Title Decontamination of fresh produce by the use of slightly acidic hypochlorous water following pretreatment with sucrose fatty acid ester under microbubble generation

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Abstract

Treatment by slightly acidic hypochlorous water (SAHW) in combination of pretreatment with sucrose fatty acid ester under microbubble generation was effective for decontamination of lettuce. Sufficient contact time of SAHW containing 30 mg/L of available chlorine on reduction of viable counts of lettuce was determined to be 5 min. For 5 min at 18–20 °C, treatment with 30 mg/L of available chlorine in SAHW appeared more effective in the reduction of bacteria on lettuce compared with 15 mg/L. The treatment of lettuce at 50 °C with SAHW at 30 mg/L of available chlorine showed a 2 log reduction of bacterial counts without injury in the tissue. The treatment at 50 °C, SAHW also delayed browning on cut lettuce for the first 5–6 days of subsequent storage at 6 °C. Among two sucrose fatty acid esters tested, sucrose monopalmitate at 100 mg/L had a higher efficacy for pretreatment under microbubble generation. After pretreatment for 5 min with 100 mg/L sucrose monopalmitate under microbubble generation and subsequent treatment with SAHW at 50 °C for 5 min, viable counts of lettuce were decreased by about 3–4 logs. After the same treatment, *Pseudomonas* sp. predominant on lettuce decreased drastically. These results indicate the effectiveness of the combined treatments of sucrose fatty acid ester under microbubble generation and SAHW at 50 °C for decontamination of fresh produce.