
Abstract
Inoculated strawberries were treated with deionized water (control), electrolyzed oxidizing (EO) water (23 and 55 mg/L of residual chlorine), and chlorinated water (55 mg/L of residual chlorine), either with or without ultrasonication. Inoculated broccoli was treated with EO water containing 55 and 100 mg/L of residual chlorine and chlorinated water with 100 mg/L of residual chlorine. Treatments were conducted for 1 and 5 min at temperatures of 4 and 24°C, respectively. Dipping strawberries and broccoli into EO water or chlorinated water significantly (P < 0.05) reduced the Escherichia coli O157:H7 counts compared with inoculated controls. Dipping inoculated strawberries with chlorinated water or EO water with ultrasonication reduced E. coli O157:H7 cells by 0.7 to 1.9 log cfu/g depending on the treatment time and treatment solution temperature. Dipping inoculated broccoli into chlorinated water or EO water with ultrasonication for 1 or 5 min reduced the bacterial population by 1.2 to 2.2 log cfu/g. Significant (P < 0.05) reductions in pathogen populations were observed when produce was treated with EO water in conjunction with ultrasonication. Results revealed that EO water was either more than or as effective as chlorinated water in killing E. coli O157:H7 cells on strawberries and broccoli.