



HIGH-END SOLUTIONS FOR YOUR FOOD ANALYSIS CHALLENGES: SAMPLE PREP – SEPARATION – MS DETECTION

1) New superfast AND high-resolution LECO TOF MS instrument line: No compromise anymore

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Recently introduced and Pittcon 2011 gold-awarded LECO's Folded Flight Path™ (FFP™) TOF-MS technology enables mass resolution of 100,000 FWHM, mass accuracy <1 ppm, and acquisition rates of up to 200 spectra/second - all with fine isotopic abundance measurements to facilitate high-confidence analyte identification. Applications from the field of pesticides and other food contaminants analysis will be shown in this presentation.

2) High Quality Analysis of Pesticides in Marijuana for Medicine using QuEChERS, Cartridge SPE Cleanup, and GCxGC-TOFMS

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At least 17 states in the USA have legalized medical marijuana. Therapeutic benefits include pain relief, control of nausea and vomiting, stimulating appetite, and muscle relaxation. Unfortunately, patients still have no assurances on the safety of the medicine due to potential harmful levels of pesticide residues, and currently, no methods for analysis of these residues in marijuana exist. We used the Quick-Easy-Cheap-Effective-Rugged-Safe (QuEChERS) extraction approach for pesticides in marijuana.

The resulting complex extract required cartridge solid phase extraction cleanup, followed by comprehensive two-dimensional gas chromatography with time-of-flight mass spectrometry (GC x GC-TOFMS). Good recoveries were obtained for the developed method for most pesticides (over 90 were examined), and incurred pesticide residues were detected in some of the illicit marijuana samples used for the work.

3) Dynamic Headspace - A Powerful Tool for Flavour and Fragrance Analysis

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Accurate qualitative and quantitative analysis of perfumed or flavoured products is essential to the flavour and fragrance industry. Especially when unknown samples need to be analyzed traditional methods of GC analysis often lead to only vague results and often require time consuming and cumbersome sample preparation techniques such as solvent extraction (liquid/liquid, Soxhlet, Likens-Nickerson). The technique of dynamic headspace requires minimal sample preparation, and significantly reduces overall analysis time while also improving data quality. In this work, the dynamic headspace technique is applied to different types of consumer products. The analysis of neat perfume oil is compared with that of consumer products containing the same oil.