



## DAFTAR PUSTAKA

- Abebe, Z., Y.B. Tola, and A. Muhammed. 2017. Effects of edible coating materials and stages of maturity at harvest on storage life and quality of tomato (*Lycopersicon esculentum* Mill.) fruits. African Journal of Agricultural Research 12: 550-565.
- Albertini, M.V., E. Carcouet, O. Pailly, C. Gambotti, F. Luro, and L. Berti. 2006. Changes in organic acids and sugars during early stages of development of acidic and acidless citrus fruit. J. Agric. Food Chem. 54 : 8335–8339.
- Alexandra, Y., dan Nurlina. 2014. Aplikasi edible coating dari pektin jeruk songhi pontianak (*Citrus nobilis* var Microcarpa) pada penyimpanan buah tomat. Jurnal Kimia Khatulistiwa 3: 11–20.
- Alhassan, N. and A. Abdul-Rahaman. 2014. Technology and application of ediblecoatings for reduction of losses and extension of shelf life of cantaloupe melon fruits. International Journal of Scientific and Technology Research 3: 241-246.
- Aminudin, dan Nawangwulan. 2014. Pengaruh edible coating gel lidah buaya (*Aloe vera* Linne) terhadap mutu dan umur simpan mentimun. Jurnal Ekologis 14: 1-12.
- Ananda, D.N.P., I. G. N. Raka, dan N. N. A. Mayadewi. 2016. Uji efektivitas teknik ekstraksidan dry heatreatment terhadap kesehatanbibit tomat (*Lycopersicum esculentumMill*). Jurnal Agroekoteknologi. 5:2301 – 6515.
- Angelia, I.O. 2017. Kandungan pH, total asam tertitrasi, padatan terlarut dan vitamin c pada beberapa komoditas hortikultura. Journal of Agritech Science 1 : 68-74.
- Anonim. 2007. Tomatoes Shipping Point and Market Inspection Instructions. USDA. Amerika Serikat. United States Departement of Agriculture.
- Arti, I.M., E.P. Ramdhan, dan A.N.H. Manurung. 2020. Pengaruh larutan garam dan kunyit pada berat dan total padatan terlarut buah tomat (*Solanum lycopersicum L.*). Jurnal Pertanian Presisi 4: 64-75.
- Astuti, S.D., S. Salengke, A. Laga, M. Bilang, H. Mochtar, A. Waris. 2018. Characteristics of pH, total acid, total soluble solid on tomato juice by ohmic heating technology. International Journal of Sciences: Basic and Applied Research (IJSBAR) 39: 21-28.
- Balibrea, M. E., C. Martinez-Andujar, J. Cuartero, M. C. Bolarin, andF. Perez-Alfocea. 2006. The high fruit soluble sugar content in wild *Lycopersicon* species and their hybrids with cultivars depends on sucrose import during ripening rather than on sucrose metabolism. Functional Plant Biology 33: 279-288.



Bertuzzi, M.A., E.F.C. Vidaurre, M. Armada, and J.C. Gottifredi. 2007. Water vapor permeability of edible starch based films. *Journal of Food Engineering* 80: 972-978.

Biswal, D.R., R.P. Singh. 2004. Characterisation of carboxymethyl cellulose and polyacrylamide graft copolymer. *Carbohydrate Polymers* 57: 379-387.

Bono, A., P.H. Ying, F.Y. Yan, C.L. Muei, R. Sarbatly, and D. Krishnaiah. 2009. Synthesis and characterization of carboxymethyl cellulose from palm kernel cake. *Advances in Natural and Applied Sciences* 3: 5-11.

Cox, S.E., C. Stushnoff, and D.A. Sampson. 2003. Relationship of fruitcolor and light exposure to lycopene content and antioxidantproperties of tomato. *Canadian Journal of Plant Science* 83: 913-919.

Deglory, T., P. Bhuja, and Refli. 2018. Effectiveness solution calcium chloride (cacl<sub>2</sub>) in delaying ripening of fruit tomato (*Lycopersicum esculentum* Mill.). *Jurnal Biotropika Sains* 15: 25-37.

