Accepted Manuscript

Development of a strategy for the quantification of food allergens in several food products by mass spectrometry in a routine laboratory

M. Planque, T. Arnould, P. Delahaut, P. Renard, M. Dieu, N. Gillard

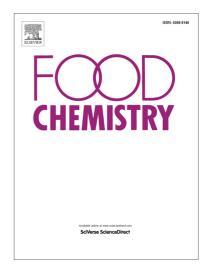
PII: S0308-8146(18)31508-5

DOI: https://doi.org/10.1016/j.foodchem.2018.08.095

Reference: FOCH 23437

To appear in: Food Chemistry

Received Date: 5 April 2018 Revised Date: 16 August 2018 Accepted Date: 21 August 2018



Please cite this article as: Planque, M., Arnould, T., Delahaut, P., Renard, P., Dieu, M., Gillard, N., Development of a strategy for the quantification of food allergens in several food products by mass spectrometry in a routine laboratory, *Food Chemistry* (2018), doi: https://doi.org/10.1016/j.foodchem.2018.08.095

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

ACCEPTED MANUSCRIPT

DEVELOPMENT OF A STRATEGY FOR THE QUANTIFICATION OF FOOD ALLERGENS IN SEVERAL FOOD PRODUCTS BY MASS SPECTROMETRY IN A ROUTINE LABORATORY

M. Planque^{1, 2}, T. Arnould², P. Delahaut¹, P. Renard², M. Dieu², N. Gillard^{1*}

- 1 CER Groupe, Health Department, rue du Point du Jour, 8, 6900 Marloie, Belgium
- 2 Laboratory of Biochemistry and Cell Biology (URBC)-Namur Research Institute for Life Sciences (NARILIS), University of Namur, 61, rue de Bruxelles, 5000 Namur, Belgium
- * Corresponding author; tel: +32 (0) 84 31 00 90; e-mail address: n.gillard@cergroupe.be
 CER Groupe, Health Department, rue du Point du Jour, 8, 6900 Marloie, Belgium

Abstract

Worldwide, mass spectrometry is widely used to detect and quantify food allergens, especially in complex and processed food products. Yet, the absence of a regulatory framework for the developed methods has led to a lack of harmonization between laboratories. In this study, ten allergens were analyzed in eight food products by UHPLC-MS/MS, in order to establish criteria for the retention time, variation tolerance, the ion ratio deviation, and the signal-to-noise ratio for allergen detection. The set of criteria should help laboratories to compare results and avoid false positives and negatives.

Furthermore, a strategy combining standard addition and labeled peptide correction was used to quantify milk, soy, peanut, and egg allergens in eight food products. This strategy is particularly interesting for routine laboratories, which receive hundreds of samples and cannot use an external calibration curve for each sample.

Keywords

UHPLC-MS/MS, multi-allergens, detection, quantification strategies, labeled peptides, standard addition.

Download English Version:

https://daneshyari.com/en/article/8954799

Download Persian Version:

https://daneshyari.com/article/8954799

<u>Daneshyari.com</u>