



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

## DAFTAR PUSTAKA

- A'yun, S. N., Triastuti, J., & Saputra, E. 2021. "Edible straw formulation from caragenant and gelatin as a solution in reducing plastic waste." In IOP Conference Series: Earth and Environmental Science, 718, 1.
- Allen, L. V. 2009. Handbook of Pharmaceutical Excipients, Sixth Edition. Edited by Rowe R. C., Sheskey, P. J., Queen, M. E. London: Pharmaceutical Press and American Pharmacists Association.
- Anggraeni A C. 2012. Asuhan Gizi: Nutritional Care Process. Graha Ilmu. Yogyakarta. 240 hal
- Anggraini, Linda; Rosida, Dedin Finatsiyatull; Wicaksono, Luqman Agung. 2022. "Kemampuan Laju Transmisi Uap dan Biodegradasi Edible Straw Dari Pati Umbi (Ganyong, Garut, Kimpul) dan Gelatin Ikan." Jurnal Keteknikan Pertanian Tropis dan Biosistem, 10(3), 226-235.
- Ariska Rizani Eka dan Suyanto. 2015. Pengaruh Konsentrasi Karagenan Terhadap Sifat Fisik dan Mekanik Edible film dari Pati Bonggol Pisang dan Karagenan Dengan Plasticizer Gliserol. Jurnal Kimia.
- Arnesen JA, & Gildberg A. 2007. Extraction and characterisation of gelatine from Atlantic salmon (*Salmo salar*) skin. Bioresource Technology, 98, 53-57.
- Ballesteros-Mártinez, L., Pérez-Cervera, C., & Andrade-Pizarro, R. 2020. *Effect of glycerol and sorbitol concentrations on mechanical, optical, and barrier properties of sweet potato starch film*. NFS Journal, 20, 1–9
- Boakye, A.A.; Gudjónsdottir, M.; Wireko-Manu, F.D.; Oduro, I.; Ellis, W.O.; Chronakis, I.S. Water–Starch Interactions of Red and White Cocoyam (*Xanthosoma sagittifolium*). Starch-Stärke 2018, 71.
- Carvalho, A. J. F. 2013. Handbook of Biopolymers and Biodegradable Plastics. Oxford: Elsevier Inc.
-



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- Chakraborty, I., N, P., Mal, S.S. et al. 2022. An Insight into the Gelatinization Properties Influencing the Modified Starches Used in Food Industry: A review. *Food Bioprocess Technol* 15, 1195–1223.
- Chen Y S. 2021. Overview of modification mechanism and application of natural starch. *Resources and Environment*, 47(7), 165-166.
- Cordoba, A., N. Cuellar, M. Gonzalez and J. Medina. 2008. The plasticizing effect of alginate on the thermoplastic starch/glycerin blends. *Carbohydr. Polym.*, 73, 409-416.
- deMan, J.M. 1997. Kimia Makanan. Institut Teknologi Bandung. Bandung.
- deMan, John M. 1997. Kimia Makanan Edisi Kedua. Diterjemahkan oleh Kosasih Padmawinata. Penerbit ITB. Bandung.
- Di Gioia, L. and Guilbert, S. 1999. Corn Protein-Based Thermoplastic Resins: Effect of Some Polar and Amphiphilic Plasticizers. *Journal of the Science of Food and Agriculture*, 47, pp. 1254-1261.
- Duru R.U., Ikpeama E.E., Ibekwe J.A. Challenges and prospects of plastic waste management in Nigeria. *Waste Dispos. Sustain. Energy*. 2019;1:117–126.
- Farahnaky A, Seberi B, Majzoobi M. 2013. Effect of Glycerol on Physical And Mechanical Properties of Wheat Starch Edible Films. *Journal of Texture Studies*. 44(3): 176-186
- Fried, J.R. 2005. Polymer Science and Technology. Prentice Hall, India.
- Gontard, N., Guilbert, S., and Cuq, J.L. 1992. Edible Wheat Gluten Films: Influence of Main Process Variables on Film Properties Using Response Surface Methodology. *Journal of Food Science*, 57, pp. 190–195.
- Gudmundsson M. 2002. Rheological properties of fish gelatins. *Journal of Food Science*, 67(6), 2172-2176.
- Guimarães, C. F. M., Mársico E. T., Monteiro M. L. G., Lemos, M., Mano, S. B. and Junior, C. A. C. 2015. The chemical quality of frozen Vietnamese
-



