M Hernandez-Cordoba et al., J Food Process Technol 2015, 6:5
http://dx.doi.org/10.4172/2157-7110.S1.018

OMICS International
conferenceseries.com

5th Euro-Global Summit and Expo on
Food & Beverages
June 16-18, 2015 Alicante, Spain

Analysis of volatile polycyclic aromatic hydrocarbons in herbal infusions by headspace sorptive extraction coupled to GC-MS

M Hernandez-Cordoba, Juan Ignacio Cacho, N Campillo and **P Vinas**
University of Murcia, Spain

Polycyclic aromatic hydrocarbons (PAHs) are considered priority pollutants by the European Union due to their carcinogenic and mutagenic capabilities. The presence of PAHs in tea and herbal infusions has been previously reported and both are likely to be an important dietary source of these chemicals. In this work, ten volatile PAHs are determined in different herbal infusions using a solvent-free method based on headspace sorptive extraction (HSSE) coupled to gas chromatography-mass spectrometry (GC-MS). This is the first application of this extraction technique to PAHs analysis in food samples. Different parameters affecting both the HSSE extraction and thermal desorption steps were optimized using multivariate Plackett-Burman designs. An internal standard, d^{10}-phenanthrene was added to the samples leading not only to an improvement in the repeatability but also allowing the quantification of the infusion samples using aqueous calibration. The proposed method achieved detection limits in the 11-26 ng L^{-1} range depending on the compound. Different commercial tea and infusion samples were analyzed being PAHs found in some of them at concentration ranging from 0.18 to 11 μg L^{-1}. The accuracy of the proposed procedure was tested by recovery studies and the analysis of an infusion prepared with a certified reference material. This solvent-free and simple method based on TD-GC-MS combination has proven to be a useful tool for the determination of ten volatile PAHs in herbal infusions, being helpful for their reliable control.

Biography

M Hernández-Córdoba is the Head of the Applied Instrumental Methods research group which is based on the Department of Analytical Chemistry of the University of Murcia (Spain). At present, our research lines focus on the miniaturization of the sample preparation stage aiming for its simplification, a decrease in waste generation as well as for obtaining the best performance from generally available lab instrumentation.

juanignacio.cacho@um.es

Notes: