

Title Influence of aqueous ozone, blanching and combined treatments on microbial load of red bell peppers, strawberries and watercress

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Abstract

The effectiveness of ozone in aqueous solution treatment on microbial inactivation was studied for three combinations microorganism/food: *Listeria innocua*/red bell peppers (artificially inoculated), total mesophiles/strawberries, and total coliforms/watercress, with two concentrations (0.3 and 2.0 ppm). Blanching treatments (50–60 °C) were also individually applied and in combination with ozone, for studying possible synergistic effects. In relation to ozone treatments, the highest microbial reductions were obtained for the highest concentration with the highest treatment time (3 min). Under those conditions, *L. innocua*/peppers, total mesophiles/strawberries and total coliforms/watercress were reduced respectively 2.8 ± 0.5 , 2.3 ± 0.4 and 1.7 ± 0.4 log-cycles. However, a substantial portion of the microbial populations were reduced by water washing alone, and the presence of ozone generally added an additional reduction of 0.5–1.0 log-cycles.

If ozone at the highest concentration is used, the treatment impacts on *L. innocua*/peppers and total mesophiles/strawberries load reductions were equivalent to a blanching at 50 °C (for the same treatment times). Combining blanching and ozone did not generate synergistic effects, and in some situations microbial reductions were lower than the ones observed when treatments were applied independently.