

- [17] M. D. O'Toole, L. A. Marsh, J. L. Davidson, Y. M. Tan, D. W. Armitage, and A. J. Peyton, "Non-contact multi-frequency magnetic induction spectroscopy system for industrial-scale bio-impedance measurement," *Meas. Sci. Technol.*, vol. 26, no. 3, 2015, Art. no. 035102.
- [18] J. R. Reitz, *Foundations of Electromagnetic Theory*. Noida, India: Pearson Education India, 2009.
- [19] M. Rehman, B. A. Abu Izneid, M. Z. Abdullah, and M. R. Arshad, "Assessment of quality of fruits using impedance spectroscopy," *Int. J. Food Sci. Technol.*, vol. 46, no. 6, pp. 1303–1309, 2011.
- [20] D. El Khaled, N. Castellano, J. Gazquez, R. G. Salvador, and F. Manzano-Agugliaro, "Cleaner quality control system using bioimpedance methods: A review for fruits and vegetables," *J. Cleaner Prod.*, vol. 140, pp. 1749–1762, 2017.
- [21] VEGA-Level, List of Dielectric Constants. Accessed: Jan. 29, 2024. [Online]. Available: [http://www.appliedmc.com/content/images/Dielectric\\_Constants.pdf](http://www.appliedmc.com/content/images/Dielectric_Constants.pdf)
- [22] F. Harker and J. Dunlop, "Electrical impedance studies of nectarines during coolstorage and fruit ripening," *Postharvest Biol. Technol.*, vol. 4, no. 1-2, pp. 125–134, 1994.
- [23] M. D. O'Toole, L. A. Marsh, J. L. Davidson, Y. M. Tan, D. W. Armitage, and A. J. Peyton, "Rapid non-contact relative permittivity measurement of fruits and vegetables using magnetic induction spectroscopy," in *Proc. IEEE Sensors Appl. Symp.*, 2015, pp. 1–6.
- [24] M. D. Ferreira, S. A. Sargent, J. K. Brecht, and C. K. Chandler, "Strawberry fruit resistance to simulated handling," *Scientia Agricola*, vol. 65, pp. 490–495, 2008.
- [25] M. Al-Dairi, P. B. Pathare, R. Al-Yahyai, and A. Al-Mahdouri, "Effect on physiological properties of banana fruit based on pendulum impact test and storage," *Curr. Res. Food Sci.*, vol. 7, 2023, Art. no. 100640.
- [26] D. C. Montgomery, *Design and Analysis of Experiments*. Hoboken, NJ, USA: Wiley, 2017.
- [27] M. Soltani, R. Alimardani, and M. Omid, "Prediction of banana quality during ripening stage using capacitance sensing system," *Australian J. Crop Sci.*, vol. 4, no. 6, pp. 443–447, 2010.
- [28] J. Ilic, "Wood: Electrical properties," in *Encyclopedia of Materials: Science and Technology*. K. J. Buschow et al., (Eds.), Oxford, U.K.: Elsevier, 2001, pp. 9629–9633. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/B0080431526017447>
- [29] A. Chowdhury, P. Singh, T. K. Bera, D. Ghoshal, and B. Chakraborty, "Electrical impedance spectroscopic study of mandarin orange during ripening," *J. Food Meas. Characterization*, vol. 11, pp. 1654–1664, 2017.
- [30] P. Ibba, "Fruit quality evaluation using electrical impedance spectroscopy," Ph.D. dissertation, Free Univ. of Bozen-Bolzano, Bolzano, Italy, 2021.
- [31] V. Raja and S. Shanmugasundaram, "Development of capacitance based nondestructive ripening indices measurement system for sapota (Manilkara zapota)," *J. Food Process Eng.*, vol. 43, no. 3, 2020, Art. no. e13307.
- [32] N. Siriboon and P. Banlusilp, "A study on the ripening process of 'Namwa' banana," *AU J. Technol.*, vol. 7, no. 4, pp. 159–164, 2004.
- [33] J. Marriott, M. Robinson, and S. K. Karikari, "Starch and sugar transformation during the ripening of plantains and bananas," *J. Sci. Food Agriculture*, vol. 32, no. 10, pp. 1021–1026, 1981.
- [34] S. P. Burg and E. A. Burg, "Relationship between ethylene production and ripening in bananas," *Botanical Gazette*, vol. 126, no. 3, pp. 200–204, 1965.
- [35] G. Tucker et al., "Ethylene and fruit softening," *Food Qual. Saf.*, vol. 1, no. 4, pp. 253–267, 2017.
