

Title Browning inhibitor and processing aid contamination
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Abstract

Solutions containing browning inhibitors, acidulants, calcium salts and other additives or processing aids may be applied to fresh-cut fruits and vegetables to prevent spoilage or enhance quality. Such solutions may become contaminated with human pathogens originating in the processing plant environment or incoming raw material. Under favorable conditions, these contaminants may proliferate in the solution and cross-contaminate the fresh-cut product, thereby creating the potential for a food poisoning outbreak. *Listeria monocytogenes* has been detected in fresh-cut apples, melons, resulting in recalls, while a recent outbreak of *E. coli* O157:H7 was associated with a bagged salad product. Therefore, it is important that we understand potential routes of contamination and contributing factors that may result in product contamination during application of additives and processing aids. Furthermore, we must develop interventions to reduce the risk of product contamination sources observed in apple and melon packing sheds and fresh-cut processing plants will be provide. Plant layout, movement of incoming raw material and culled produce, and other factors affecting the distribution of microbial contaminants within such facilities will be examined. Time, temperature, nutrient availability and other conditions favoring survival and growth of contaminants in processing aid and additive solutions will be discussed. Finally, strategies will be presented for avoiding human pathogen contamination of such solutions and the products treat therewith by reducing the population of environmental contaminants, modifying plant layout, improving plant sanitation, improving handling practices and sanitizing treatments for raw materials, inactivating or removing microbial contaminants from processing aid and additive solutions, suppressing pathogen growth in these solutions, and preventing outgrowth of contaminants in the fresh-cut product. Implementation of such measures can greatly reduce the risk that fresh-cut fruits and vegetables will be a source of foodborne illness.