

**Microbiological stability and quality of pulsed light treated cantaloupe (*Cucumis melo* L. *reticulatus* cv. *Glamour*) based on cut type and light fluence**

ABSTRACT

The aim of this study was to investigate the effect of cut type and pulsed light (PL) fluence on microbiological stability and quality of fresh-cut cantaloupes. Fresh-cut cantaloupes with various cut types (cuboid, triangular prism and sphere) were treated with PL technology at 6 J/cm<sup>2</sup>. Samples were exposed to PL treatment at fluences of 2.7, 7.8, 11.7 and 15.6 J/cm<sup>2</sup> followed by storage at 4 ± 1 °C for 28 days. Microbiological quality, headspace composition, firmness, colour, pH, titratable acidity, total soluble solids, total phenolic content and ascorbic acid content of fresh-cut cantaloupes were determined. Spherical shape was found to be the most suitable shape for PL treatment of fresh-cut cantaloupes due to its significantly lowest (p < 0.05) microbial counts before and after the PL treatment. No significant (p > 0.05) effect was observed for firmness, colour, total soluble solids and total phenolic content of fresh-cut cantaloupes throughout the storage study. Pulsed light treatment using 7.8 J/cm<sup>2</sup> was the best for extending shelf life of fresh-cut cantaloupes with extension of 8 days longer at 4 ± 1 °C compared to the control while maintaining the ascorbic acid content. In conclusion, PL treatment is a potential technique for extending the shelf life of fresh-cut cantaloupes by inactivating microorganisms without compromising the nutritional value.

**Keyword:** Pulsed light; Fresh-cut cantaloupe; Cut type; Microbiological stability; Non-thermal