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- Pangasius hypophthalmus fillets. Food Sci. & Nutri. Published by Wiley Periodicals, Inc. Pp. 1-11.
- H S Islamiyah et al 2022 IOP Conf. Ser.: Earth Environ. Sci. 1036.
- Hackenberg, S., Jekle, M. and Becker, T. 2018. Mechanical wheat flour modification and its effect on protein network structure and dough rheology. Food Chemistry, 248, 296-303.
- Han, J. H. 2014. Innovations in Food Packaging. Second. London: Elsevier.
- Haug IJ, & Draget KI. 2011. Handbook of Food Proteins. Woodhead Publishing Limited.
- Hidayati, S., A.S. Zuidar, & A. Ardiani. 2015. Aplikasi Sorbitol pada Produksi Biodegradable Film dari Nata De Cassava. J.Reaktor, 15(3): 196-204
- Ikhsan H. I, Dewata I, Nizar U. K, and Azhar M. 2021. Pengaruh Penambahan Kitosan Terhadap Kuat Tarik dan Biodegradasi Edible Film dari Pati Bonggol Pisang. Jurnal Kependidikan dan Pembangunan Lingkungan, 2(1).
- Imanningsih, Nelis. 2012. Profil Gelatinisasi Beberapa Formulasi Tepung-Tepungan untuk Pendugaan Sifat Pemasakan. Pusat Biomedis dan Teknologi Dasar Kesehatan, Badan Litbangkes. Jakarta. Penelitian Gizi Makan, 35(1).
- Jeyakumari. A., George. Ninan., Joshy. C. G., Parvathy. U., Zynudheen. A. A. and Lalitha. K. V. 2016. Effect of chitosan on shelf life of restructured fish products from Pangasius (*Pangasianodon hypophthalmus*) surimi during chilled storage. J Food Sci Technol. 53(4):2099–2107.
- Jongjareonrak A, Benjakul S, Visessanguan W, Prodpran T, and Tanaka M 2006. Food Hydrocoll. 20(4), 492-501.



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- Krisnadi, R., Handarni, Y., & Udyani, K. 2019. Pengaruh jenis plasticizer terhadap karakteristik plastik biodegradable dari bekatul padi. Seminar Nasional Sains Dan Teknologi Terapan VII, 100, 125–130.
- Ladeska, V., Am, R. A. and Hanani, E. 2021. ‘*Colocasia esculenta*. (Talas): Kajian Farmakognosi, Fitokimia dan Aktivitas Farmakologi’, *Jurnal Sains dan Kesehatan*, 3(2), pp. 351–358.
- Lamidi S, Olaleye N, Bankole Y, et al. 2023. Applications of Response Surface Methodology (RSM) in Product Design, Development, and Process Optimization. *Response Surface Methodology - Research Advances and Applications*. IntechOpen.
- Lestari, I., Rosida, D. F., & Wicaksono, L. A. 2023. KAJIAN KUALITAS FISIK EDIBLE STRAW DARI PATI UBI JALAR KUNING (*Ipomea batatas* L.). *Jurnal Pangan Dan Agroindustri*, 11(2).
- M Rahmawati et al 2019 IOP Conf. Ser.: Earth Environ. Sci. 236 012129
- Ma, W. et al. 2012. ‘Characterization of gelatin-based edible films incorporated with olive oil’, *Food Research International*, 49(1), pp. 572–579.
- Mahmood, K., Muhammad, L., fazilah, A., Razak, H. K. and Sulaiman, S. 2016. Review of Fish Gelatin Extraction, Properties and Packaging Applications. *Food Sci. and Quality Manag.* 56: 2224-6088.Mahmoodani F, Sanaei V, Ardekani A, Fern SS, Yusof SM, & Babji AS. (2014). Optimization of extraction and physicochemical properties of gelatin from pangasius catfish (*Pangasius sutchi*) skin. *Sains Malaysiana*, 43(7), 995–1002
- Mahmoodani, F., Ghassem, M., Babji, A. S., Yusop, S. M., & Khosrokhavar, R. 2014. ACE inhibitory activity of pangasius catfish (*Pangasius sutchi*) skin and bone gelatin hydrolysate. *Journal of food science and technology*, 51(9), 1847-1856.



