

Title Commercial-scale surface pasteurization process for inactivation of *Salmonella* Poona Rm 2350 and *Escherichia coli* ATCC 25922 on cantaloupes

Author B.A. Annous

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 cantaloupe; surface pasteurized; contamination

Abstract

Cantaloupes have been implicated in numerous foodborne outbreaks due to contamination with *Salmonella* Poona. Commercial washing processes for cantaloupes are limited in their ability to inactivate and/or remove this human pathogen. Our objective was to develop a commercial-scale surface pasteurization process for completely inactivation *S. Poona* on artificially contaminated cantaloupes. Whole cantaloupes, surface inoculated with *S. Poona* Rm 2350 or *Escherichia coli* ATCC 25922 to a final cell concentration of ca. $5 \log_{10} \text{CFU/cm}^2$ were stored at 4 °C and room temperature (RT) for up to 72 h prior to processing. Populations of natural aerobic microflora recovered from cantaloupes that were surface pasteurized at 96, 86 or 76 °C for 2-3 min were significantly ($p < 0.05$) lower than those of the controls. Treatments at 76 °C for 2-3 min at 24 h post inoculation resulted in excess of 5 log CFU/cm² reduction in *S. Poona* and *E. coli* populations. Firmness qualities of cantaloupes that were surface pasteurized (96 °C for 1-3 min) and were stored at 4 °C for 21 days were better than those of the controls. Also, treated cantaloupes had no visible mold growth compared to the non-treated cantaloupes. These results indicate that surface pasteurization of cantaloupes will extend the shelf-life of the fresh cantaloupes and will enhance the microbiological safety of this commodity. Storage of untreated inoculated cantaloupes at RT for 24 to 72 h post inoculation caused a significant ($p < 0.05$) increase in *S. Poona* and *E. coli* populations as compared to storage at 4 °C. This indicates that cantaloupes should be refrigerated as soon as possible following harvesting to control the growth of any possible contaminant on the rind.