

Title Application of slightly acidic electrolyzed water as a potential non-thermal food sanitizer for decontamination of fresh ready-to-eat vegetables and sprouts

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Abstract

The sanitization efficacy of slightly acidic electrolyzed water (SAEW) against food pathogens on selected fresh ready-to-eat (RTE) vegetables and sprouts was evaluated and compared to sodium hypochlorite (NaOCl) solution. RTE vegetables and sprouts were dip-inoculated with *Escherichia coli* (*E. coli*) and *Salmonella* spp. and dip-treated with SAEW, NaOCl solution for 5 min. SAEW treatment significantly ($p < 0.05$) reduced the total aerobic mesophilic bacteria from Chinese celery, lettuce and daikon sprouts by 2.7, 2.5 and 2.45 \log_{10} CFU/g, respectively relative to un-treated. Pathogens were significantly ($p < 0.05$) reduced from Chinese celery, lettuce and daikon sprouts by 2.7, 2.8 and 2.8 \log_{10} CFU/g (*E. coli*) and 2.87, 2.91 and 2.91 \log_{10} CFU/g (*Salmonella* spp.), respectively following a SAEW treatment. SAEW and NaOCl solution showed no significant sanitization difference ($p > 0.05$). Results demonstrate that SAEW at low chlorine concentration and a near neutral pH is a potential non-thermal food sanitizer that could represent an alternative to NaOCl solution and would reduce the amount of free chlorine used in fresh-cut vegetables industry, since the same microbial reduction as NaOCl solution is obtained.