

Advice 18-2013 of the Scientific Committee of the FASFC on the detection of food allergens

Although the Scientific Committee already drew the attention to the issue of food allergens in its opinion 37-2006, the present opinion deals specifically with the issue of the detection of the allergens whose labeling is mandatory by Regulation (EU) n° 1169/2011 (crustaceans, eggs, fish, peanuts, soybeans, milk, nuts, celery, mustard, sesame, lupin and molluscs). Ingredients causing food intolerance (e.g. gluten, lactose, sulfite) are not considered in this opinion.

For practical reasons, the regulation concerns the labeling of ingredients and not of allergenic proteins or epitopes. The regulation imposes a certain provision of information in case of unpackaged food, but does not dilate upon the problem of the incidental presence of allergens (cross-contamination), nor does it indicate maximum levels (standards or action limits). Particularly the latter, together with a number of bottlenecks regarding allergen detection complicate the operational policy of both government and food producers.

Even though detection methods with a good sensitivity and selectivity have already been developed and are commercially available for a variety of food allergens (methods based on protein binding, methods based on DNA detection and physico-chemical methods), they are still subject to variability and inaccuracies due to amongst others matrix effects (e.g. interference with other components, extraction efficiency), sampling (e.g. heterogeneous distribution), the non-uniform use of standards and units, etc. As food products often contain multiple allergens, further development of methods allowing the simultaneous detection of different allergens, is particularly important.

Because food allergies depend on individual and regional variables (e.g. cross allergenicity, nutritional habits) and on the food matrix (e.g. food processing may change the allergenicity), it is impossible to determine an absolute minimum eliciting dose. A pragmatic approach is to determine a 'default' threshold, which can be used as action limit.

The Committee is of the opinion that the control policy should in the first instance be proactively aimed at controlling the performance of the operators' allergen management system in the whole agro-food sector (GAP, GMP, HACCP). Concerning the control of products, it is proposed to identify food / matrix groups (e.g. cookies with / without chocolate) for which (i) reliable methods, (ii) methods giving a disputable result, and (iii) no methods are available, and this for the various food allergens, with a particular attention to the major allergens for Belgium. The priority of food allergens to public health is primarily determined by their prevalence, their allergic potency and the severity of the allergic reaction (incidence of effects). However, such Belgian data are very scarce to nonexistent. On the basis of the available information, following relative order is proposed:

- first priority: tree nuts (hazelnut in particular), peanuts, milk and eggs;
- second priority: crustaceans and fish;
- third priority: soybeans, celery, molluscs, mustard, lupin and sesame seeds

Taking the detection limits of the available and appropriate methods into account, the VITAL ('Voluntary Incidental Trace Allergen Labelling') allergen threshold values (or similar dose-response data) can be used as a basis for the determination of action limits for the control of products.

Based on the identified gaps and bottlenecks, the Committee formulates finally a number of recommendations for research, industry and policy.

The full text is available on this website in dutch and in french, respectively under the section "Wetenschappelijk Comité/Adviezen" and "Comité scientifique/Avis".