UNIVERSITAS
GADJAH MADA
**Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh
Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan**
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Abekoon, T., Sajindra, H., Jayakody, J, A, D, C, A., Samarankoon, E, R, J., & Rathnayake, U. (2024). Image Processing Techniques to Identify Tomato Quality Under Market Conditions. *Smart Agricultural Technology*. https://doi.org/10.1016/j.atech.2024.100433

Abiri, B., Amini, S., Hejazi, M., Hosseinpanah, F., Zarghi, A., Abbaspour, F., & Valizadeh, M. (2023). Tea's anti-obesity properties, cardiometabolic health-promoting potentials, bioactive compounds, and adverse effects: A review focusing on white and green teas. *Food science & nutrition*, *11*(10), 5818–5836. https://doi.org/10.1002/fsn3.3595

Afifah, N., Ratnawati, L., & Darmajana, D. A. (2019). Evaluation of Plasticizer Addition in Composite Edible Coating on Quality of Fresh-Cut Mangoes during Storage. *IOP Conference Series: Earth and Environmental Science*, *251*, 012029. https://doi.org/10.1088/1755-1315/251/1/012029

Agustin, S., Cahyanto, M. N., Wahyuni, E. T., & Supriyadi. (2024). Effect of glycerol plasticizer on the structure and characteristics of bacterial cellulose-based biocomposite films. *IOP Conference Series: Earth and Environmental Science*, *1377*(1), 012046. https://doi.org/10.1088/1755-1315/1377/1/012046

Al-Dairi, M., Pathare, P. B., & Al-Yahyai, R. (2021). Chemical and nutritional quality changes of tomato during postharvest transportation and storage. *Journal of the Saudi Society of Agricultural Sciences*, *20*(6), 401–408. https://doi.org/10.1016/j.jssas.2021.05.001

Alghamdi, A. I. (2023). Antibacterial activity of green tea leaves extracts against specific bacterial strains. *Journal of King Saud University - Science*, *35*(5), 102650. https://doi.org/10.1016/j.jksus.2023.102650

Alipal, J., Mohd Pu'ad, N. A. S., Lee, T. C., Nayan, N. H. M., Sahari, N., Basri, H., Idris, M. I., & Abdullah, H. Z. (2021). A review of gelatin: Properties, sources, process, applications, and commercialisation. *Materials Today: Proceedings*, *42*, 240–250. https://doi.org/10.1016/j.matpr.2020.12.922

Andayani, R., Maimunah, Lisawati, Y. (2008). Penentuan Aktivitas Antioksidan, Kadar Fenolat Total dan Likopen pada Buah Tomat (*Solanum lycospersicum L.*). Jurnal Sains dan Teknologi Farmasi, 13 (1).

Aprianti, S., & Bintoro, N. (2021). The effect of concentrations and exposure durations of ethylene gas on the respiration rate of tomato fruit (Solanum lycopersicum). *IOP Conference Series: Earth and Environmental Science*, *653*(1), 012021. https://doi.org/10.1088/1755-1315/653/1/012021

Apriyanti, D., Rokhati, N., Mawarni, N., Khoiriyah, Z., & Istirokhatun, T. (2018). Edible Coating from Green Tea Extract and Chitosan to Preserve Strawberry (

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Fragaria vesca L.). *MATEC Web of Conferences*, *156*, 01022. https://doi.org/10.1051/matecconf/201815601022

Azizah, F., Nursakti, H., Ningrum, A., & Supriyadi. (2023). Development of Edible Composite Film from Fish Gelatin–Pectin Incorporated with Lemongrass Essential Oil and Its Application in Chicken Meat. *Polymers*, *15*(9), 2075. https://doi.org/10.3390/polym15092075

Badan Standarisasi Nasional. (1992). *Tomat Segar*. SNI 01-3162-1992. Jakarta: Badan Standarisasi Nasional.

Badan Pusat Statistik. (2023). *Produksi Perikanan Tangkap di Laut Menurut Komoditas Utama (Ton)*. Badan Pusat Statistik.

