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Dynamic characteristics of food processing technologies: Challenges in meeting consumer expectations for food safety and quality

The growing demand and expectations of health conscious consumers for foods that are safe, nutritious, fresh-like, and synthetic preservative-free, are major drivers of technological change and innovation in the food industry. In past decades, food manufacturers enjoyed abundant sales of their products while presenting erroneous or deceptive food labels with misleading information to customers. Today this scenario is becoming increasingly difficult to continue due to the broad consumer access to information sources. Through social media and smartphones consumers are now informed of issues such as food safety, nutrition, health, and the potentially harmful effects of certain food preservatives. This social interconnectedness, information sharing and consumer self-education are demanding an unprecedented accountability from the food industry to deliver safe wholesome fresh-like food products. In response to consumer demand, food manufacturers are challenged and forced to explore application of modern food processing technologies. In this regard, they strongly rely on research efforts of food scientists, nutrition scientists, food technologists and engineers in academic institutions, research centers and the food industry. Therefore, we as food science/technology professionals play a very important role in research involving novel technologies to provide food products that meet consumer expectations and which can be manufactured on a large scale by the food industry. However, considering the very complex nature of foods, changes in processing and preservation techniques almost always cause alterations (acceptable or unacceptable) in microbial, nutritional and/or sensory quality of food products. This reality makes it challenging for scientists to successfully achieve food research objectives based on consumer expectations without a multidisciplinary research team approach. The varied disciplines represented by national and international professionals at this Global Food Safety Conference offer us a unique opportunity to network and develop long-lasting collaborations to enhance our efforts to help the food industry in the production of safe wholesome food for consumers.

Biography

Aubrey F Mendonca is an Associate Professor and Food Safety Microbiologist at Iowa State University, USA, where he lectures to both graduate and undergraduate students and conducts food safety research. He teaches courses such as Food Microbiology, Foodborne Hazards, and Advanced Food Microbiology, and conducts research in Microbial Food Safety. Additionally, he provides food safety consultation and conducts training on practical food safety and microbiology for food processors nationally and internationally. His research focuses on control of foodborne pathogenic and spoilage microorganisms using non-thermal technologies such as high pressure processing, ultra violet radiation, and electron beam irradiation, alone or combined with natural antimicrobials. He has numerous published papers in peer-reviewed scientific journals and has written several book chapters on control of foodborne microorganisms. He has established collaborations with food manufacturing companies in regard to pathogenic challenge testing of foods to evaluate the antimicrobial efficacy of non-thermal food processes.

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