Effectiveness of stable ozone microbubble containing water on reducing bacteria load on selected leafy vegetables

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Abstract

Effectiveness of stable ozone micro bubble containing water (ozone micro bubble water) on decontaminating inoculated *Escherichia coli* (*E. coli*) O157:H7 or naturally attached bacteria on four kinds of leafy vegetables was evaluated. For the purpose of comparison, the effectiveness of gaseous ozone, chlorine water and distilled water was also evaluated. Nearly one and two log $CFU.g^{-1}$ reduction of *E. coli* viable cells was observed after washing by ozone micro bubble water and chlorine water, respectively for all of tested leafy vegetables. No significant differences were obtained for the effectiveness among ozone micro bubble water, ozonated water and distilled water. No reduction of viable cells was observed after exposure of leaves to ozone gas. Similar results were obtained for naturally attached bacteria. No marked differences in color and appearance among distilled water and other sanitizer treatments were observed. These results suggest that the effectiveness of surface decontamination of leafy vegetables by using ozone micro bubble water was limited.