Title Effect of aqueous chlorine dioxide and UV-C treatment on the microbial reduction and color of cherry tomatoes

Author Hyeon-Jeong Song, Dong-Won Choi and Kyung Bin Song

Citation Horticulture, Environment, and Biotechnology, 52, Number 5, 488-493, 2011

Keywords *E. coli* O157:H7; non-thermal treatment; *S.* Typhimurium; UV-C irradiation

Abstract

The effect of aqueous chlorine dioxide (ClO_2) combined with UV-C irradiation on the postharvest quality of cherry tomatoes were examined. Cherry tomatoes were inoculated with *Salmonella enterica* serotype Typhimurium and *Escherichia coli* O157:H7, and then treated with 10 mg L^{-1} ClO_2, 5 kJ m^{-2} UV-C, and a combination of ClO_2/UV-C treatment. The populations of *S.* Typhimurium and *E. coli* O157:H7 in cherry tomatoes were reduced by 2.53 and 2.26 log CFU/g after treatment with aqueous ClO_2, respectively. Treatment with UV-C irradiation also reduced the populations of *S.* Typhimurium and *E. coli* O157:H7 by 2.58 and 2.65 log CFU/g, respectively, compared to the control. However, the combined treatment of ClO_2/UV-C irradiation completely eliminated the inoculated bacteria during storage. Color measurement indicated that Hunter *L*, *a*, and *b* values were not significantly different among the treatments during storage. Therefore, these results suggest that the combined aqueous ClO_2 and UV-C treatment could be useful in improving microbial safety of cherry tomatoes during storage without impairing the quality.