

Title Decontamination Performance Comparison of Trisodium Phosphate, Chlorine and Ozonation
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Abstract

Performance comparison of ozonation (0.35 ppm), sodium hypochlorite (HC, 25ppm), and chlorinated trisodium phosphate (CTSP, 25 ppm) and tap water for the reduction/destruction of microorganisms (TPC) in vegetables was carried out. Lettuce, water convolvulus, and carrots were used in this study. Ozone, HC, and CTSP reduced TPC by 3.0, 3.2, and 4.1 log cycles in 15, 10 and 5 min to keep the TPC under the standard of the ministry of public health at log 4 cfu/g. Yeast numbers were reduced by 3.0-3.5 log in all vegetables tested. Tap water soaking slightly reduced TPC by 1 log. The complete destruction of TPC (log 5-8) in the test vegetables required 35, 40 and 20 min with lettuce; 20, 30 and 20 min with convolvulus; and 20 min with carrots for all methods tested. CTSP required a shorter time compared with other methods tested. It appeared that ozonation at 0.35ppm was as effective as CTSP. They both were more effective than HC solution. All cleaning methods caused no effects on physical characteristics of the vegetables. Ozonation, the clean technology, had an advantage of leaving no residues in both vegetables and rinsed water. It is effective and more environmentally friendly compared with other methods tested in this study.