Balai Pengkajian Teknologi Pertanian Jambi. (2018). *Penanganan Pascapanen Tomat*. Balai Pengkajian Teknologi Pertanian Jambi.

Bapary, Md. S., Islam, Md. N., Kumer, N., Tahery, M. H., Noman, M. A. Al, & Mohi-Ud-Din, M. (2024). Postharvest physicochemical and nutritional properties of Tomato fruit at different maturity stages affected by physical impact. *Applied Food Research*, *4*(2), 100636. https://doi.org/10.1016/j.afres.2024.100636

Bhowmik, D., Kumar, K. P. S., Paswan, S., & Srivastava, S. (2012). Tomato-A Natural Medicine and Its Health Benefits. *Journal of Pharmacognosy and Phytochemistry*, *1*(1).

Bilbao-Sainz, C., Sinrod A. J. G., Dao, L., Takeoka, G., Williams, T., Wood, D., Chiou, B. S., Bridges, D. F., Wu, V. C. H., Lyu, C., Powell-Palm, M. J., Rubinsky, B., McHugh, T. (2021). Preservation of Grape Tomato by Isochoric Freezing. *Food Res Int,* 143.

Bordean, D.-M., Gergen, I., Moldovan, C., Alda, L. M., Gogoaşă, I., Gergen, I., Alda, S., & Niţă, L. (2009). Lycopene content of tomatoes and tomato products. In *Journal of Agroalimentary Processes and Technologies* (Vol. 15, Issue 4). www.japt.tpa.usab-tm.ro

Bucher, T., Malcolm, J., Mukhopadhyay, S. P., Vuong, Q., & Beckett, E. (2023). Consumer acceptance of edible coatings on apples: The role of food technology neophobia and information about purpose. *Food Quality and Preference*, *112*, 105024. https://doi.org/10.1016/j.foodqual.2023.105024

Carneiro-da-Cunha, M. G., Cerqueira, M. A., Souza, B. W. S., Souza, M. P., Teixeira, J. A., & Vicente, A. A. (2009). Physical properties of edible coatings and films made with a polysaccharide from Anacardium occidentale L. *Journal of Food Engineering*, *95*(3), 379–385. https://doi.org/10.1016/j.jfoodeng.2009.05.020

Chandel, V., Biswas, D., Roy, S., Vaidya, D., Verma, A., & Gupta, A. (2022). Current Advancements in Pectin: Extraction, Properties and Multifunctional Applications. *Foods*, *11*(17), 2683. https://doi.org/10.3390/foods11172683

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Collins, E. J., Bowyer, C., Tsouza, A., & Chopra, M. (2022). Tomatoes: An Extensive Review of the Associated Health Impacts of Tomatoes and Factors That Can Affect Their Cultivation. In *Biology* (Vol. 11, Issue 2). MDPI. https://doi.org/10.3390/biology11020239

Dai, S., Xu, T., Yuan, Y., Fang, Q., Lian, Z., Tian, T., Tong, X., Joang, L., & Wang, H. (2024). Combination and Precipitation Mechanism of Soy Protein and Tea Polyphenols. *Food Hydrocolloids,* 146.

Daroyani, I. D., Yusasrini, N., Made Sugitha, I. (2022). Pengaruh Perbandingan Ikan Tuna (Thunnus sp.) Dengan Puree Jantung Pisang (Musa Paradisiaca sp.) Terhadap Karakteristik Nugget. *Jurnal Ilmu Dan Teknologi Pangan*, 11(2).

da Silva, A. C. P., Barbosa, J. R., da Silva Araújo, C., Sousa Batista, J. T., Xavier Neves, E. M. P., Pereira Cardoso, D. N., Peixoto Joele, M. R. S., & de Fátima Henriques Lourenço, L. (2024). A new edible coating of fish gelatin incorporated into açaí oil to increase the post-harvest shelf life of tomatoes. *Food Chemistry*, *438*, 138047. https://doi.org/10.1016/j.foodchem.2023.138047

El-Katatny, M. H., & Emam, A. S. (2012). Control of postharvest tomato rot by spore suspension and antifungal metabolites of trichoderma harzianum. In *Journal of Microbiology, Biotechnology and El-Katatny & Emam* (Vol. 2012, Issue 6).

