Title Quality attributes of shredded carrot (*Daucus carota* L. *cv.* Nantes) as affected by alternative decontamination processes to chlorine

Author Carla Alegria, Joaquina Pinheiro, Elsa M. Gonçalves, Isabel Fernandes, Margarida Moldão and Marta Abreu

Citation Innovative Food Science & Emerging Technologies, Volume 10, Issue 1, January 2009, Pages 61-69

Keywords Shredded carrot; Ozonated-water; Ultrasonication; Hot water; Processing; Microbiological quality; Sensory quality

Abstract

The effects of alternative decontamination processes to chlorine: ozonated-water (1 ppm/5 min), hot water (100 °C/45 s) and ultrasonication (45 kHz/1 min), applied pre- or post-cut in the technological diagram of minimal processing of carrots were tested. Ultrasonication in chlorinated-water and thermo-ultrasonication as combined processes applied just in pre-cut carrot were also tested. The initial microbial load reduction, soluble solids content, pH and sensorial attributes of shredded carrot just after processing were evaluated. Decontamination processes applied on pre-cut carrot provided maintenance of fresh-like sensorial quality, regardless the type of treatment, due to diminished leaching phenomena which is critical for shredded carrot. Chlorination, ozonization and ultrasonication achieved *ca*. 1 Log_{10} reduction of initial microbial load. No additional decontamination effect in combined processes was observed. The use of heat in pre-cut carrot proved to be the most efficient process regarding microbial reduction (3 Log_{10} units) providing, as well, an acceptable fresh-like quality product.