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New Analytical Strategies for Sorption-Based Methods

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The best strategy for analysis is that it not need sample preparation, without interferences and short time analysis. For this purpose there are different extraction adsorptive techniques, for example Solid Phase Microextractions (SPME) and Stir Bar Sorptive Extraction (SBSE).

These techniques is based in sorption of analytes, the mechanism for liquids is the absorption. However for solids is the adsorption. There are two different techniques for sampling, the first is static sampling and the second is dynamic sampling. These techniques are used for volatiles and semi-volatiles analysis. Whit these techniques you can work through direct immersion or headspace (HS). Usually desorption is done with temperature but can also be used some dissolvent.

SPME and SBSE have some limitations as amount of sorbent, need a gas chromatography, expensive and need a detector. For this reason, it has created a news techniques. Bar Adsorptive Microextraction (BAμE) is based in sorption of analytes but the bar float and the agitation is more homogeneous than other techniques.

The applications for this technique (BAμE), are more diverse, it is possible to analyze environment, pharmaceutical, forensic and food samples.

Breath Analysis: Transitioning from Bench to Bedside

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The odor of breath can means an illness such as lung cancer or tuberculosis for this reason has been analysed the metabolites by different analytical techniques. Secondary Electrospray Ionization Mass spectrometry (SESI) is a method developed for the speed detection of volatile compound, without the need for sample pretreatment.

Secondary Electrospray Ionization Mass Spectrometry (SESI-MS) has advantages from Proton Transfer Reaction mass Spectrometry (PTR-MS), Selected Ion Flow Tube Mass Spectrometry (SIFT-MS) or Gas Chromatography Mass Spectrometry (GC-MS). This are short time of analysis, high sensibility and non-invasive. However, exist some disadvantages, for example large time for quantification and the equipment is not potable.

Other application of breath analysis is for detect Obstructive Sleep Apnea (OSA). It is characterized by repetitive pauses in breathing during sleep, this is associated whit a reduction in blood oxygen saturation. SESI-MS can analyse ketamine in human breath. Ketamine is a drug which is using such as an analgesic.

For all this reasons, SESI-MS exist in the market, because it is multiples applications in different matrix as food, air and breath.

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