

## **Determination of Trace Levels of Organochlorine Pesticides in Vegetable Matrices by SBSE-LD-LVI-GC-MS(SIM)**

M. Barriada-Pereira<sup>1,2</sup>, P. Serôdio<sup>3</sup>, M.J. González-Castro<sup>2</sup>, J.M.F. Nogueira<sup>3,4</sup>

<sup>1</sup>Instituto Universitario de Medio Ambiente, Universidade da Coruña, Pazo de Lóngora, Santa Eulalia de Liáns, 15179 Oleiros, A Coruña, Spain.

<sup>2</sup>Departamento de Química Analítica, Universidade da Coruña, Facultade de Ciencias, Campus da Zapateira, 15071 A Coruña, Spain.

<sup>3</sup>Departamento de Química e Bioquímica and <sup>4</sup>Centro de Ciências Moleculares e Materiais, Faculdade de Ciências da Universidade de Lisboa, Campo Grande Ed. C8, 1749-016 Lisboa, Portugal; [nogueira@fc.ul.pt](mailto:nogueira@fc.ul.pt)

From an agricultural industry perspective, pesticides are an important component of economic and effective pest control and their continued use is still essential, particularly in vegetable and fruit production. Meanwhile, due the extensively use of pesticides, there has been a growing concern regarding the human exposure, which more recently demonstrated to be potential endocrine disrupters. To prevent toxicological risks to the human health associated with the public consumption, the European Union (EU) has established maximum residue levels (MRLs) in a variety of fruits and vegetables.

Currently methods to screen pesticides from vegetable matrices, require conventional sample preparation procedures (e.g. soxhlet) prior to analysis by liquid or gas chromatography. Nevertheless, during the analysis of very complex matrices such as vegetables, sample preparation is often the most time-consuming and laborious part of the analytical procedure, particularly when clean-up and concentration steps of the large amounts of organic extracts are required prior to analytical determination. Consequently, the development of new analytical procedures that allows the determination of pesticides in an easier way is imperative, especially if can reach the MRL levels established by the EU.

Stir bar sorptive extraction (SBSE) is a novel enrichment technique used to recover analytes from aqueous matrices that offers significant advantages than other conventional methodologies, since is easy of use, cost-effective, solventless and very sensitive.

In the present contribution, SBSE is applied as enrichment procedure to determine trace levels of organochlorine pesticides in different vegetable matrices followed by liquid desorption and large volume injection-capillary gas chromatography coupled to mass spectrometry using the selected ion monitoring acquisition (SBSE-LD-LVI-GC-MS(SIM)) in compliance with the EU requirements.

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