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UPLC-HRMS for the Detection and Identification of Pharmaceuticals Metabolites

Jaume Aceña¹, Sandra Pérez¹, Damià Barceló^{1,2}. ¹ Water and Soil Quality Research Group, IDAEA-CSIC, Barcelona (Spain); ² ICRA Catalan Institute for Water Research, Girona (Spain)

In this oral communication entitled “UPLC-HRMS for the detection and identification of pharmaceuticals metabolites” the occurrence of pharmaceutical compounds in the environment was mainly investigated through the presence of drug metabolites in different samples by UPLC-HRMS. Initially, the authors proposed the identification of carbamazepine and ibuprofen metabolites for different organism metabolisms. Hydroxyl metabolites were mainly described, although other metabolites such as glucuronide, hexoside and taurine conjugates were also tentatively identified. As a second step, they carried out the determination of these pharmaceutical metabolites and other compounds in different types of fish collected from Llobregat River. Fish muscles and bile were selected as the samples to be analysed. Final results showed the presence of the described metabolites in fish bile, whereas other pharmaceutical compounds were detected in the analysed fish muscles.

The presented communication is not only a proof about the environmental contamination by pharmaceuticals, which has been widely reported, but also supposes the evidence that their metabolites must be also considered as concerning pollutants. For that reason, similar studies as the mentioned one are required in order to establish drug metabolism pathways, and as a consequence, to identify these emerging contaminants which has not been considered until now.

Multiresidue Determination of Pesticides in Olives and Olive Oil by UHPLC-MS/MS and Acetonitrile Partitioning with Different Clean-up Steps Using Zirconium Dioxide-based Sorbents

Rafael López-Blanco, Rocío Nortes, Juan F. García-Reyes, José Robles-Molina, Antonio Molina-Díaz
Analytical Chemistry Research Group, University of Jaén, 23071 Jaén, Spain

In this work entitled “Multiresidue determination of pesticides in olives and olive oil by UHPLC-MS/MS and acetonitrile partitioning with different clean-up steps using zirconium dioxide-based sorbents” a selective and sensitive method based on QuEChERS methodology has been evaluated and validated for the determination of pesticide residues in olives and olive oil using ultra-high performance liquid chromatography tandem mass spectrometry. QuEChERS methodology has been proposed as a good alternative for extraction and clean-up. Moreover, a new sorbent, SupelTM QuE Z-Sep⁺ has been tested for dispersive solid phase extraction (dSPE), after extraction of the analytes with acetonitrile. Z-Sep⁺ was compared with other sorbents previously reported for dSPE of fatty matrices (i.e. mixture of C18 and PSA), resulting in reduced matrix effects without any significant decrease of analyte recoveries.

From my point of view UHPLC-MS/MS combined with a modified QuEChERS based on the use of Z-Sep⁺ could be used as a rapid, convenient and high throughput method for clean-up and analysis of pesticide residues in this type of matrices at trace concentrations. The results in terms of sensitivity, selectivity, accuracy and matrix effect indicate that this new sorbent is an interesting alternative for dSPE of matrices with a high fat content.

Maykel Hernández Mesa