Deribe, H., B. Beyene, and B. Beyene. 2016. Review on pre and post-harvest management on quality tomato (*Lycopersicon esculentum* Mill.) production. *Food Science and Quality Management* 54: 72-79.

Direktorat Gizi Departemen Kesehatan R.I. 1981. Daftar Komposisi Bahan Makanan. Bhratara Karya Aksara, Jakarta.

Esguerra, E.B. andR. Rolle. 2018. Post-Harvest Management of Tomato for Quality and Safety Assurance. Food And Agriculture Organization Of The United Nations, Rome.

Eskin, N.A.M. 2000. Quality and preservation of vegetables. CRC press, Inc, Boca Raton, Florida 33451:53-67.

Francis, A.N., Y.A Hussein, and A. Ackun. 2018. Biochemical properties of six varieties of tomato from brong ahafo region of Ghana as influenced by the ripening condition and drying. *Afr. J. Food Agric. Nutr. Dev.* 18: 13095-13109.

Gamage, T., and V.K. Mishra. 2007. Postharvest physiology of fruit and vegetables. *Food Science and Technology* : 19-48.

Garcia, M.A., M. Ventosa, R. Diaz, S. Falco, and A. Casariego. 2014. Effects of aloe vera coating on postharvest quality of tomato. *Fruits* 69: 117-126.

Gardjito, M. dan Agung Setya Wardana. 2003. Hortikultura Teknik Analisis Pasca Panen. Penerbit Trans Media Mitra Printika, Yogyakarta.

Godana, E.A., N. Satheesh, and A.H. Taye. 2015. Effect of storage methods and ripening stages on postharvest quality of tomato (*Lycopersicom esculentum* Mill) cv. chali . *Annals. Food Science and Technology* 16: 127-137.



Gomez, K. A., and A. A. Gomez. 1984. Statistical Procedures for Agricultural Research (Second Edition). John Wiley & Sons, New York.

Gonzalez, L.S., C. Pastor, M. Vargas, A. Chiralt, C. G. Martinez, and M. Chafer. 2011. Effect of hydroxypropyl methylcellulose and chitosan coatings with and without bergamot essential oil on quality and safety of cold-stored grapes. Postharvest Biology and Technology 60: 57-63.

Haile, Ashenafi. 2017. Shelf life and quality of tomato (*Lycopersicon esculentum* Mill.) fruits and affected by different packaging materials. African Journal of Food Science 12: 21-27.

Hartuti, N. 2006. Penanganan Segar Pada Penyimpanan Tomat dan Pelapisan Lilin Untuk Memperpanjang Masa Simpan. Balai Penelitian Tanaman Sayuran., Bandung.

Harris D C. 2000. Quantitative Chemical Analysis 5th ed. W H Freeman and Company, New York US.

Hasanah, Uswatun. 2009. Pemanfaatan Gel Lidah Buaya Sebagai Edible Coating untuk Memperpanjang Umur Simpan Paprika (*Capsicum annum* varietas Sunny). Fakultas Teknologi Pertanian. Institut Pertanian Bogor. Skripsi.

Helyes, L., A. Lugasi, A. Poganyi, and Z. Pek. 2009. Effect of variety and grafting on lycopene content of tomato (*Lycopersicon lycopersicum* L. Karsten) fruit. Acta Alimentaria 38: 27–34.

Heuvelink, E. 2005. Tomatoes. CABI Publishing, USA.

Hidayat, M.K., Latifah, dan S.M.R. Sedyawati. 2013. Penggunaan carboxymethyl cellulose dan gliserol pada pembuatan plastik *biodegradable* pati gembili. Indonesian Journal of Chemical Science 2: 253-258.

Islam, M.Z., Y.T. Lee, M.A. Mele, I.L. Choi, and H.M. Kang. 2019. Effect of fruit size on fruit quality, shelf life and microbial activity in cherry tomatoes. AIMS Agriculture and Food 4: 340-348.

Jaramillo J, V. Rodriguez,M. Guzman, M. Zapata, and T. Rengifo. 2007. Technical manual: Good Agricultural Practices in the Production of tomato under protected conditions. FAO.

Kader, A.A., W.J. Lipton and L.L.Morris. 1973. System for scoring quality of harvested lettuce. Hortscience 8: 408-409.

