

Title Evaluation of a Commercial Seam Pasteurization System for Controlling *Listeria monocytogenes* and *Salmonella* spp. on Raw Whole Shelled Pistachios

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Citation Program and Abstract Book, IAFP 2005 (International Association for Food Protection) - 92nd Annual Meeting, 14-17 August 2005, Baltimore, Maryland, USA. 256 pages.

Keyword pistachio; *Salmonella*; *Listeria monocytogenes*; pasteurization

Abstract

The objective of this study was to validate the effectiveness of 20, 30 and 40 s steam pasteurization applied with a commercial steam pasteurization system for reducing *Listeria monocytogenes* and *Salmonella* spp. populations on raw whole shelled pistachios. Pistachios were inoculated with each pathogen at ca. 6 (high) and 4 (low) log CFU/g using a misting procedure. Samples inoculated at high levels and exposed to the saturated steam environment for 20, 30 and 40 s demonstrated average *L. monocytogenes* reductions of 2.3, 2.6, and 4.5 log CFU/g, respectively. Population reductions were 3.3, 3.9, and 5.5 log cycle reductions for *Salmonella* spp. An average of 1.6, 2.4, and 3.4 log cycle reduction for *L. monocytogenes*, and 3.5, 3.5, and 3.9 log cycle reductions for *Salmonella* spp. populations were observed when pistachios samples with low levels of inoculum were exposed to same treatments. Overall, steam pasteurization using a commercial unit provided a high level of control for both pathogens and appears to be a very practical application for raw pistachios. Further evaluation of pistachios for shelf life and sensory quality is suggested.