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**Analysis of cork taint responsible compounds in wine cellar atmosphere, wine and cork by dispersive liquid-liquid microextraction and gas chromatography-mass spectrometry**

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Cork taint is a serious defect in wine that causes a musty, mouldy and earthy off flavour. This defect is responsible of economical losses in the wine industry and is related to the presence of some Halo-Phenols (HPs) and Halo-Anisoles (HAs) in wine, even at low concentrations. An analytical method for the simultaneous determination of twenty two HPs and HAs in wine cellar atmospheric samples using Dispersive Liquid-Liquid Micro-Extraction (DLLME) coupled to Gas Chromatography-Mass Spectrometry (GC-MS) has been developed. The proposed procedure has been also applied for the determination of the studied compounds in wine and cork samples. Variables related with the DLLME preconcentration procedure, as well as the derivatization of the HPs using an in-situ acetylation, were optimized using multivariable approaches based on Central Composite Designs (CCD). The analysis of solid cork samples required a previous ultrasound assisted liquid extraction, being the resulting solution submitted to a reverse DLLME procedure. For quantitation purposes, two internal standard compounds were added to the sample (3M4PC and 2, 3, 4, 5-TeCA), improving the repeatability. With the optimized conditions, detection limits in the 0.005-0.05 ng.mL<sup>-1</sup> (for wine samples) and 0.02-0.39 ng.g<sup>-1</sup> (for cork samples) ranges were obtained. The preconcentration procedure led to enrichment factors in the 125-296 fold range. The optimized method was applied for the determination of HPs and HAs in fifteen wine cellar atmospheres, six wines and six cork samples.

**Biography**

M Hernández-Córdoba is the Head of Applied Instrumental Methods which is a research group 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.

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