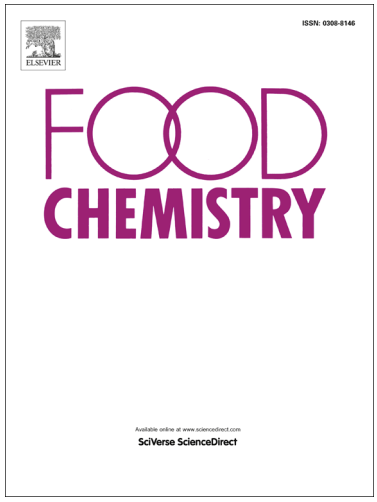

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PII: S0308-8146(17)31810-1
DOI: https://doi.org/10.1016/j.foodchem.2017.11.008
Reference: FOCH 21985

To appear in: *Food Chemistry*

Received Date: 11 April 2017
Revised Date: 16 October 2017
Accepted Date: 2 November 2017

Please cite this article as: Arroyo-Manzanares, N., Martín-Gómez, A., Jurado-Campos, N., Garrido-Delgado, R., Arce, C., Arce, L., Target vs spectral fingerprint data analysis of Iberian ham samples for avoiding labelling fraud using headspace - gas chromatography - ion mobility spectrometry, *Food Chemistry* (2017), doi: https://doi.org/10.1016/j.foodchem.2017.11.008

Target vs spectral fingerprint data analysis of Iberian ham samples for avoiding labelling fraud using headspace - gas chromatography - ion mobility spectrometry

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The data obtained with a polar or non-polar gas chromatography (GC) column coupled to Ion Mobility Spectrometry (IMS) has been explored to classify Iberian ham, to detect possible frauds in their labelling. GC-IMS was used to detect the volatile compound profile of dry-cured Iberian ham from pigs fattened on acorn and pasture or on feed.
Due to the two-dimensional nature of GC-IMS measurements, great quantities of data are obtained and an exhaustive chemometric processing is required. A first approach was based on the processing of the complete spectral fingerprint, while the second consisted of the selection of individual markers that appeared throughout the spectra. A classification rate of 90% was obtained with the first strategy, and the second approach correctly classified all Iberian ham samples according to the pigs' diet (classification rate of 100%). No significant differences were found between the GC columns tested in terms of classification rate.

Keywords: Iberian ham classification, Commercial fraud, Ion Mobility Spectrometry, Gas Chromatography and Chemometrics