Erceg, T., Šovljanski, O., Stupar, A., Ugarković, J., Aćimović, M., Pezo, L., Tomić, A., & Todosijević, M. (2023). A comprehensive approach to chitosan-gelatine edible coating with β-cyclodextrin/lemongrass essential oil inclusion complex — Characterization and food application. *International Journal of Biological Macromolecules*, *228*, 400–410. https://doi.org/10.1016/j.ijbiomac.2022.12.132

Eslami, Z., Elkoun, S., Robert, M., & Adjallé, K. (2023). A Review of the Effect of Plasticizers on the Physical and Mechanical Properties of Alginate-Based Films. *Molecules*, *28*(18), 6637. https://doi.org/10.3390/molecules28186637

Frasisca, S., Rostini, I., Suryana, A., & Pratama, R. I. (2020). *Effect of Addition Glycerol Plasticizer to the Characteristics of Catfish (Pangasius sp.) Surimi Protein Edible Film*. https://api.semanticscholar.org/CorpusID:216050090

Freitas, C. M. P., Coimbra, J. S. R., Souza, V. G. L., & Sousa, R. C. S. (2021). Structure and Applications of Pectin in Food, Biomedical, and Pharmaceutical Industry: A Review. *Coatings*, *11*(8), 922. https://doi.org/10.3390/coatings11080922

Gardjito, M., & Swasti, Y. R. (2018). *Fisiologi Pascapanen Buah dan Sayur*. Yogyakarta: UGM Press.

Gebregziabher, A. A., Supriyadi, S., Indarti, S., & Setyowati, L. (2021). Texture Profile and Pectinase Activity in Tomato Fruit (Solanum Lycopersicum, Servo

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

F1) at Different Maturity Stages and Storage Temperatures. *PLANTA TROPIKA: Jurnal Agrosains (Journal of Agro Science)*, *9*(1), 20–34. https://doi.org/10.18196/pt.v9i1.9139

Godana, E. A., Satheesh, N., & Taye, A. H. (2015). *Effect of storage methods and ripening stages on postharvest quality of tomato (lycopersicom esculentum mill) cv. Chali*. https://www.researchgate.net/publication/280717608

Gómez-Estaca, J., Gómez-Guillén, M. C., Fernández-Martín, F., & Montero, P. (2011). Effects of gelatin origin, bovine-hide and tuna-skin, on the properties of compound gelatin–chitosan films. *Food Hydrocolloids*, *25*(6), 1461–1469. https://doi.org/10.1016/j.foodhyd.2011.01.007

Halim, Y., & Darmawan, C. R. (2021). Characteristics of Edible Film Made from Pectin of Papaya Peel. *Reaktor*, *21*(3), 116–123. https://doi.org/10.14710/reaktor.21.3.116-123

Hamann, D., Puton, B. M. S., Comin, T., Colet, R., Valduga, E., Zeni, J., Steffens, J., Junges, A., Backes, G. T., & Cansian, R. L. (2022). Active edible films based on green tea extract and gelatin for coating of fresh sausage. *Meat Science*, *194*, 108966. https://doi.org/10.1016/j.meatsci.2022.108966

Heristika, W., Ningrum, A., Supriyadi, Munawaroh, H. S. H., & Show, P. L. (2023). Development of Composite Edible Coating from Gelatin-Pectin Incorporated Garlic Essential Oil on Physicochemical Characteristics of Red Chili (Capsicum annnum L.). *Gels*, *9*(1). https://doi.org/10.3390/gels9010049

Hien, C. T., Nhat, D. M., & Thanh, M. T. (2023). Modification of Gelatin from Tuna Skins by Green Tea Polyphenols. *Vietnam Journal of Science and Technology*, 165-173.

