313.
- Montero, P. dan Gómez-Guillén, M.C. 2000. Extracting conditions for megrim (*Lepidorhombus boscii*) skin collagen affect functional properties of the resultant gelatin. *Food Science*. 65: 434-438.
- Muyonga, J. H., Cole, C. G. B., & Duodu, K. G. (2004). Extraction and physicochemical characterisation of Nile perch (*Lates niloticus*) skin and bone gelatin. *Food Hydrocolloids*, 18, 581–592.
- Nagia, T. and N. Suzuki. 2000. Isolation of Collagen from Fish Waste Material- Skin, Bone and Fins. *Food Chemistry*. 68: 277-281.
- Ninan, G., Jose, J., Abubacker, Z., Mathew, P. T., & Geethalakshmi, V. (2009). Optimization of gelatin extraction from the skin of freshwater carps by response surface methodology. *Fish Technology*, 46(2), 123-138.
- Niu, L., Zhou, X., Yuan, C., Bai, Y., Lai, K., dan Yang, F. 2013. Characterization of Tilapia (*Oreochromis niloticus*) Skin Gelatin Extracted with Alkaline and Different Acid Pretreatments. *Food Hydrocolloids*. 33: 336-341.
- Peranginangin, R., Mulyasari, A. Sari dan Tazwir. 2005. Karakterisasi mutu gelatin yang diproduksi dari tulang ikan patin (*Pangasius hypophthalmus*) secara ekstraksi asam. *Jurnal Penelitian Perikanan Indonesia*, Vol 11 No 4, 15-23.
- Phillips, G.O. and Williams, P.A. 2000. *Handbook of Hydrocolloid*. CRC Press, USA.
- Piez, K. A. (1968). Molecular weight determination of random coil polypeptides collagen by molecular sieve chromatography. *Analytical Biochemistry*, 26, 305–312.
- Poppe, J. 1992. *Gelatin (In Thickening and Gelling Agent for Food, Second Edition, Edited by Alan Imeson)*. Aspen Publisher. Maryland. 144-168.

- Poppe, J. 1999. *Gelatin*. (dalam *Thickening and Gelling Agents for Food*. Imeson A., Ed.). An Aspen Publication. Gaithersburg, Maryland. Second Edition. 144-168.
- Pranoto, Y., Lee, C. M., & Park, H. J. (2007). Characterizations of fish gelatin films added with gellan and k-carrageenan. *LWT - Food Science and Technology*, 40(5), 766-774.
- Putri, R.M.S., Ninsix, R., Sari, A.G. 2015. Pengaruh jenis gula yang berbeda terhadap mutu permen *Jelly* rumput laut (*Eucheuma cottonii*). *Teknologi Pangan Universitas Islam Indragiri*.
- Sari, Y. E., N. Ekantari, Ustadi. 2008. Lama Perendaman Dalam Larutan Papain Mmpengaruhi Kualitas dan Rendemen Gelatin Kulit Tenggiri. *Seminar Nasional Tahunan V Hasil Penelitian Perikanan dan Kelautan (Semnaskan_UGM/Paca Panen/PP-14)*
- Sahubawa, L. 2009. *Buku Teks Teknologi Hasil Perikanan*. Fakultas Pertanian, Universitas Gadjah Mada. Yogyakarta.
- Schrieber, R., & Gareis, H. (2007). *Gelatine handbook*. Weinheim: Wiley-VCH GmbH & Co.
- See, S.F., Ghassem, M., Mamot, S., dan Babji, A.S. 2013. Effect of Different Pretreatments on Functional Properties of African Catfish (*Clarias gariepinus*) Skin Gelatin. *J Food Sci Technol*. Published online 11 June 2013.
- Shoulders, M. and Raines, R.T.. 2009. *Collagen Structure and Stability*. Madison. Wisconsin.
- SNI 06-3735-1995. Mutu dan Cara Uji Gelatin. *Badan Standarisasi Nasional*. Jakarta.
- Soekarto, S.T. 1979. Pangan Semi Basah Ketahanan dan Potensinya dalam Gizi Masyarakat. *Pusat Pengembangan Teknologi Pangan. Institut Pertanian Bogor*, Bogor.
- Songchotikunpan, P., Tattiyakul, J., & Supaphol, P. (2008). Extraction and electrospinning of gelatin from fish skin. *International Journal of Biological Macromolecules*, 42, 247–255.
- Stainsby, G. 1987. *Gelatin Gels*. In A.M. Pearson, T.R. Dutson dan A.J. Bailey (Eds). *Advances in Meat Research*. New York.

- Standar Nasional Indonesia 3547. 2. 2008. Revisi Kembang Gula Lunak (Jelly) *Departemen Perindustrian*.
- Steel, RGD. *Principles and procedures of statistics*. McGraw-Hill Book Co. Inc. New York; 1991
- Sudarmadji, S., Haryono, B., dan Suhardi. 2003. *Analisa Bahan Makanan dan Pertanian*. Liberty, Yogyakarta.
- Tabarestani, H.S., Maghsoudlou, Y., Motamedzadegan, A., Mahoonak, A.R.S. 2010. Optimization of physic-chemical properties of gelatin extracted from fish skin of rainbow trout (*Onchorhynchus mykiss*). *Bioresource Technology* 101: 6207-6214.
- Tourtellote, D., Gelatin. In Johnson A.H. and Peterson M.S. 1980. Encyclopedia of food technology. Vol 2. Westport, *The AVI Publishing Company*. P476.
- Traxler, Hans. (1993). *The Life and Times Of Gummy Bears*. Harper Collins.
- Uktolseja, J.C.B., B. Gafa & S. Bahar, 1991. Potensi Penyebaran Sumberdaya Ikan Tuna dan Cakalang. Di dalam Martosubroto P., N, Naamin, B.B.A, Malik, editor, Potensi dan Penyebaran Sumberdaya Ikan Laut di Perairan Indonesia, *Pusat Penelitian dan Pengembangan Oseanologi*, Jakarta.
- Ward AG, Courts A. 1977. *The Science and Technology of Gelatin*. London: Academic Press.
- 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.
- Zhang, F., Shiyong Xu, S., Wang, Z. (2011). Pre-treatment optimization and properties of gelatin from freshwater fish scales. *Food and bioproducts processing*, 89, 185–193.
- Zhou, P., Regenstein, J.M., 2004. Optimization of extraction conditions for Pollock skin gelatine. *J. Food Chem. Toxicol.* 69, 393–398.
- Zhou, P., Regenstein, J.M., 2005. Effects of Alkaline and Acid Pretreatments on Alaska Pollock Skin Gelatin Extraction. *Journal of Food Science* 70, 392–396.
- Zhou P., S.J. Mulvaney, dan J.M. Regenstein. 2006. Properties of Alaska Pollock skin gelatin: a comparison with tilapia and pork skin gelatin. *Journal of Food Science*, Vol 71, C313–C321.