

November 7, 2019 (13:30-14:15)



VENDOR SEMINAR:

Recent Advances in Aroma Profiling by GC×GC-TOF MS

Unleash the Trap and Improve Sensitivity in GC-MS Analysis of VOCs and SVOCs

Aaron Parker, SepSolve Analytical, UK

Historically, a wide variety of sampling methods have been used to extract volatiles from food and beverages, with a key driver being the need to improve upon inefficient solvent extraction methods.

This presentation will showcase how the new Centri® platform can generate useful insights into the aroma profiles of food and beverages, by allowing automated pre-concentration of VOCs and SVOCs from gases, liquids and solids.

Using real world examples, we will demonstrate Centri's unique, high-performance operating modes including SPME-trap with enrichment and high capacity sorptive extraction (HiSorb) which allow significant improvements in profiling applications.

Also, we show how Centri greatly improves efficiency for high-throughput laboratories by allowing unattended sequential analysis of multiple sample types using different injection modes.

Pushing the boundaries of hyphenation: Aroma profiling by GC×GC-TOF MS/FID/SCD

Laura McGregor, SepSolve Analytical, UK

Aroma profiles are often highly complex, with important compounds, such as trace-level off-odours, frequently masked by higher-loading components. The enhanced separation capacity of comprehensive two dimensional gas chromatography (GC×GC) is now frequently used to tackle this challenge.

Here, we apply a cryogen-free, multi-hyphenated GC×GC system to obtain comprehensive aroma profiles. The use of parallel detection by three different techniques ensures that three complementary datasets are obtained from a single run:

- Flame ionisation detection (FID) for robust quantitation of high-loading species
- Time-of-flight mass spectrometry (TOF MS) for highly-sensitive, confident identification of aroma-active species
- Sulfur chemiluminescence detection (SCD) for highly specific detection of sulfur odour taints.

We will show the result of using this setup is confident but affordable aroma profiling with fully automated workflows and novel data processing.

Everything's peachy: Correlating sensory evaluation of fruit quality with analysis by TD-GC×GC-TOF MS

Natasha Spadafora, University of Calabria, Italy

The fruit quality (FRUITY) project aims to provide new predictive technologies and a better understanding of physiological changes in fruit for objective quality assessment of fruit quality during post-harvest storage, to allow improved sensorial and final quality of fruit throughout the supply chain.

The project uses a multi-trait approach - including sensory profiling, monitoring of the volatile organic compounds (VOCs) produced by the fruit and investigation of biochemical reactions - with the overall goal of providing the industry with diagnostic kits for the evaluation of fruit quality during post-harvest storage.

In this presentation, we will focus on the VOC profiles from peach cultivars in an attempt to identify predictive molecular markers of fruit quality. The VOC profiles at the time of harvest and after storage at low temperature will be compared and correlated with results from sensory evaluation.