Hoorfar, J. (2014). *Global Safety of Fresh Produce : A Handbook of Best Practice, Innovative Commercial Solutions and Case Studies*. https://api.semanticscholar.org/CorpusID:169078000

Hua-ling, Z., Xiao-yi, H., Hai-ying, W., Xiao-ke, J., Qin-ru, S., Ting, C., & Zhi-rong, C. (2023). Effects of harvest ripeness on storage quality of tomato fruits. *Emirates Journal of Food and Agriculture*, *35*(11), 978–987. https://doi.org/10.9755/ejfa.2023.v35.i11.3166

Iqbal, H. M., Akbar, Q. U. A., Arif, S., Yousaf, S., Khurshid, S., Jabbar, S., Hamid, N., & Sitara, U. (2022). Maturity Dependent Changes in Post-Harvest Physiological, Antioxidant and Anti-Microbial Attributes of Tomato. *Pakistan Journal of Agricultural Research*, *35*(1), 144–153. https://doi.org/10.17582/journal.pjar/2022/35.1.144.153

Jahanbin, M., Farahi,M. H., & Radi,M. (2016). Quality improvement and post-harvest decay reduction of tomato fruits by application of Aloe vera gel and hot water treatmen. *Agricultural Communications,* 4(3), (30-44).

UNIVERSITAS
GADJAH MADA
**Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh
Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan**
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Jamili, S., Sadeghi, H., Rezayat, M., Attar, H., & Kaymaram, F. (2019). Extraction and evaluation of gelatin from yellow fin tuna (Thunnus albacares) skin and prospect as an alternative to mammalian gelatin. *Iranian Journal of Fisheries Sciences,* 18 (4), 903-914.

Jatmiko, W. T., Surhaini, & Rinaldi. (2022). The Effect of Gelatin Concentration on the Characteristics of Edible Film from Yam (Dioscorea alata) Starch. *Journal of Bio & Geo Material and Energy*, *2*(2).

Jridi, M., Abdelhedi, O., Salem, A., Kechaou, H., Nasri, M., & Menchari, Y. (2020). Physicochemical, antioxidant and antibacterial properties of fish gelatin-based edible films enriched with orange peel pectin: Wrapping application. *Food Hydrocolloids*, *103*, 105688. https://doi.org/10.1016/j.foodhyd.2020.105688

Kaewdang, O., & Benjakul, S. (2015). Effect of ethanolic extract of coconut husk on gel properties of gelatin from swim bladder of yellowfin tuna. *LWT - Food Science and Technology*, *62*(2), 955–961. https://doi.org/10.1016/j.lwt.2015.02.006

Kanmani, K., Meenakshi, V., & Sashidevi, G. (2017). Application of biodegradable Aloe vera gel for extending the shelf-life of tomato. *Food Science Research Journal*, *8*(2), 132–137. https://doi.org/10.15740/HAS/FSRJ/8.2/132-137

Karayannakidis, P. D., Chatziantoniou, S. E., & Zotos, A. (2014). Effects of Selected Process Parameters on Physical and Sensorial Properties of Yellowfin Tuna (*Thunnus albacares*) Skin Gelatin. *Journal of Food Process Engineering*, *37*(5), 461–473. https://doi.org/10.1111/jfpe.12103

Kementerian Kelautan dan Perikanan. (2024). *Data Ekspor-Impor*. Jakarta: Kementerian Kelautan Dan Perikanan.

Kementerian Pertanian. (2023). *Buku Atap Hortikultura 2023*. Jakarta: Kementerian Pertanian Direktorat Jenderal Holtikultura.

Lazaridou, A., & Biliaderis, C. G. (2020). *Pectin: Technological and Physiological Properties* (V. Kontogiorgos, Ed.). Springer International Publishing. https://doi.org/10.1007/978-3-030-53421-9

Li, J. H., Miao, J., Wu, J. L., Chen, S. F., & Zhang, Q. Q. (2014). Preparation and Characterization of Active Gelatin-Based Films Incorporated with Natural Antioxidants. *Food Hydrocolloids*, 166-173.

