

## CHALLENGES IN THE EXTRACTION OF ALLERGENIC PROTEINS FROM COMPLEX FOOD MATRICES

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Food allergy has been reported in 5 – 8% of young children and ~4% of general population in the United States. A number of food constituents and products known as 'Big 8' including milk, peanuts, eggs, tree nuts, fish, shellfish, soy and wheat can cause allergy. Allergic reactions to foods account for a high proportion on emergency room visits and hospital admissions making food allergies a serious concern to public health around the world. In 2013, the Food and Drug Administration (FDA) of the United States published a proposed rule on the implementation of FSMA which would mandate that allergens be considered as hazards within the Hazard Analysis & Critical Control Points (HACCP) program. With the increasing prevalence and severity of food allergy, thermal and non-thermal food processing methods are sought to reduce the allergenic potency of foods. Application of thermal and non-thermal processing methods including microwave heating, boiling, high hydrostatic pressure, pulsed ultraviolet light, gamma irradiation and ultrasound methods have been reported as promising techniques in reducing allergens in some food products. However, Food processing operations often lead to the denaturation of this protein making both extraction and detection. There are challenges in the recovery and detections of the allergenic residues after processing limit the exact effects of processing. The presentation will discuss various processing methods used for extraction of allergenic proteins, challenges of extraction and detection in raw and processed food matrices and implications of allergen reduction in actual patients.

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