
Abstract

The effectiveness of electrolyzed (EO) water for killing Campylobacter jejuni on poultry was evaluated. Complete inactivation of C. jejuni in pure culture occurred within 10 s after exposure to EO or chlorinated water, both of which contained 50 mg/l of residual chlorine. A strong bactericidal activity was also observed on the diluted EO water (containing 25 mg/l of residual chlorine) and the mean population of C. jejuni was reduced to less than 10 CFU/ml (detected only by enrichment for 48 h) after 10-s treatment. The diluted chlorine water (25 mg/l residual chlorine) was less effective than the diluted EO water for inactivation of C. jejuni. EO water was further evaluated for its effectiveness in reducing C. jejuni on chicken during washing. EO water treatment was equally effective as chlorinated water and both achieved reduction of C. jejuni by about 3 log_{10} CFU/g on chicken, whereas deionized water (control) treatment resulted in only 1 log_{10} CFU/g reduction. No viable cells of C. jejuni were recovered in EO and chlorinated water after washing treatment, whereas high populations of C. jejuni (4 log_{10} CFU/ml) were recovered in the wash solution after the control treatment. Our study demonstrated that EO water was very effective not only in reducing the populations of C. jejuni on chicken, but also could prevent cross-contamination of processing environments.