Lu, Y., Luo, Q., Chu, Y., Tao, N., Deng, S., Wang, L., & Li, L. (2022). Application of Gelatin in Food Packaging: A Review. *Polymers*, *14*(3), 436. https://doi.org/10.3390/polym14030436

Mauricio, R. A., Deliza, R., & Nassu, R. T. (2022). Consumers' Attitudes toward the Use of an Edible Coating for Lamb Meat According to Label Information. *Foods*, *11*(3), 323. https://doi.org/10.3390/foods11030323

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Montero, M., & Acosta, Ó. G. (2020). Tuna skin gelatin production: optimization of extraction steps and process scale-up. *CyTA - Journal of Food*, *18*(1), 580–590. https://doi.org/10.1080/19476337.2020.1801849

Noor, N. Q. I. M., Razali, R. S., Ismail, N. K., Ramli, R. A., Razali, U. H. M., Bahauddin, A. R., Zaharudin, N., Rozzamri, A., Bakar, J., & Shaarani, S. Md. (2021). Application of Green Technology in Gelatin Extraction: A Review. *Processes*, *9*(12), 2227. https://doi.org/10.3390/pr9122227

Nunes, C., Silva, M., Farinha, D., Sales, H., Pontes, R., & Nunes, J. (2023). Edible Coatings and Future Trends in Active Food Packaging–Fruits' and Traditional Sausages' Shelf Life Increasing. *Foods*, *12*(17), 3308. https://doi.org/10.3390/foods12173308

Nurdiani, R., Yufidasari, H. S., Faturachma, I. D., Prihanto, A. A., Firdaus, M., Huda, N., & Talib, R. A. (2021). Effect of Pectin on the Characteristics of Edible Film from Pink Ear Emperor (Lethrinus lentjan) Gelatin. *IOP Conference Series: Earth and Environmental Science*, *934*(1), 012089. https://doi.org/10.1088/1755-1315/934/1/012089

Nurilmala, M., Jacoeb, A. M., & Dzaky, R. A. (2017). Karakteristik Gelatin Ikan Tuna Sirip Kuning. *Jurnal Pengolahan Hasil Perikanan Indonesia*, *20*(2), 339. https://doi.org/10.17844/jphpi.v20i2.18049

Osés, J., Fernández-Pan, I., Mendoza, M., & Maté, J. I. (2009). Stability of the mechanical properties of edible films based on whey protein isolate during storage at different relative humidity. *Food Hydrocolloids*, *23*(1), 125–131. https://doi.org/10.1016/j.foodhyd.2007.12.003

Otoni, C. G., Avena-Bustillos, R. J., Azeredo, H. M. C., Lorevice, M. V., Moura, M. R., Mattoso, L. H. C., & McHugh, T. H. (2017). Recent Advances on Edible Films Based on Fruits and Vegetables—A Review. *Comprehensive Reviews in Food Science and Food Safety*, *16*(5), 1151–1169. https://doi.org/10.1111/1541-4337.12281

Pandey, V. K., Islam, R. U., Shams, R., & Dar, A. H. (2022). A comprehensive review on the application of essential oils as bioactive compounds in Nano-emulsion based edible coatings of fruits and vegetables. *Applied Food Research*, *2*(1), 100042. https://doi.org/10.1016/j.afres.2022.100042

Peralta-Ruiz, Y., Tovar, C. D. G., Sinning-Mangonez, A., Coronell, E. A., Marino, M. F., & Chaves-Lopez, C. (2020). Reduction of Postharvest Quality Loss and Microbiological Decay of Tomato "Chonto" (Solanum lycopersicum L.) Using Chitosan-E Essential Oil-Based Edible Coatings under Low-Temperature Storage. *Polymers*, *12*(8), 1822. https://doi.org/10.3390/polym12081822

Perez-Vazquez, A., Barciela, P., Carpena, M., & Prieto, M. (2023). Edible Coatings as a Natural Packaging System to Improve Fruit and Vegetable Shelf Life and Quality. *Foods*, *12*(19), 3570. https://doi.org/10.3390/foods12193570

UNIVERSITAS GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Preedy, V. R., & Watson, R. R. (2008). *Tomatoes and Tomato Products: Nutritional, Medicinal and Therapeutic Properties*.