Kader, Adel A. 2008. Perspective Flavor quality of fruits and vegetables. J. Sci. Food Agric. 88:1863-1868.



Kamal, Netty. 2010. Pengaruh bahan aditif CMC (*carboxyl methyl cellulose*) terhadap beberapa parameter pada larutan sukrosa. Jurnal Teknologi 1 : 78-84.

Kamaluddin, M.J.N., dan M.N. Handayani. 2018. Pengaruh perbedaan jenis hidrokoloid terhadap karakteristik *fruit leather* pepaya. Edufortech 3 : 24-32.

Kazi, M.K., A. Bishnoi. 2018. Effect of formulation on post-harvest quality of tomatoes. International Journal of Advances in Science Engineering and Technology 6 : 24-27.

Kismaryanti A. 2007. Aplikasi gel lidah buaya (*Aloe vera L.*) sebagai edible coating pada pengawetan tomat (*Lycopersicon esculentum* Mill.). Fakultas Teknologi Pertanian.Institut Pertanian Bogor. Skripsi.

Koh, P.C., M.A. Noranizan, Z. A. N. Hanani, R. Karim, and S.Z. Rosli. 2017. Application of edible coatings and repetitive pulsed light for shelf life extension of fresh-cut cantaloupe (*Cucumis melo L. reticulatus* cv. Glamour). Postharvest Biology and Technology 129: 64-78.

Lee, S.K. and A.A.Kader. 2000. Preharvest and postharvest factors influencing vitamin C content of horticultural crops. Postharvest Biology and Technology 20:207-220.

Leonardi, C., P. Ambrosino, F. Esposito, and V. Fogliano. 2000. Antioxidant activity and carotenoid and tomatine contents in different typologies of fresh consumption tomatoes. J. Agric. Food Chem 48:4723-4727.

Liu, L.H., D. Zabarás, L.E. Bennett, P. Aguas, and B.W. Woonton. 2009. Effect of UV-C, red light and sun light on the carotenoid content and physical qualities of tomatoes during postharvest storage. Food Chem 115 : 495–500.

Lopez, A.P., M.E.R. Guzman, T.E. Solares, E.A. Mandujano, and C.A.V. Perea. 2020. Postharvest respiration of fruits and environmental factors interaction: An approach by dynamic regression models. Scientia Agropecuaria 11: 23-29.

Mardiana, K. 2008. Pemanfaatan Gel Lidah Buaya sebagai *Edible Coating* Buah Belimbing Manis (*Averrhoa carambola* L.). Fakultas Teknologi Pertanian. Institut Pertanian Bogor. Skripsi.

Ma'rufiyanti, P., Sudarti, A.A. Gani. 2014. Pengaruh paparan medan magnet elf (*extremely low frequency*) 300 $\mu$ T dan 500 $\mu$ T terhadap perubahan kadar vitamin C dan derajat keasaman (pH) pada buah tomat. Jurnal Pendidikan Fisika 3 : 278-284.

Mathooko F. M. 2003. A comparative study of the response of tomato fruit to low temperature storage and modified atmosphere packaging. Afr. J.Food, Agric. Nutur. Dev 2: 34-41.



Martinez, V.I., M.J. Periago, G. Provan, and A. Chesson. 2002. Phenolic compounds, lycopene and antioxidant activity in commercial varieties of tomato (*Lycopersicum esculentum*). *J. Sci. Food Agric* 82 : 323–330.

Mchugh, T. H. and E. Senes. 2000. Apple wraps: A novel method to improve the quality and extend the shelf life of fresh-cut apples. *Journal of Food Science* 65: 480-485.

Mejia,D. 2005. Handling Fresh Mango, Watermelon, Banana and Leafy Vegetables and Immature Flower Heads. Food and Agriculture Organization of the United Nations.

Mersha A. 2008. Effects of stage and intensity of truss pruning on fruit yield and quality of tomato (*Lycopersicon esculentum* Mill.). Alemaya University.

Misir, J., F.H., Brishti, and M.M. Hoque. 2014. Aloe vera gel as a novel edible coating for fresh fruits : a review. *American Journal of Food Science and Technology* 2 : 93-97.

