
ABSTRACT

This study was undertaken to investigate the efficacy of alkaline and acidic electrolyzed (EO) water in preventing and removing fecal contaminants and killing Campylobacter jejuni on poultry carcasses under simulated industrial processing conditions. New York dressed and defeathered chicken carcasses spot-inoculated with cecal material or C. jejuni were subjected to spraying treatment with alkaline EO or 10% trisodium phosphate (TSP) water or combinations of spraying and immersion treatments with acidic EO and chlorinated water, respectively. Prespraying chicken carcasses with alkaline EO water significantly lowered cecal material attachment scores (3.77) than tap water (4.07) and 10% TSP (4.08) upon treatment of the dorsal area. Combinations of pre- and postspraying were significantly more effective than postspraying only, especially when using alkaline EO water in removing fecal materials on the surface of chicken carcasses. Although treatment by immersion only in EO and chlorinated water significantly reduced the initial population (4.92 log10 cfu/g) of C. jejuni by 2.33 and 2.05 log10 cfu/g, respectively, combinations of spraying and immersion treatment did not improve the bactericidal effect of sanitizers. The results indicated that alkaline EO water might provide an alternative to TSP in preventing attachment and removal of feces on the surface of chicken carcasses. The results also suggested that chicken carcasses containing pathogenic microorganisms may contribute to the cross-contamination of whole batches of chickens during processing in the chiller tank and afterward.