⊕ SHIMADZU
Excellence in Science

VENDOR SEMINAR:

"In food we trust": a closer look on aroma- and authenticity analysis

Can alcohol free beer be tasty?

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First trials about the production of non-alcoholic beer (NAB) is dating back till the early sixties. According to the Austrian, German and Swiss law an alcohol-free beer can have an alcohol concentration of maximum 0,5% by volume. If a beer is labelled as "alcohol free" it actually has to be 0.0%.

One of reasons of limited acceptance by consumers is the impact on the flavor interactions due to the removed alcohol. Nevertheless, there is a constant increase in the market share. 2023 the total turnover in Germany for NAB was 1.6 billion € which is approximately 7% of the beer consumption.

One of the reasons for an increasing market share is the use of improved technologies resulting in more palatable products. This talk will focus on various production technologies and the characterization of aroma compounds in various NAB using different chromatographic methods and sensory analysis.

A novel ion suppression-based MS methodology for identification and authentication of liquid samples; wine as a case study

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Authentication of complex samples with thousands of compounds is very often a tedious, time consuming and expensive process. To date, LC-MS is a preferred technique for the analysis of such samples due to its high sensitivity, selectivity and identification capability of a plethora of compounds. However, complex samples often require extensive sample preparation and separation before the compounds can be identified by a high-resolution MS. Whereas a simple sample preparation and direct infusions into the MS source shorten time to result, sample matrix can cause unwanted effects such as ion suppression or ion enhancement. We present a novel MS methodology for the authentication of wine. In contrary to existing methods, it is based on ion suppression or enhancement effects. The samples are mixed with a solution comprising multiple chemical compounds, which then are directly measured by ESI-MS in selected positive ion monitoring (SIM) mode. The impact of the wine matrix on the ionization of the added compounds is detected generating a unique MS signal pattern for each sample. For identification, this signal pattern is compared with the reference wine patterns in our data library. This methodology requires a single quadrupole MS, it has a run time of only 1.5 minutes and it can be used to reliably determine the origin, vintage and producer of the wine.