

**Title** The decontaminative effects of acidic electrolyzed water for *Escherichia coli* O157:H7, *Salmonella typhimurium*, and *Listeria monocytogenes* on green onions and tomatoes with differing organic demands

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#### **Abstract**

Acidic electrolyzed water (AC-EW) has strong bactericidal activity against foodborne pathogens on fresh vegetables. However, the efficacy of AC-EW is influenced by soil or other organic materials present. This study examined the bactericidal activity of AC-EW in the presence of organic matter, in the form of bovine serum against foodborne pathogens on the surfaces of green onions and tomatoes. Green onions and tomatoes were inoculated with a culture cocktail of *Escherichia coli* O157:H7, *Salmonella typhimurium*, and *Listeria monocytogenes*. Treatment of these organisms with AC-EW containing bovine serum concentrations of 5, 10, 15, and 20 ml/l was performed for 15 s, 30 s, 1 min, 3 min and 5 min. The total residual chlorine concentrations of AC-EW decreased proportional to the addition of serum. The bactericidal activity of AC-EW also decreased with increasing bovine serum concentration, whereas unamended AC-EW treatment reduced levels of cells to below the detection limit (0.7 logCFU/g) within 3 min.