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Innovation technologies on nutritional quality and health

The “nutrition” word first appeared in 1551 and comes from the Latin word *nutrire*, meaning “to nourish.” Currently, it is defined as the sum of all processes involved in how organisms obtain nutrients, metabolize them and use them to support all of life’s processing. Nutritional science covers a wide spectrum of disciplines such as personal health, population health and planetary and health and this nutritional science concern the research and investigation of how an organism is nourished. New trends in food processing and technology affect the nutritional quality and quantity and the product manufacturing quality. Consumers around the world are better educated and more demanding in their identification and purchase of quality health promoting foods. The food industry and regulatory agencies are searching for innovative technologies to provide safe and stable foods for their clientele. Thermal pasteurization and commercial sterilization of foods provide safe and nutritious foods that, unfortunately, are often heated beyond a safety factor that results in unacceptable quality and nutrient retention. Most foods are thermally preserved by subjecting the products to heating temperatures for a few seconds to several minutes and these high-energy generally diminish the cooking flavors, the vitamins, essential nutrients, phenolics and bioactive other constituents in the food products. Non thermal processing facilitates the development of innovative food products not previously envisioned. Niche markets for food products and processes will receive greater attention in future years. Non thermal technologies successfully decontaminate, pasteurize and potentially pursue commercial sterilization of selected foods while retaining fresh-like quality and excellent nutrient retention. The quest for technologies to meet consumer expectations with optimum quality safe processed foods is a most important priority for future food science research. The relevant factors to consider when conducting research into novel non thermal and thermal technologies as: Target microorganisms to provide safety; target enzymes to extend quality shelf life; maximization of potential synergistic effects; alteration of quality attributes; engineering aspects; conservation of energy and water; potential for convenient scale-up of pilot scale processes; reliability and economics of technologies and consumer perception of the technologies. “The search for new approaches to processing foods should be driven, above all, to maximize safety, quality, convenience, costs and consumer wellness.” Non thermal processing includes less heating procedures and especially cold processing techniques such as high pressure processing (HPP), pulsed electrical field (PEF) and ultrasound. Each technique can be utilized either alone or in combination to optimize the product quality. In this speech content, recent research on high pressure processing, pulsed electrical field and ultrasound processed egg and egg products, fruit juices including apple and cranberry juices and some fruits including berries, grape pomace, olive and coconut.

Biography

Tokusoglu has completed her PhD at Ege University Engineering Faculty, Dept. of Food Engineering at 2001. She is currently working as Associate Professor faculty member in Celal Bayar University Engineering Faculty Department of Food Engineering. She performed a visiting scholarship at the Food Science and Nutrition Department /University of Florida, Gainesville-Florida-USA during 1999-2000 and as Visiting Professor at the School of Food Science, Washington State University, Pullman, Washington, USA during April-May 2010. She has published many papers in peer reviewed journals and serving as an Editorial Board Member of *International Journal of Food Science and Technology* (IJFST) by Wiley Publisher, USA and *Journal of Food, Agriculture and Environment* (JFAE) by WFL Publisher, Finland. She published the scientific edited two book entitled “*Fruit and Cereal Bioactives: Chemistry, Sources and Applications*” by CRC Press, Taylor & Francis, USA. She is a Publisher for book entitled “*Improved Food Quality with Novel Food Processing*” by CRC Press, third book “*Food By-Product Based Functional Food Powders*” is in progress.

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