

Title Bacterial inactivation and quality changes in fresh-cut avocado treated with intense light pulses

Author A. Y. Ramos-Villarroel, O. Martín-Belloso and R. Soliva-Fortuny

Citation European Food Research and Technology, 233, Number 3, 395-402, 2011

Keywords Intense light pulses; Fresh-cut avocado; *Listeria innocua*; *Escherichia coli*; Inactivation

Abstract

This study investigated the impact of intense light pulses (ILP) on inactivation of *Listeria innocua* and *Escherichia coli* as well as quality changes in fresh-cut avocado. Cylinders of avocado inoculated with *L. innocua* or *E. coli* were placed in plastic trays, which were sealed with a 64- μm -thick polypropylene film (oxygen permeability of $110 \text{ cm}^3 \text{ O}_2 \text{ m}^{-2} \text{ bar}^{-1} \text{ day}^{-1}$ at $23 \text{ }^\circ\text{C}$ and 0% RH) and subjected to 15 or 30 pulses at fluencies of 0.4 J/cm^2 per pulse and then stored for 15 days at $5 \text{ }^\circ\text{C}$. In addition to *L. innocua* and *E. coli* counts, the headspace atmosphere, pH, colour and firmness were measured. The growth of *E. coli* and *L. innocua* was more effectively inhibited when increasing treatment intensity. Hence, significant inactivation was obtained in samples treated with 15 and 30 pulses for *L. innocua* (2.61 and 2.97 log CFU/g, respectively) and *E. coli* (2.90 and 3.33 log CFU/g, respectively) just after processing. Oxygen concentrations were significantly reduced, whereas CO_2 and ethanol concentrations increased due to product respiration; however, ethylene production was decreased by the effect of ILP treatments. The use of 30 pulses affected the colour and firmness of fresh-cut avocado, causing browning and softening.

<http://www.springerlink.com/content/v3v7622218752230/fulltext.pdf>