Moghaddasi, S. and S. K. Verma. 2011. Aloe vera their chemical composition and applications. *International Journal of Biological & Medical Research* 2: 466-471.

Mulyani, E. 2018. Perbandingan hasil penetapan kadar vitamin C pada buah kiwi dengan menggunakan metode iodometri dan spektrometri UV-vis. *Pharmauho* 3: 14-17.

Nasution, I.S., Yusmanizar, K. Melienda. 2012. Pengaruh penggunaan lapisan edibel(*edible coating*), kalsium klorida, dan kemasan plastik terhadap mutu nanas (*Ananas comosus* Merr.) terolah minimal. *Jurnal Teknologi dan Industri Pertanian Indonesia* 4 : 21-26.

Nawab, A., F., Alam, andA., Hasnain. 2017. Mango kernel starch as a novel edible coating for enhancing shelf- life of tomato ( *Solanum lycopersicum* ) fruit. *International Journal of Biological Macromolecules*103 : 581–586.

Nurjanah, Sarifah. 2002. Kajian laju respirasi dan produksi etilen sebagai dasar penentuan waktu simpan sayuran dan buah-buahan. *Jurnal Bionatura* 4 : 148-156.

Panwar, S., B. Mishra, and P. Goyal. 2016. Permeability of *Aloe vera* composite coatings and their effect on quality of peeled carrots. *Current Science* 111 (12): 2031-2035.

Paul, V., R. Pandey, G.C. Srivastava . 2010. Ripening of tomato (*Solanum lycopersicum* L.). Part II: Regulation by its stem scar region. *J. Food Sci. Technol.* 47:527-533.

Prasad, K., A.K. Guarav, P. Preethi, and P. Neha. 2018. Edible Coating Technology for Extending Market Life of Horticultural Produce. *Acta Scientific Agriculture* 2(5): 55-64.

Ranic, S., P. Quarrie & I.Pecinar. 2010. Anatomy of tomato fruit and fruit pedicel during fruit development. *Microscopy: Science, Technology, Applications and Education:* 851-861.

Rudito. 2006. Perlakuan komposisi gelatin dan asam sitrat dalam *edible coating* yang mengandung gliserol pada penyimpanan tomat. *Jurnal Teknologi Pertanian* 6: 1-6.



Rutkowski K.P., B. Michalczuk, and P. Konopascki. 2008. Nondestructive determination of ‘Golden Delicious’ apple quality and harvest maturity. Journal of Fruit Ornamental Plant Research 16:39-52.

Sahlin E., G.P. Savage, and C.E. Lister. 2004. Investigation of the antioxidant properties of tomatoes after ripening. Journal of Food Composition and Analysis 17:635-647.

Saini, R.K., S.H.Nile, and S.W.Park. 2015. Carotenoids from fruits and vegetables: Chemistry, analysis, occurrence, bioavailability and biological activities. Food Research International 76: 735-750.

Sammi, S., and T. Masud. 2007. Effect of different packaging systems on storage life and quality of tomato (*Lycopersicon esculentum* var. ‘Rio Grande’) during different ripening stages. Inter. Journal of FoodSafety 9:37-44.

Serrano, M., J. M. Valverde, F. Guillen, S. Castillo, D.M. Romero, and D. Valero. 2006. Use of Aloe vera gel coating preserves the functional properties of table Grapes. Journal of Agricultural and Food Chemistry 54 (11) : 3882-3886.

Sharma and Le Maquer. 1996. Lycopene in tomatoes and tomato pulp fraction. Italian Journal of Food Science 2: 107-113.

Simanjorang, R. A. 2017. Pengaruh Konsentrasi CMC dan Lama Pencelupan Pada Aplikasi Lidah Buaya (*Aloe vera* L.) sebagai Edible Coating pada Cabai Merah (*Capsicum annum* L.). Fakultas Pertanian. Universitas Lampung. Skripsi.

Sinaga, R.M. 1984. Penilaian Mutu Fisis Buah Beberapa Varietas Tomat. Bulletin Penelitian Hortikultura 4: 32-37.

Singh, R.K. and A.K., Singh. 2012. Optimization of reaction conditions for preparing carboxymethyl cellulose from corn cobic agricultural waste. Waste Biomass Valor 4 : 129-137.

