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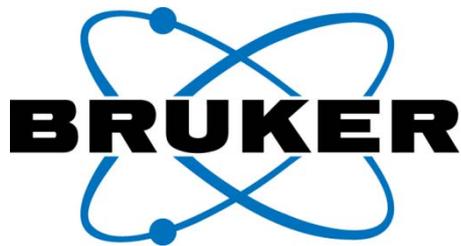
VENDOR SEMINAR:

Ensuring the Merit of Food

Non-targeted and targeted approaches to determine the authenticity of olive oil using LC-QTOF and GC-APCI-QTOF

Prof. Alegría Carrasco Pancorbo, University of Granada, Spain

Non-destructive off-flavor analysis of cork below odor threshold

Dr. Gordon van't Slot, Bruker Daltonik GmbH, Bremen

Cork taint is in fact a set of very undesirable aroma and flavor characters that are imparted to bottled wines following contact with their cork. 2,4,6-Trichloroanisole (TCA) is sensorily very potent, it makes a wine smell moldy or musty, like cardboard, damp cement or wet newspapers. At its worst, the wine is undrinkable. Some tasters can detect TCA at 1 ppt to 2 ppt, and a rare few can perceive it at even lower levels. We describe a non-destructive off-flavor method for analysis of cork. We perform automated sample preparation and quantitation of off-flavors using an EVOQ GC-TQ. The method is fast, ultra-sensitive and selective for confident determination of TCA in cork samples at trace levels. For TCA the LODs is at 0.1 ppt and the LOQ at 0.2 ppt.

A validation study of pesticides in food and vegetables according SANTE/11945/2015 using TargetScreener HR 3.0

Dr. Carsten Baessmann, Bruker Daltonik GmbH, Bremen

Rapid, comprehensive screening for residues using full scan accurate mass has become a powerful tool in facilitating food safety monitoring. In addition to the high number of possible target compounds, the technique enables unknown screening and retrospective analysis. We describe a validation study according EU AQC Doc. SANTE/11945/2015 for about 300 pesticides in QuEChHERS extracts of orange and lettuce. Required identification criteria are mass accuracy ≤ 5 ppm or < 1 mDa for masses < 200 m/z, RT difference < 0.1 min, the identification of two diagnostic ions and the determination of the ion ratio ≤ 30%. The experiments were performed with TargetScreener HR 3.0, consisting of an Bruker Elute UHPLC interfaced to a Bruker impact II QTOF mass spectrometer. Data acquisition was performed with a 15 minute reverse phase UHPLC gradient in alternating full scan and bbCID fragmentation modes. Automatic data evaluation was performed using TASQ 1.4 processing software. The high quality pesticide database contains more than 820 pesticides. For confident identification we use retention time, precursor accurate mass, isotopic pattern, ion ratio and up to 3 qualifier ions in full scan and 7 qualifier ions in bbCID acquisition. As part of the recovery study we analyzed 3 spike levels of 10, 20 and 50 µg/kg. For the linearity study we were looking at 8 levels in solvent and matrix extracts at 0, 1, 2, 5, 10, 20, 50 and 100 ng/ml. For both studies we did 6 replicates and determined the required information about linearity, recovery, RT, matrix effects and mass accuracy.