Priya, K., Thirunavookarasu, N., & Chidanand, D. V. (2023). Recent advances in edible coating of food products and its legislations: A review. *Journal of Agriculture and Food Research*, *12*, 100623. https://doi.org/https://doi.org/10.1016/j.jafr.2023.100623

Purewal, S. S., Kaur, A., Bangar, S. P., Singh, P., & Singh, H. (2023). Protein-Based Films and Coatings: An Innovative Approach. *Coatings*, *14*(1), 32. https://doi.org/10.3390/coatings14010032

Putri, D. S., Harun, N., Efendi, R., & Dewi, Y. K. (2024). Edible Coating Pati Jagung dengan Penambahan Ekstrak Jahe Merah untuk Memperpanjang Umur Simpan Tomat (Lycopersicum esculentum). *Jurnal Teknologi Dan Industri Pertanian Indonesia*, *16*(2), 92–101. https://doi.org/10.17969/jtipi.v16i2.31832

Radi, M., Firouzi, E., Akhavan, H., & Amiri S. (2017). Effect of Gelatin-Based Edible Coatings Incorporated with aloe vera Black and Green Tea Extracts on The Shelf Life of Fresh-Cut Oranges. *Journal of Food Quality,* 1-10.

Rai, A., Kumari, K., & Vashistha, P. (2022). Umbrella review on chilling injuries: Post-harvest issue, cause, and treatment in tomato. *Scientia Horticulturae*, *293*, 110710. https://doi.org/10.1016/j.scienta.2021.110710

Rather, J. A., Akhter, N., Ashraf, Q. S., Mir, S. A., Makroo, H. A., Majid, D., Barba, F. J., Khaneghah, A. M., & 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*, 100945. https://doi.org/10.1016/j.fpsl.2022.100945

Roman-Benn, A., Contador, C. A., Li, M.-W., Lam, H.-M., Ah-Hen, K., Ulloa, P. E., & Ravanal, M. C. (2023). Pectin: An overview of sources, extraction and applications in food products, biomedical, pharmaceutical and environmental issues. *Food Chemistry Advances*, *2*, 100192. https://doi.org/10.1016/j.focha.2023.100192

Rusli, A., Metusalach, M., & Tahir, M. M. (2017). Characterization of Carrageenan Edible films Plasticized with Glycerol. *Jurnal Pengolahan Hasil Perikanan Indonesia*, *20*(2), 219. https://doi.org/10.17844/jphpi.v20i2.17499

Said, N. S., Olawuyi, I. F., & Lee, W. Y. (2023). Pectin Hydrogels: Gel-Forming Behaviors, Mechanisms, and Food Applications. *Gels*, *9*(9), 732. https://doi.org/10.3390/gels9090732

Salsabiela, S., Sukma Sekarina, A., Bagus, H., Audiensi, A., Azizah, F., Heristika, W., Manikharda, Susanto, E., Munawaroh, H. S. H., Show, P. L., & Ningrum, A. (2022). Development of Edible Coating from Gelatin Composites with the Addition of Black Tea Extract (Camellia sinensis) on Minimally Processed

UNIVERSITAS GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Watermelon (Citrullus lanatus). *Polymers*, *14*(13), 2628. https://doi.org/10.3390/polym14132628

Sanyang, M., Sapuan, S., Jawaid, M., Ishak, M., & 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. https://doi.org/10.3390/polym7061106

Sartori, T., & Menegalli, F. C. (2016). Development and characterization of unripe banana starch films incorporated with solid lipid microparticles containing ascorbic acid. *Food Hydrocolloids*, *55*, 210–219. https://doi.org/10.1016/j.foodhyd.2015.11.018

Senanayake, S. P. (2013). Green Tea Extract: Chemistry, Antioxidant Properties adn Food Applications - A Review. *Journal of Functional Foods*, 1529-1541.

