

**Title** Effect of postharvest mechanical injury on micro structure and quality of cantaloupe melons

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### **Abstract**

Mechanical injuries can cause changes in fruit tissues that affect quality and contribute to reduced postharvest life. Impact damage can occur anytime during postharvest operations if handling is not careful, and the effects will be noticed during and after storage or within the distribution chain. Scanning Electron Microscopy (SEM) is an advanced and useful technique for evaluation of the quality of biological materials. The micro structural changes in tissues of Cantaloupe melons submitted to mechanical injury by impact were evaluated during storage and correlated with changes in fruit quality attributes. Melons cv. 'Torreon' were selected and sanitized, and half of the lot were submitted to mechanical injury by impact onto a rubber-covered hard surface, and stored for up to 7 days at room temperature (23°C). SEM evaluation was carried out on injured and non-injured melons. Faster softening occurred in injured melons during the first three days of storage, together with an increased weight loss, while SS content and TA slightly decreased and flesh pH remained constant during storage compared to non-injured fruit, and Ultra structural observations in non-injured melons indicated thin-walled, uniform and tightly packed parenchyma cells with no cell separation at the middle lamella. Progressive disruption of the middle lamella parenchyma cells was observed during storage in injured melons. Fungal contamination was seen next to micro cracks induced by the injury, as opposed to the clean and intact epicarp of non-injured fruit.