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Intervention technologies for food safety on minimally processed produce: Perspectives on food-borne and plant pathogens

Modesto Olanya and Brendan A Niemira
FSIT-ERRC-ARS-USDA, USA

Produce contamination associated with enteric pathogens such *Escherichia coli* O157:H7, *Salmonella* spp., *Listeria monocytogenes*, *Shigella* and others are significant challenges to food safety. This is due to the illnesses and economic impacts resulting from the outbreaks. Innovative technologies for inactivation of food-borne pathogens at post-harvest are crucial for improving food and consumer safety. In addition to enteric microbes, plant pathogens (*Aspergillus*, *Penicillium*, *Botrytis*, *Erwinia*, *Pectobacterium*, and *Pseudomonas*) may also impact shelf-life of produce through decay and predisposition of fresh fruits and vegetables to colonization, and directly by toxin production. Due to the similarity of inocula sources and interactions of foodborne microbes and plant pathogens on produce, we review non-thermal intervention measures for control of enteric pathogens and assess their potential applications to plant pathogens. Physical, chemical, and biocontrol measures and their combinations are discussed in terms of their utilization at post-harvest, efficacy, and potential drawbacks with specific examples from enteric microbes, plant pathogens, and produce types. Assessment of future perspectives of intervention measures for post-harvest food safety is also highlighted.

Biography

Modesto Olanya has over 10 years of research experience with the USDA–Agricultural Research Service and is currently based at the Eastern Regional Research Center, Wyndmoor, PA. His laboratory is conducting applied research on Intervention Technologies for Minimally Processed Foods with emphasis on the bio-control of enteric pathogens on leafy greens at post-harvest. Prior to joining USDA-ARS, he was Regional Pathologist at International Potato Center and based at the Regional Office for Sub-Saharan Africa, in Nairobi, Kenya. He was also an Assistant Research Professor at the University of Maine and a Post-doctoral Fellow at International Institute for Tropical Agriculture at Ibadan, Nigeria. He has authored over 60 publications in reputable national and international journals, and active in various professional societies.

modesto.olanya@ars.usda.gov