Šeremet, D., Karlović, S., Vojvodić Cebin, A., Mandura, A., Ježek, D., & Komes, D. (2021). Extraction of bioactive compounds from different types of tea by high hydrostatic pressure. *Journal of Food Processing and Preservation*, 45, e15751. https://doi.org/10.1111/jfpp.15751

Sree, K. P., Sree, M. S., Supriya, P., & . S. (2020). Application of chitosan edible coating for preservation of tomato. *International Journal of Chemical Studies*, *8*(4), 3281–3285. https://doi.org/10.22271/chemi.2020.v8.i4ao.10157

Su, L., Diretto, G., Purgatto, E., Danoun, S., Zouine, M., Li, Z., Roustan, J.-P., Bouzayen, M., Giuliano, G., & Chervin, C. (2015). Carotenoid accumulation during tomato fruit ripening is modulated by the auxin-ethylene balance. *BMC Plant Biology*, *15*(1), 114. https://doi.org/10.1186/s12870-015-0495-4

Suppakul, P., Miltz, J., Sonneveld, K., & Bigger, S. W. (2003). Active Packaging Technologies with an Emphasis on Antimicrobial Packaging and its Applications. *Journal of Food Science*, *68*(2), 408–420. https://doi.org/10.1111/j.1365-2621.2003.tb05687.x

Surolia, R., & Singh, A. (2022). Underutilized Sources of Pectin as Edible Coating. *Letters in Applied NanoBioScience*, *12*(3), 83. https://doi.org/10.33263/LIANBS123.083

Tadesse, T. N., & Abtew, W. G. (2016). Effect of Hot Water Treatment on Reduction of Chilling Injury and Keep Quality in Tomato (*Solanum lycopersicum* L.) Fruits. *Journal of Stored Products and Postharvest Research*, 7 (7), 61-68.

Tarique, J., Sapuan, S. M., & Khalina, A. (2021). Effect of glycerol plasticizer loading on the physical, mechanical, thermal, and barrier properties of arrowroot (Maranta arundinacea) starch biopolymers. *Scientific Reports*, *11*(1), 13900. https://doi.org/10.1038/s41598-021-93094-y

Tetelepta, G., Picauly, P., Polnaya, F. J., Breemer, R., & Augustyn, G. H. (2019). Pengaruh Edible Coating Jenis Pati Terhadap Mutu Buah Tomat Selama

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

Penyimpanan. *AGRITEKNO, Jurnal Teknologi Pertanian*, *8*(1), 29–33. https://doi.org/10.30598/jagritekno.2019.8.1.29

Thole, V., Vain, P., & Martin, C. (2021). Effect of Elevated Temperature on Tomato Post-Harvest Properties. *Plants*, *10*(11), 2359. https://doi.org/10.3390/plants10112359

Torres-León, C., Ramírez-Guzman, N., Londoño-Hernandez, L., Martinez-Medina, G. A., Díaz-Herrera, R., Navarro-Macias, V., Alvarez-Pérez, O. B., Picazo, B., Villarreal-Vázquez, M., Ascacio-Valdes, J., & Aguilar, C. N. (2018). Food Waste and Byproducts: An Opportunity to Minimize Malnutrition and Hunger in Developing Countries. *Frontiers in Sustainable Food Systems*, *2*. https://doi.org/10.3389/fsufs.2018.00052

Ulfa, L. R., Ningrum, A., & Supriyadi. (2024). Effect of edible coating of gelatin-sodium alginate with the addition of green tea (Camellia sinensis) extract on the characteristics of star fruit (Averrhoa carambola L) during storage. *Journal of Food Science*, *89*(10), 6217–6231. https://doi.org/10.1111/1750-3841.17311

