Allergen Bureau informing the food industry

Australian Government Department of Industry, Innovation and Science | National Measurement Institute

Allergen Testing - Special Interest Group (AT-SIG) Briefing Note

Undeclared peanuts in pesto – analytical testing considerations
(Version 1.0. Date issued – 07 February 2020)

The Allergen Testing - Special Interest Group (AT-SIG) is a collaborative initiative of the Allergen Bureau and the National Measurement Institute (NMI) that aims to provide coordinated advice on food allergen analysis and testing within Australia.

Since January 2020, there have been several pesto products recalled from the Australian market due to the presence of undeclared peanut. To date, all have been imported product. Food Standards Australia New Zealand released an advisory statement on the 5 February 2020 with further information about these recalls. For more details, refer to this link.

The Australian recalls are related to numerous recalls which have occurred in Europe and the UK during December 2019 and January 2020. For specific information on the recalled international products refer to the Food Standards Agency website.

In recall situations such as these, analytical testing plays a major role in food industry business decisions. The Australian food industry have asked AT-SIG to provide some analytical testing guidance on elements that require consideration when testing for these type of products.

Detailed testing and analytical considerations are available on the Allergen Bureau website on the Food Allergen Analysis webpage.

A brief summary of key information from the Food Allergen Analysis webpage is provided here.

Sampling Plan

In cases where the presence of unexpected allergens in products occurs, it is recommended that decisions are not based on a single sample, especially in instances where cross contact may be particulate in nature and when the cause of the cross contact has not been determined. An appropriate sampling plan should reflect the size of the batch produced and aim to inform the level of contamination and the way in which cross contact could have occurred.

Where possible, samples from throughout the process, including raw materials / ingredients should be analysed to help further inform the investigation.

Further information on what to ask the laboratory can be found on the Allergen Bureau Food Allergen Analysis webpage in the **Sampling Plan** information.

Methods and test kits

It is recommended that (where possible) a validated method be used for determination of the presence of the allergen. The laboratory should be able to advise:

- If the method is appropriate (verified or validated) for the matrix or similar product components.
- What experience they have in the method and the matrix being analysed
- The sensitivity of the method and potential cross reactivities

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ELISA technology

In instances such as these it is important that a broadly accepted, internationally recognised methodology is applied for the analysis of allergens in food. Currently **ELISA (Enzyme Linked Immunosorbent Assay)** remains the internationally accepted and most commonly applied method for the routine detection of allergens in foods. ELISA methods have the advantage of targeting and detecting proteins (usually the allergenic ones) directly.

It is acknowledged that all methodologies have limitations, and those associated with ELISA include cross reactivity and matrix interference, which can lead to false positive or false negative results. Many ELISA kits on the market currently are suitable for the detection of peanut in cashew products and as per kit manufacturers validation documents, do not show cross reactivity between cashew and peanut.

Alternative methodologies

Polymerase Chain reaction (PCR) methods detect DNA sequences of the allergenic species, not the allergenic protein. They are specific, sensitive, qualitative, can verify or clarify an ELISA result and can detect potentially allergenic products for which no ELISA test is currently available. However, like all detection methods there are limitations including the impact of food processing. Some processing methods can destroy detectable DNA, causing false negative results and food matrices may interfere in the assays. DNA methods are not suitable for the detection of certain allergens, where there are low levels of DNA e.g. egg and milk. PCR methods for allergen detection also have an issue discriminating between different products from the same species, as for example, eggs and chicken contain the same genetic material.

Mass Spectrometry has been used in some situations where a clear result from immunoassay and or PCR has not provided clarity however this method is still considered a confirmatory technique rather than a one used for routine screening.

Currently there are no commercial laboratories that are NATA accredited for the analysis of allergens by PCR or Mass Spectrometry in Australia. In the event that verification of a result is required, there is a range of approaches that may be adopted by laboratories including a review of validation data, exclusion of cross reactivity by laboratory investigation and analysis of the sample with an alternate ELISA calibrated against a different range of antibodies.

While allergen analysis continues to improve exponentially, it is important to be aware there is currently no one stand-alone method that can be used for all allergen analysis in all sample types and that analytical results need to be considered in the context of the allergen, matrix, method and production history . Analysis remains a single tool in the determination of allergen risk to a product and should be used in conjunction with a robust risk assessment.

This document is intended to provide an overview of the current methods available in the Australian sector for the analysis of allergens in foods. For specific analytical questions relating to the suitability of methods for your products we recommend that, in the first instance, businesses contact their laboratory service provider.

For guidance on the application of analytical results with respect to a VITAL risk assessment, contact the Allergen Bureau Helpline Services - 0437 918 959 or info@allergenbureau.net.