

Accepted Manuscript

Multiresidue determination of polycyclic aromatic hydrocarbons in edible oils by liquid-liquid extraction–solid-phase extraction–gas chromatography–mass spectrometry

Andrés J. Rascón, Abdelmonaim Azzouz, Evaristo Ballesteros



PII: S0956-7135(18)30352-9

DOI: [10.1016/j.foodcont.2018.07.015](https://doi.org/10.1016/j.foodcont.2018.07.015)

Reference: JFCO 6228

To appear in: *Food Control*

Received Date: 2 June 2018

Revised Date: 9 July 2018

Accepted Date: 11 July 2018

Please cite this article as: Rascón André.J., Azzouz A. & Ballesteros E., Multiresidue determination of polycyclic aromatic hydrocarbons in edible oils by liquid-liquid extraction–solid-phase extraction–gas chromatography–mass spectrometry, *Food Control* (2018), doi: 10.1016/j.foodcont.2018.07.015.

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.

1 **Multiresidue determination of polycyclic aromatic hydrocarbons in edible**
2 **oils by liquid-liquid extraction–solid-phase extraction–gas**
3 **chromatography–mass spectrometry**

4
5 Andrés J. Rascón, Abdelmonaim Azzouz, Evaristo Ballesteros*

6 *Department of Physical and Analytical Chemistry, E.P.S of Linares, University of Jaén,*
7 *23700 Linares, Jaén, Spain*

8

9 **ABSTRACT**

10 The presence of polycyclic aromatic hydrocarbons (PAHs) in edible oils is usually due to
11 environmental contamination, manufacturing processes or the nature of the oil. Because oils
12 constitute a very large family of foodstuffs that are ubiquitous in human diet, the presence of
13 PAHs in them may have a considerable impact. In this work, we developed a method for
14 determining EPA's 16 PAH priority pollutants using liquid–liquid and solid-phase extraction
15 for their extraction and isolation, and gas chromatography–mass spectrometry for their
16 quantification. The proposed method is highly sensitive, with limits of detection from 4 to 110
17 ng kg⁻¹, accurate (PAH recoveries of 87–104 %) and precise (relative standard deviation <
18 7.5 %). Application to various types of oil (olive, sunflower, coconut, soybean and sesame)
19 testified to its flexibility. Most of the samples studied contained more than three PAHs, albeit
20 at concentrations below the legally allowed levels. Only two samples of refined sunflower oil
21 contained no PAH at levels within the sensitivity range of the method.

22

23 **Keywords:** polycyclic aromatic hydrocarbons; edible oils; continuous solid-phase extraction;
24 gas chromatography–mass spectrometry.

25

26

27 * Corresponding author. Tel./Fax: +34 953648560.

28 E-mail address: eballes@ujaen.es

29

Download English Version:

<https://daneshyari.com/en/article/8887773>

Download Persian Version:

<https://daneshyari.com/article/8887773>

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