- [36] L. F. Goulao and C. M. Oliveira, "Cell wall modifications during fruit ripening: When a fruit is not the fruit," *Trends Food Sci. Technol.*, vol. 19, no. 1, pp. 4–25, 2008.
- [37] S. Matsumoto, N. Sugino, T. Watanabe, and H. Kitazawa, "Bioelectrochemical impedance analysis and the correlation with mechanical properties for evaluating bruise tolerance differences to drop shock in strawberry cultivars," *Eur. Food Res. Technol.*, vol. 248, no. 3, pp. 807–813, 2022.
- [38] V. Demidchik, D. Straltsova, S. S. Medvedev, G. A. Pozhvanov, A. Sokolik, and V. Yurin, "Stress-induced electrolyte leakage: The role of  $K^+$ -permeable channels and involvement in programmed cell death and metabolic adjustment," *J. Exp. Botany*, vol. 65, no. 5, pp. 1259–1270, 2014.
- [39] I. Ferguson and C. Watkins, "Ion relations of apple fruit tissue during fruit development and ripening. I. cation leakage," *Funct. Plant Biol.*, vol. 8, no. 2, pp. 155–164, 1981.
- [40] T. Imaizumi, F. Tanaka, D. Hamanaka, Y. Sato, and T. Uchino, "Effects of hot water treatment on electrical properties, cell membrane structure and texture of potato tubers," *J. Food Eng.*, vol. 162, pp. 56–62, 2015.
- [41] M. I. Hussain, A. El-Keblawy, N. Akhtar, and A. S. Elwakil, "Electrical impedance spectroscopy in plant biology," *Sustain. Agriculture Rev.*, vol. 52, pp. 395–416, 2021.
- [42] E. Azzarello, E. Masi, and S. Mancuso, "Electrochemical impedance spectroscopy," in *Plant Electrophysiology: Methods and Cell Electrophysiology*. Berlin, Germany: Springer, 2012, pp. 205–223.
- [43] D. R. Fogu , R. M. Peris, J. I. Civera, L. C. Rodrigo, and N. Laguarda-Miro, "Monitoring freeze-damage in grapefruit by electric bioimpedance spectroscopy and electric equivalent models," *Horticulturae*, vol. 8, no. 3, 2022, Art. no. 218.
- [44] R. J. Romani, I. K. Yu, L. L. Ku, L. K. Fisher, and N. Dehgan, "Cellular senescence, radiation damage to mitochondria, and the compensatory response in ripening pear fruits," *Plant Physiol.*, vol. 43, no. 7, pp. 1089–1096, 1968.
- [45] M. R. Jim nez, P. Rallo, H. F. Rapoport, and M. P. Su rez, "Distribution and timing of cell damage associated with olive fruit bruising and its use in analyzing susceptibility," *Postharvest Biol. Technol.*, vol. 111, pp. 117–125, 2016.
- [46] Q. Xue, H. Li, J. Chen, and T. Du, "Fruit cracking in muskmelon: Fruit growth and biomechanical properties in different irrigation levels," *Agricultural Water Manage.*, vol. 293, 2024, Art. no. 108672.
- [47] E. Ahmadi, H. R. Ghassemzadeh, M. Sadeghi, M. Moghaddam, and S. Z. Neshat, "The effect of impact and fruit properties on the bruising of peach," *J. Food Eng.*, vol. 97, no. 1, pp. 110–117, 2010.
- [48] D. Martinez-Romero, M. Serrano, A. Carbonell, S. Castillo, F. Riquelme, and D. Valero, "Mechanical damage during fruit post-harvest handling: Technical and physiological implications," *Production Practices and Quality Assessment of Food Crops: Quality Handling and Evaluation*, R. Dris and S. M. Jain, Eds., Dordrecht, Netherlands: Springer, 2004, pp. 233–252.
- [49] D. Zheng et al., "Packaging design to protect hongmeiren orange fruit from mechanical damage during simulated and road transportation," *Horticulturae*, vol. 8, no. 3, 2022, Art. no. 258.
- [50] A. A. Aziz et al., "Design of a capacitive sensor for oil palm fresh fruit bunch maturity grading," in *Proc. IEEE 2nd Int. Conf. Electron. Des.*, 2014, pp. 443–445.
- [51] J. Taghinezhad, R. Alimardani, and M. Soltani, "Prediction of banana volume using capacitive sensing method," *Javad Taghinezhad et al./Elixir Agriculture*, vol. 46, pp. 8418–842, 2012.
- [52] S. A. Tajuddin, H. Saad, and R. Rosman, "Sapota sapodilla smart capacitive sensing system," in *Proc. IEEE Symp. Comput. Inform.*, 2021, pp. 13–18.