Title Optimization of ozone treatment of fresh-cut green leaf lettuce

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Citation Journal of Food Engineering, Volume 90, Issue 4, February 2009, Pages 487-494

Keywords Ozone; Green leaf lettuce; Optimization; *Listeria monocytogenes*; Overall visual quality; Sanitizer; Vitamin C; Respiration; Browning; Chemical oxygen demand

Abstract

The optimization of ozone treatment for fresh-cut green leaf lettuce was studied to determine the effects of ozone concentration (0.5–4.5 ppm) and exposure time (0.5–3.5 min) on *Listeria monocytogenes* counts and the overall visual quality of lettuce. Prior to the optimization study, the effect of temperature on the efficacy of ozone treatment was evaluated in the range of 10–26 °C. No significant effect of temperature on the efficacy of ozone treatment was observed. The quality and safety of lettuce samples treated at the determined optimum ozonation condition (2 ppm) were compared with the chlorinated water (100 ppm), organic acid (0.25 g/100 g citric acid plus 0.50 g/100 g ascorbic acid), and water treatments applied at 10 °C for 2 min. Samples were stored at 4 °C for 12 days. Analysis include aerobic mesophilic count, *Enterobactericeae*, psychrotrophic bacteria, vitamin C, β-carotene, and sensory quality. Ozone treatment was found to be better than the chlorine and organic acid treatments in maintaining the sensory quality.