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Food allergies: Food labeling strategies, conventional processing and High Pressure Processing (HPP) effects on food allergens

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F ood allergy is a reaction of the body's immune system to a certain food and beverages. In this context, food allergy is a very specific reaction involving the immune system of the body. In this point, the distinguishing of food allergy from other food sensitivities is mostly important. Whereas food allergies are rare, food intolerances, which are the other classification of food sensitivities, are more prevalent. Some consumers are genetically predisposed and their immune system is not able to differentiate the food protein from the virus or bacteria, hereby attacks occur. Some proteins or protein fragments are resistant to digestion and these are not broken down in the digestive process, they are tagged by the Immunoglobulin E (IgE). Several specific foods are responsible for the majority of food allergies, even though any food can stimulate an immune response in allergic individuals, It is known that peanuts are the leading cause of severe food allergic reactions, followed by shellfish, fish, tree nuts and eggs. Especially peanuts, tree nuts including almonds, brazil nuts, cashews, hazelnuts (filberts), macadamia nuts, pecans, pine nuts (pignolias), pistachio nuts, and walnuts and sesame seeds, milk, eggs, fish including shellfish including mollusks (claMS, mussels, oysters) and crustaceans (shrimp, lobster, and crabs), soy, gluten, fava beans, garlic and onion, mustard are most known allergic foods.

Precautionary labelling, however, must be truthful and must not be used in lieu of adherence to legal requirements. It is stated that when an allergen is likely to be present in a product, the use of precautionary labelling is not acceptable and the presence of the allergenic ingredient should be accurately declared on the label. National food regulatory agencies must use the Codex Alimentarius Commission advices on food additives and other chemicals and ingredients in food to build on the Codex list and develop their own lists of priority foods which should be targeted for mandatory labelling on foods available for sale in the country or region under their oversight.

Due to the ubiquitous presence of allergens in the food supply, reducing/elimination strategies of allergens in foods are important. Using the food processing for reduce/eliminate allergenicity have been performed, it has shown that food processing have important effects on the structural and allergenic properties of food allergens. It was reported that some food processing methods are mechanical such as separation, isolation and/or purification while others are thermal like pasteurization, cooking and roasting including diverse chemical reactions as Maillard or there are biochemical methods like enzymatic treatment of food.

High pressure (HP) processing treatments are novel-processing techniques that have the potential to alleviate the need for thermal processing of foods. High pressure (400-700 MPa) combined with temperatures around room temperature (5-40°C). Currently, limited studies have been performed on the high pressure processing effects on the structure of known allergens and the elimination of allergen compounds in foods. High hydrostatic pressure (HHP) processing improved the reducing of allergenic structure and allergenity of some foods. Besides, further studies are needed for some allergenic proteins in various food matrices.

Biography

Ozlem Tokusoğlu has completed her PhD at Ege University Engineering Faculty, Dept of Food Engineering at 2001. She is currently working as Associate Professor Dr faculty member in Celal Bayar University Engineering Faculty Department of Food Engineering. She performed a visiting scholar 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 organized and directed as Conference Chair the International Congree entitled ANPFT2012 (Advanced Nonthermal Processing in Food Technology: Effects on Quality and Shelf-Life of Food and Beverages in May,2012 at Kusadasi-Aegean, Turkey. She served as organizing committee member at 2nd International Conference and Exhibition on Nutritional Science & Therapy Conference in July 2013 at Philedelphia-USA; and organizing committee member at 3rd International Conference and Exhibition on Food Processing & Technology, July 21-23, 2014, Las Vegas, USA.

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