

Hidden allergens in food: Peanut detection by an official food safety laboratory



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Abstract

Food safety laboratories rely on validated methods that detect hidden allergens in food to ensure the safety and health of allergic consumers. Here we present the test results for the validation and accreditation of a real time PCR assay (RT-PCR: SPECIAL finder MC Peanut, Generon), for the detection of peanut traces in food. The method was tested on five classes of food matrices: bakery and pastry products, meats, ready-to-eat and dairy products, grains and milling products. Blank samples were spiked starting with the peanut samples (Arachis hypogaea), lyophilized and stored at -18 °C, at a concentration of 1000 ppm. Serial dilutions were then prepared with the DNA extracted from the blank samples to final concentration of 0.5 ppm. Results: LOD 0.5 ppm in grains and milling products, ready-to-eat, meats, bakery and pastry products (range Ct 27-34); LOD 2.5 ppm in dairy products (range Ct 25-34). To determine the exclusivity parameter of the method, the ragù matrix was contaminated with Prunus dulcis (almonds), Glycine max (soy), Sinapis alba (mustard), Apium graveolens (celery), Allium cepa (onion), Pisum sativum (peas), Daucus carota (carrots), and Theobroma cacao (cocoa). No cross-reactions were observed. Method accuracy was rated satisfactory for sensitivity (96%) and specificity (100%) and was validated. It was found adequate for the needs of the laboratory as it meets the purpose for which it was applied.

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Biography

Clara Tramuta has completed her PhD at the age of 31 years from Turin University and postdoctoral studies at Turin University School of Veterinary Medicine. She is research grant at National Reference Center for Detection in Foods of Substances and Products Causing Allergiens and Intollerances (CReNaRiA), Istituto Zooprofilattico Sperimentale del Piemonte Liguria e Valle d'Aosta, Turin. She has published more than 30 papers in reputed journals.



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