ANALYTICAL ASPECTS OF POPS

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Among the so-called 'old POPs', polychlorinated dibenzo-*p*-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), and polychlorinated biphenyls (PCBs) are still of major concern in 2010 as a significant part of the population of developed countries keeps being exposed to unacceptable levels. In addition to all measures taken to reduce emissions, stringent regulations have been set to monitor the major route of human exposure, our food web. To ensure proper quality of what we eat, systematic food and feed control have to be implemented to spot potential contaminations, trace them, and turn them down prior human exposure. Such food-feed control requires the use of state-of-the-art methodologies, which can ensure multi-analyte screening, high QA/QC efficiency, reasonable operational costs, high throughput, and fast processing.

Automation and coupling of the multiple sample preparation steps are key elements for those methodologies. Pressurized liquid extraction (PLE) and multiple absorbent low pressure liquid chromatography (LC) have proven to be capable of producing high quality fractions and to be amenable to coupling. Final separation and quantification of those fractions using multiple injections in gas chromatogaphy coupled to mass spectrometry (GC-MS) allows 'same-day' testing capability for large series of unknown samples.

The presentation will highlight the latest developments in this particular area, focusing on automation, data treatment, and potential alternative GC-MS tools to complete the job.

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