

# 8<sup>th</sup> Annual Congress on Analytical and Bioanalytical Techniques & 14<sup>th</sup> International Conference and Exhibition on Pharmaceutical Formulations

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## Sensitive detection of allergens in incurred and complex foodstuffs

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Food allergy is a major public health problem and implies a mandatory labelling of food allergens. However, the undeclared putative presence of these allergens in food products is still widespread.

A UHPLC-MS/MS method will be presented, with the ultimate goal of improving the food labeling. Milk, egg, soybean and peanut were incurred and processed in chocolate, ice cream sauce and cookies.

The selected and optimized sample protocol consists in the extraction of food proteins in the targeted matrices, followed by a trypsin digestion, a clean-up and finally an UHPLC-MS/MS analysis. To determine the sensitivity of this method, a single and common LOQ, based on a signal to noise ratio of 10, were defined in the studied matrices. This routine method, running within a day, used a single protocol for the detection of 10 allergens. To the best of our knowledge, to date this method is still the most sensitive one for the detection of allergens by mass spectrometry in processed food products. We obtained a limit of quantification (LOQ), defined by a signal to noise ratio higher than 10, of: 0.5 mg of milk proteins, 2.5 mg of peanut, cashew, hazelnut and pistachio, 3 mg of egg proteins, and 5 mg of soy, almond, walnut and pecan proteins per kg of incurred foodstuffs.

Mélanie Planque, holder of a master degree in chemistry, started a PhD in 2014 at CER Groupe (Health department) and at the University of Namur in Belgium. She is working on the sensitive detection of allergens by ultra-high performance liquid chromatography coupled to tandem mass spectrometry.

### Recent Publications:

1. Planque M, Arnould T, Dieu M, Delahaut P, Renard P, Gillard N. Advances in ultra-high performance liquid chromatography coupled to tandem mass spectrometry for sensitive detection of several food allergens in complex and processed foodstuffs. *Journal of Chromatography A*. 2016;1464:115–23.
2. Planque M, Wallace A, Gillard N. [ APPLICATION NOTE ] Targeted and Sensitive Detection of Food Allergens in Complex and Processed Foodstuffs Using UPLC-MS / MS [ APPLICATION NOTE ]. 2016;1–6.
3. Planque M, Arnould T, Renard P, Delahaut P, Dieu M, Gillard N. Highlight on Bottlenecks in Food Allergen Analysis: Detection and Quantification by Mass Spectrometry. *Journal of AOAC International* [Internet]. 2017 [cited 2017 Mar 15]; Available from: <http://www.ingentaconnect.com/content/10.5740/jaoacint.17-0005>

### Biography

M Planque holds a Master's degree in Chemistry. She started her PhD in 2014 at CER Groupe (Health Department) and at the University of Namur in Belgium. She is currently working on the sensitive detection of allergens by ultra-high-performance liquid chromatography coupled to tandem mass spectrometry.

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