An ELISA as a Quality Control Tool for Peanut Allergens in Processed Foods.

E.YUSNAWAN, V. WONG, and N.A LEE*, School of Chemical Engineering, Food Science and Technology, University of New South Wales, Sydney, NSW 2052, Australia

Peanut allergy has become one of the most severe allergies afflicting modern living because of its persistency and the life-threatening symptoms. The prevalence of peanut allergy is estimated at 0.4–0.6% in children and 0.3 – 0.7% in adults in developed countries. Without effective treatments and therapies for peanut allergy, sensitive and specific detection methods for tracing hidden or undeclared peanut allergens in processed foods are essential for consumer protection. This paper presents the development of a sensitive double-antibody-sandwich (DAS)-ELISA for the rapid detection of traces of peanut allergens in processed foods as a quality control tool. The sensitivity of the DAS ELISA for peanut allergens has been enhanced by utilising antibodies raised against different peanut cultivars. The assay exhibits a limit of detection of 1.4 µg L-1 and the range of detection of 1.4 – 300 µg L-1. Among the potential cross reactive food allergens tested, including tree nuts and legumes, only pine nut, cashew, blue lupin, and green bean show slight cross reactions. Preliminary validation using twelve food products spiking with peanut proteins at 11-300 µg L-1 showed acceptable recoveries (80-122%), suggesting that this assay can be adopted as an effective quality control tool for the food processing industry.