

Title Dynamic Assessment of the Microbial Quality of Fresh Broccoli in a Food Supply Chain

Author Rejeanne Dallaire, Denyse I. LeBlanc, Carole C. Tranchant, Liette Vasseur and Pascal Delaquis, Bernadette Goguen, Mary Taylor, Chantal Beaulieu, Patrick Maltais, and Ken McRae

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 broccoli; microbial quality

Abstract

Fresh produce is known as harbor pathogens associated with foodborne illness. However, little is known about the evolution of the microbial quality of fresh fruits and vegetables as they move through the food supply chain. This study aimed to assess the microbial quality of fresh broccoli at every step in a production and distribution system. Locally produced fresh broccoli was tracked through a supply chain by following 33 distinct lots of produce from harvest to storage, wholesale handling, and retail display over two seasons. A total of 201 randomly selected samples were collected and 804 microbial analyses were conducted on the florets, using standard methods, to determine the numbers of viable aerobic bacteria (aerobic colony count, ACC), fecal coliforms, *Escherichia coli* and *Listeria monocytogenes*. The temperature of broccoli was also monitored. All the samples had low ACC, low or non-detectable levels of fecal coliforms and *E. coli*, and non-detectable levels of *L. monocytogenes*. A small number of samples with detectable levels of fecal coliforms and *E. coli* were found during the second season. A slight increase in ACC was observed between harvest and retail display during both sampling seasons. Broccoli temperature was relatively well controlled throughout the supply chain, both years. Overall, the change in its microbial quality in the supply chain considered seemed to be more influenced by the age of the broccoli (time since harvest) than by its calculated average temperature.