
ABSTRACT

The objective of this study was to evaluate the efficacy of slightly acidic electrolyzed (SAEO) water in killing or removing Escherichia coli O157:H7 on iceberg lettuce and tomatoes by washing and chilling treatment simulating protocols used in food service kitchens. Whole lettuce leaves and tomatoes were spot-inoculated with 100 μL of a mixture of 5 strains of E. coli O157:H7. Washing lettuce with SAEO water for 15 s reduced the pathogen by 1.4 to 1.6 log CFU/leaf, but the treatments did not completely inactivate the pathogen in the wash solution. Increasing the washing time to 30 s increased the reductions to 1.7 to 2.3 log CFU/leaf. Sequential washing in SAEO water for 15 s and then chilling in SAEO water for 15 min also increased the reductions to 2.0 to 2.4 log CFU/leaf, and no cell survived in chilling solution after treatment. Washing tomatoes with SAEO water for 8 s reduced E. coli O157:H7 by 5.4 to 6.3 log CFU/tomato. The reductions were increased to 6.6 to 7.6 log CFU/tomato by increasing the washing time to 15 s. Results suggested that application of SAEO water to wash and chill lettuce and tomatoes in food service kitchens could minimize cross-contamination and reduce the risk of E. coli O157:H7 present on the produce.