Singh,R., S.K. Giri, and S.D.Kulkarni. 2013. Respiratory behavior of turning stage mature tomato (*Solanum lycopersicum* L.) under closed system at different temperature. Croat. J. Food Sci. Technol.5: 78-84.

Suarez, H., E.M.R. Rodriguez, and C.D. Romero. 2008. Chemical composition of tomato (*Lycopersicon esculentum*) from tenerife, the canada islands. Food Chemistry 106: 1046-1056.

Sukendar, N.K., A.B. Tawali, Salengke, A. Syarifuddin, A.H. Mochtar, dan A. Fakhruddin. 2019. Perubahan sifat fisiko-kimiawi selama proses fermentasi biji kakao segar. Canrea Journal 2 : 98-105.



Suryadi, Luthfy, K. Yenny, Gunawan. 2004. Karakterisasi koleksi plasma nutfah tomat lokal dan introduksi. Buletin Plasma Nutfah 10: 72-76.

Thybo, A.K., M. Edelenbos, L.P. Christensen, J.N. Sorensen, and K.Thorup-Kristensen. 2006. Effect of organic growing systems on sensory quality and chemical composition of tomatoes. Swiss Society of Food Science and Technology 39: 835-843.

Tijsken, L.M., and R.G. Evelo. 1994. Modeling colour of tomatoes during postharvest storage. Postharvest Biol. Technol. 4: 85–89.

Togrul, H., and N. Arslan. 2004. Extending shelf life of peach and pear by using CMC from sugar beet pulp cellulose as hydrophilic polymer in emulsions. Food Hydrocolloids 18: 215-226.

Toor, R.K., and G.P. Savage. 2005. Antioxidant activity in different fraction of tomatoes. Food Research International 38 : 487-494.

Trisnawati, Yani. dan Setiawan, A.I. 2005. Tomat Budidaya Secara Komersial. Penebar Swadaya, Jakarta.

Trivedi, H.C., C.K. Patel, and R.D. Patel. 1981. Studies on carboxymethylcellulose: Potentiometric Titrations, 3. Macromol. Chem. Phys. 182 : 243-245.

Vines, H.M., and F. Oberbacher. A simple method for CO<sub>2</sub> determination in fruit and vegetable respiration studies. Fla. State Hort. Soc. Proc 76: 312-317.

Visa, S., C.Cao, B.M. Gardener, and E.Van der Knaap. 2014. Modeling of tomato fruits into nine shape categories using elliptic fourier shape modeling and Bayesian classification of contour morphometric data. Euphytica 200 : 429-439.

Wani, A.A., P. Singh, K. Gul, M.H. Wani, and H.C. Langowski. 2014. LangowskiSweet cherry (*Prunus avium*): critical factors affecting the composition and shelf life. Food Packag. Shelf Life 1: 86-99.

Wills, R., B. McGlasso, D. Graham, and D. Joyce. 2007. Postharvest, an introduction to the physiology and handling of fruits, vegetables and ornamentals. 2th ed. University of New South Wales Press, Sydney.

Winarno, F.G, 1986. Pengawetan dan Pengolahan Hasil Hortikultura. Makalah pada Konferensi Swasembada dan Ekspor, tanggal 22 Oktober 1986. Jakarta.

Winarno, F.G. 1992. Kimia Pangan dan Gizi. PT. Gramedia Pustaka Utama, Jakarta.

Winarti, C., Miskiyah, dan Widaningrum. 2012. Teknologi produksi dan aplikasi pengemas *edible* antimikroba berbasis pati. Jurnal Litbang Pertanian 31:85-93.



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**MUTU DAN DAYA SIMPAN BUAH TOMAT (*Solanum lycopersicum L.*) YANG DILAPISI GEL LIDAH  
BUAYA (*Aloe vera* L.) DAN Carboxymethyl Cellulose PADA BERBAGAI KONSENTRASI**

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Yeshiwash, Y., K. Tolessa. 2018. Postharvest quality of tomato (*Solanum lycopersicum*) varieties grown under greenhouse and open field conditions. International Journal of Biotechnology and Molecular Biology Research. 9: 1-6.