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Safety issues, challenges and intervention options for produce industry

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Abstract

Consumption of fresh and fresh-cut minimally processed fruits and vegetables is highly recommended due to nutritional and health-related benefits. The USDA recommends that consumers eat a minimum of five servings of fruits and vegetables daily to minimize the risk of cardiovascular disease. Unfortunately, with the increase in produce consumption the number of produce-related outbreaks of foodborne illnesses also increased. About 23% of all foodborne illnesses are attributable to fresh produce. Pathogens of primary concern appear to be *E. coli* O157:H7, nontyphoidal *Salmonella, L. monocytogenes,* and Norwalk-like viruses. Epidemiological investigations have revealed that the sources of produce contamination are multifaceted and can occur at any point during pre- and/or post harvest practice and have raised concerns over postharvest decontamination practices. Chemical or antimicrobial sanitizer wash is usually the only process step practiced in produce industry to lower the microorganisms before shipping to stores for consumption. A wide range of chemical sanitizers has been investigated with varying degrees of success for controlling human pathogens on fresh produce. Chlorine-based water washing is usually practiced in industry as postharvest treatment to control pathogenic and spoilage microorganisms. However, chlorine reacts with the organic load and is capable of forming carcinogenic or mutagenic compounds which may raise new safety and regulatory restrictions in the future. There is a strong demand in the produce industry for a safe alternative technology to reduce pathogens and spoilage microorganisms without affecting the quality. This presentation will discuss recent advances in intervention technologies to address produce safety challenge.

Biography

Dr. Sudarsan Mukhopadhyay is a Scientist at the Eastern Regional Research Center, USDA-ARS at Wyndmoor, Pennsylvania. He has B.S. in Food Technology and Ph. D. in Chemical Engineering. Dr. Mukhopadhyay has over 25 years of experience in industry, academia and government. He contributes to the research related to national program on 'food safety', addressing the effect of integrated approach of processing and packaging technologies on pathogen inactivation and quality of produce. His research focus on developing methods to reduce the risk of food borne illness. Dr. Mukhopadhyay has several peer reviewed publications and patents in food science and safety.