Utama, N. A., Ernawati, R., & Pramesi, P. C. (2022). The Improvement of Tomato Shelf Life using Chitosan and Starfruit Leaf Extract as Edible Coatings. *Journal of Horticultural Research*, *30*(1), 77–86. https://doi.org/10.2478/johr-2022-0004

Valdés, A., Burgos, N., Jiménez, A., & Garrigós, M. (2015). Natural Pectin Polysaccharides as Edible Coatings. *Coatings*, *5*(4), 865–886. https://doi.org/10.3390/coatings5040865

Vuong, Q. V., Golding, J. B., Stathopoulos, C. E., Nguyen, M. H., & Roach, P. D. (2011). Optimizing conditions for the extraction of catechins from green tea using hot water. *Journal of Separation Science*, *34*(21), 3099–3106. https://doi.org/10.1002/jssc.201000863

Wu, M., Liu, J., Tsai, F., Syu, J., Yun, C., Chen, L., & Ye, J. (2023). The Adverse and Beneficial Effects of Polyphenols in Green and Black Teas in Vitro and in Vivo. *International Journal of Medical Sciences*, 1247-1255. doi:10.7150/ijms.85521

Xue, H., Feng, J., Tang, Y., Wang, X., Tang, J., Cai, X., & Zhong, H. (2024). Research progress on the interaction of the polyphenol–protein–polysaccharide ternary systems. *Chem. Biol. Technol. Agric.* 11, 95. https://doi.org/10.1186/s40538-024-00632-7

Yahia, E., & Carrilo-Lopez, A. (2019). Postharvest Physiology and Biochemistry of Fruits and Vegetables.

Yoon, K. N., Yoon, Y. S., Hong, H. J., Park, J. H., Song, B. S., Eun, J. B., & Kim, J. K. (2023). Gamma irradiation delays tomato (Solanum lycopersicum)

UNIVERSITAS
GADJAH MADA
Pengaruh Aplikasi Edible Coating dari Komposit Gelatin dan Pektin dengan Penambahan Ekstrak Teh Hijau pada Buah Tomat (Solanum lycopersicum) selama Penyimpanan
Nismara Aptasari, Andriati Ningrum, S.T.P., M.Agr., PhD; Dr. Lulum Leliana, S.T.P.
Universitas Gadjah Mada, 2025 | Diunduh dari http://etd.repository.ugm.ac.id/

ripening by inducing transcriptional changes. *Journal of the Science of Food and Agriculture*, *103*(13), 6640–6653. https://doi.org/10.1002/jsfa.12760

Yulistiani, F., Nurarofah, A. P., Azzahra, F. I., & Rispiandi. (2023). The Effect of Antimicrobial Extract on The Characteristics of Tomatoes Coated by Edible Coating based on Tapioca Flour. *Fluida*, *16*(2), 132–138. https://doi.org/10.35313/fluida.v16i2.4405

Zhang, H., Liang, Y., Li, X., & Kang, H. (2020). Effect of chitosan-gelatin coating containing nano-encapsulated tarragon essential oil on the preservation of pork slices. *Meat Science*, *166*, 108137. https://doi.org/10.1016/j.meatsci.2020.108137

Zhang, J., Liu, S., Zhu, X., Chang, Y., Wang, C., Ma, N., Wang, J., Zhang, X., Lyu, J., & Xie, J. (2023). A Comprehensive Evaluation of Tomato Fruit Quality and Identification of Volatile Compounds. *Plants*, *12*(16). https://doi.org/10.3390/plants12162947

Zhu, R., Chen, B., Bai, Y., Miao, T., Rui, L., Zhang, H., Xia, B., Li, Y., Gao, S., Wang, X.-D., & Zhang, D. (2020). Lycopene in protection against obesity and diabetes: A mechanistic review. *Pharmacological Research*, *159*, 104966. https://doi.org/10.1016/j.phrs.2020.104966