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- Marsaid, Atmaja. 2011. Karakterisasi Sifat Kimia, Fisik, dan Termal Ekstrak Gelatin Dari Tulang Ikan Tuna (*Thunnus Sp*) Pada Variasi Larutan Asam untuk Perendaman. Prosiding Seminar Nasional Kimia dan Pendidikan Kimia III, Surakarta.
- McHugh, T.H., & Krochta, J.M. 1994. Sorbitol vs Glycerol Plasticed Whey Protein Edible Film: Integrated Oxygen Permeability and Tensite Property Evaluation. *Journal Agriculture and Food Chemistry*, 2(4), 841-845.
- Mourshed M, Masud MH, Rashid F, Joardder MUH. 2017. Towards the effective plastic waste management in Bangladesh: a review. *Environ Sci Pollut Res*, 24(35), 27021–27046.
- Nasution, Azlaini Yus; Harmita, Harmita; & Harahap, Yahdiana. 2018. Karakterisasi Gelatin Hasil Ekstraksi dari Kulit Ikan Patin (*Pangasius hypophthalmus*) dengan Proses Asam dan Basa. *Pharmaceutical Sciences and Research*, 5(3), Article 5.
- Natarajan, N., Vasudevan, M., Vivekk Velusamy, V., & Selvaraj, M. 2019. Eco-friendly and edible waste cutlery for sustainable environment. *International Journal of Engineering and Advanced Technology*, 9(1S4), 615-624.
- Nazri, M. S. M. et al. 2019. Characterization of Jackfruit Straw-based Films: Effect of Starch and Plasticizer Contents. *Pertanika Journal of Science & Technology*, 27(S1), 1-14.
- Nishanthini, Anthony, & Mohan, Veerabahu Ramasarny. 2012. Antioxidant Activities of *Xantosoma sagittifolium* Schott Using Various In Vitro Assay Models. *Asian Pacific Journal of Tropical Biomedicine*, 51701-51706.
- Pitak N, Rakshit SK. 2011. Physical And Antimicrobial Properties of Banana Flour/ Chitosan Biodegradable and Self Sealing Films Used for Preserving Fresh-Cut Vegetables. *Journal Food Science and Technology*. 44(10):



