

Title Effect of acidified sodium chlorite on microbial growth and quality of shredded carrots

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Citation Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.

Keywords shredded carrot; sodium chlorite; fresh cut produced

Abstract

Fresh-cut products have been one the hottest commodities in grocery stores over the past 10 years. In the near future, it is commonly perceived that the fresh-cut products industry will experience unprecedented growth. Unfortunately, fresh-cut products are susceptible to microbial spoilage, which significantly reduces their shelf-life. Microbial contamination is also considered a risk to public health, and previous studies have demonstrated the efficacy of SANOVA (acidified sodium chlorite) in inactivating some foodborne pathogens. However, it is necessary to elucidate the effects of SANOVA on quality attributes of fresh-cut produce. The objective of this study was to investigate the effect of different concentrations of SANOVA on microbial reduction and quality of shredded carrots. Shredded carrots were washed with 0, 100, 250 and 55 ppm of SANOVA or with 150 ppm of chlorine for 1 min. After treatment, carrots were rinsed, packaged under modified atmosphere conditions, and stored at 5 °C for 21 d. Every 7 days carrots were sampled to evaluate overall quality and microbial growth, including total aerobic bacteria, coliforms/ *E. coli*, molds, yeasts, and lactic acid bacteria. SANOVA (100, 250, 500 ppm) reduced 1.5 to 2.0 log CFU total aerobic bacteria, coliforms/ *E. coli*, molds, yeasts, and lactic acid bacteria, when compared to water (control). It also helped maintain texture quality and prevent solids loss (as tissue electrolyte leakage) for up to 21 days. Results indicate that SANOVA could be a potential alternative treatment to chlorine for sanitation of shredded carrots.