

Accepted Manuscript

Isotopic and elemental markers for geographical origin and organically grown carrots discrimination

Dana Alina Magdas, Ioana Feher, Adriana Dehelean, Gabriela Cristea, Tudor Mihai Magdas, Romulus Puscas, Olivian Marincas

PII: S0308-8146(17)31665-5

DOI: <https://doi.org/10.1016/j.foodchem.2017.10.048>

Reference: FOCH 21871

To appear in: *Food Chemistry*

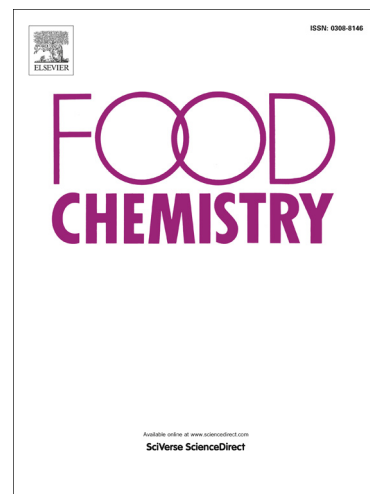
Received Date: 28 February 2017

Revised Date: 7 September 2017

Accepted Date: 8 October 2017

Please cite this article as: Magdas, D.A., Feher, I., Dehelean, A., Cristea, G., Magdas, T.M., Puscas, R., Marincas, O., Isotopic and elemental markers for geographical origin and organically grown carrots discrimination, *Food Chemistry* (2017), doi: <https://doi.org/10.1016/j.foodchem.2017.10.048>

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.



Isotopic and elemental markers for geographical origin and organically grown carrots discrimination

Dana Alina Magdas^{a,*}, Ioana Feher^a, Adriana Dehelean^a, Gabriela Cristea^a, Tudor Mihai Magdas^b, Romulus Puscas^a, Olivian Marincas^a

^a*National Institute for Research and Development of Isotopic and Molecular Technologies, 67-103 Donat Str., 400293 Cluj-Napoca, Romania*

^b*Iuliu Hatieganu University of Medicine and Pharmacy, RO-400023, Cluj-Napoca, Romania*

**Corresponding author*

E-mail address: alina.magdas@itim-cj.ro, Fax number: +40264420042 (D.A. Magdas)

Abstract

This study proposes different markers associations for the discrimination of organically and conventionally grown carrots, as well as for the geographical origin differentiation. It was shown that one of the most powerful differentiation markers proved to be Mn content. Along with manganese concentrations, isotope ratios of nitrogen and a high number of Rare Earth-Elements (REEs) were able to differentiate the organically grown carrots samples in a percent of 83.3 % (initial classification) and 81 % (cross-validation), respectively. It was observed that some of the obtained discrimination markers were interlinked, for instance Mn content being positively correlated with some REEs (i.e. Sc, La, Ce, Pr, Nd, Lu, Th). One of the best markers that could differentiate the carrot samples grown in Transylvania, Romania, from those either grown in other side of the country or foreign samples is represented by Mn content along with another REE, particularly terbium (Tb).

Download English Version:

<https://daneshyari.com/en/article/7584453>

Download Persian Version:

<https://daneshyari.com/article/7584453>

[Daneshyari.com](https://daneshyari.com)