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- Purwanti, A. 2010. Analisis Kuat Tarik dan Elongasi Plastik Kitosan Terplastisasi Sorbitol. *Jurnal Teknologi*, 3(2), 99-106.
- Putra, D. A, et al. 2017. PENAMBAHAN SORBITOL SEBAGAI PLASTICIZER DALAM PEMBUATAN EDIBLE FILM PATI SUKUN. *JOM FAKULTAS PERTANIAN*. 4(2): 1-15
- Rahmatullah, P. R. W., Rendana, M., Waluyo, U., & Andrianto, T. 2022. Effect of Plasticizer and Concentration on Characteristics of Bioplastic Based on Cellulose Acetate from Kapok (*Ceiba pentandra*) Fiber. *Science and Technology Indonesia*, 7(1), 73-83.
- Sancaklı, A., Basaran, B., Arıcan, F., & Polat, O. 2021. *Effects of bovine gelatin viscosity on gelatin-based edible film mechanical, physical and morphological properties*. *SN Applied Sciences*, 3(1).
- Santoso, B. 2020. Edible Film: Teknologi dan Aplikasinya. Palembang: NoerFikri Offset.
- Sanyang, M.L., Sapuan, S.M., Jawaid, M., Ishak, M.R., & Sahari, J. 2015. Effect of Plasticizer Type and Concentration on Tensile, Thermal and Barrier Properties of Biodegradable Films Based on Sugar Palm (*Arenga pinnata*) Starch. *Polymers*, 7(6), 1106-1124.
- Savitri, N. H. M., Sedjati, S., and Ridlo, A., 2024. Penambahan Sorbitol Terhadap Karakteristik Edible Straw dari Karagenan. *Journal of Marine Research*, [Online] Volume 13(1), pp. 115-120.
- See SF, Hong PK, Ng KL, Wan Aida WM, & Babji AS. 2010. Physicochemical properties of gelatins extracted from skins of different freshwater fish species. *International Food Research Journal*, 17, 809-816.
- Sert, D. et al. 2021. Development of gelatine-based edible film by addition of whey powders with different demineralisation ratios: Physicochemical, thermal,
-



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit Ikan Patin Menggunakan Plasticizer Sorbitol

---

- mechanical and microstructural characteristics. International Journal of Dairy Technology, 74(2), 414-424.
- Seymour/Carraher's Polymer Chemistry. New York: M. Dekker, 2003.
- Siskawardani, D. D. et al. 2020. Physic-mechanical properties of edible film based on taro starch (*Colocasia esculenta* L. Schoott) with glycerol addition. IOP Conference Series: Earth and Environmental Science, 458, 1-7.
- Susilawati, et al. 2019. Characterization of Bioplastic Packaging from Tapioca Flour Modified with the Addition of Chitosan and Fish Bone Gelatin. World Scientific News Journal. 135: 85-98
- Tanjung, M. R., Rostini, I., & Ismail, M. R. 2020. Characterization Of Edible Film From Catfish (*Pangasius* Sp.) Surimi Waste Water With The Addition Sorbitol As Plasticizer, 28(December 2019), 87–102.
- Temesgen, M., & Retta, N. 2015. Nutritional Potential, Health and Food Security Benefits of Taro *Colocasia Esculenta* (L.): A Review. Food Science and Quality Management, 36, 23-30.
- Trakul, P., & Patcharin, R. 2013. Physical properties of gelatin extracted from skin of Thai panga fish (*Pangasius bocourti Sauvage*). Food and Applied Bioscience Journal, 2013, 1(3), 131-145.
- Vieira, M.G.A., Silva, M.A.D., Santos, L.O.D., & Beppu, M.M. 2011. Natural Based Plasticizer and Biopolymer Film: A Review. European Polymer Journal, 47(3), 254-263.
- Warkoyo et al. 2014. Sifat Fisik, Mekanik dan Barrier Edible Film Berbasis Pati Umbi Kimpul (*Xanthosoma sagittifolium*) Yang Diinkorporasi dengan Kalium Sorbat. agriTECH, 34(1), 72-81.



Laporan Penelitian  
Sintesis *Edible Straw* dari Pati Talas Kimpul dan Gelatin Ekstrak Kulit  
Ikan Patin Menggunakan Plasticizer Sorbitol

---

Yang H, Wang Y, Zhou P, & Regenstein JM. 2008. Effects of alkaline and acid pretreatment on the physical properties and nanostructures of the gelatin from channel catfish.

Zulaidah, A., 2012. Peningkatan nilai guna pati alami melalui proses modifikasi pati. *Dinamika Sains*, 10(22), pp.1-13.