

## Author's Accepted Manuscript

# SIMULTANEOUS DETERMINATION OF COLOR ADDITIVES TARTRAZINE AND ALLURA RED IN FOOD PRODUCTS BY DIGITAL IMAGE ANALYSIS

Maidier Vidal, Rosa Garcia-Arrona, Ane  
Bordagaray, Miren Ostra, Gorka Albizu



[www.elsevier.com/locate/talanta](http://www.elsevier.com/locate/talanta)

PII: S0039-9140(18)30226-1  
DOI: <https://doi.org/10.1016/j.talanta.2018.02.111>  
Reference: TAL18430

To appear in: *Talanta*

Received date: 1 December 2017  
Revised date: 23 February 2018  
Accepted date: 27 February 2018

Cite this article as: Maidier Vidal, Rosa Garcia-Arrona, Ane Bordagaray, Miren Ostra and Gorka Albizu, SIMULTANEOUS DETERMINATION OF COLOR ADDITIVES TARTRAZINE AND ALLURA RED IN FOOD PRODUCTS BY DIGITAL IMAGE ANALYSIS, *Talanta*, <https://doi.org/10.1016/j.talanta.2018.02.111>

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 galley proof before it is published in its final citable 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.

SIMULTANEOUS DETERMINATION OF COLOR ADDITIVES TARTRAZINE  
AND ALLURA RED IN FOOD PRODUCTS BY DIGITAL IMAGE  
ANALYSIS

Maidier Vidal\*, Rosa Garcia-Arrona, Ane Bordagaray, Miren Ostra, Gorka Albizu

Department of Applied chemistry, UPV/EHU, Paseo Manuel Lardizabal 3, 20018 San Sebastián, Spain.

\*corresponding author. Tel.: +34 943015418; fax: +34 943015270 E-mail address: maider.vidal@ehu.eus (Maidier Vidal)

ABSTRACT

A method based on digital image is described to quantify tartrazine (E102), yellow, and allura red (E129) colorants in food samples. HPLC is the habitual method of reference used for colorant separation and quantification, but it is expensive, time-consuming and it uses solvents, sometimes toxic. By a flatbed scanner, which can be found in most laboratories, images of mixtures of colorants can be taken in microtitration plates. Only 400  $\mu$ L of sample are necessary and up to 92 samples can be measured together in the same image acquisition. A simple-to-obtain color fingerprint is obtained by converting the original *RGB* image into other color spaces and individual PLS models are built for each colorant. In this study, root mean square errors of 3.3 and 3.0 for tartrazine and 1.1 and 1.2 for allura red have been obtained for cross-validation and external validation respectively. Results for repeatability and reproducibility are under 12 %. These results are slightly worse but comparable to the ones obtained by HPLC. The applicability of both methodologies to real food samples has proven to give the same result, even in the presence of a high concentration of an interfering species, provided that this interference is included in the image analysis calibration model.

Download English Version:

<https://daneshyari.com/en/article/7676293>

Download Persian Version:

<https://daneshyari.com/article/7676293>

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