POSTER SESSIONS 1 AND 2 – Monday and Tuesday – all odd number posters will be on display.
POSTER SESSIONS 3 AND 4 – Wednesday and Thursday – all even number posters will be on display.

***AWARD WINNERS**

PLANT, FOOD, ENVIRONMENTAL AND MICROBIAL

P-408 A GC-MS platform for assessing the diversity of fruit and leaf volatiles

PRESENTING AUTHOR: ***JOSÉ L. RAMBLA, Jaume I University. Department of of Agricultural and Environmental Sciences, Spain***

CO-AUTHORS: ***Aurelio Gómez-Cadenas, Antonio Granell***

Volatile compounds are important molecules in plants which are involved in several independent processes. Fruit volatiles have a role in the attraction of seed dispersers, and are key compounds in the human perception of fruit flavour. Vegetative tissues also modify their pattern of volatile emission in response to external factors such as the presence of insects and microorganisms, using them as a language for communication with other plant organs and with another plants, and also to communicate with other living organisms such as insects. Here we present some results obtained from our platform for the determination of plant volatiles based on capture by means of Headspace Solid Phase Microextraction (HS-SPME) and separation and detection by means of Gas Chromatography coupled to Mass Spectrometry (GC-MS). This platform was used for the characterization of volatile compounds in different fleshy fruit species, many of them with an impact in fruit flavour, and enabled the identification of genome regions and several genes involved in their biosynthesis. Additionally, a non-targeted approach also allowed the identification of volatile compounds involved in the response of vegetative tissues against both microbial and pest attacks, shedding some light in the mechanisms involved in plant defence.

P-409 Storability and variety-specific metabolite profiles of European onion landraces

PRESENTING AUTHOR: ***Christoph Weinert, Max Rubner-Institut, Germany***

CO-AUTHORS: ***C.H. Weinert, M. Häußler, M.L. Romo Pérez, B. Egert, M. A. Frechen, B. Trierweiler, C. Zörb, S.E. Kulling***

Onions are among the most popular and economically most important vegetables worldwide and contain a range of health-beneficial compounds. Under appropriate conditions, onions can be stored for up to nine months. Modern conventional farming heavily relies on the use of hybrid varieties which may lead to genetic erosion and a loss of biodiversity. The use of open-pollinated landraces and their further development by breeding may be a viable alternative, especially for organic farming. In this trial, we examined the metabolite profiles of nine landraces and a commercial control variety (Sturon) in the fresh state and after cold storage for up to five months at 2-3°C and <60% relative air humidity. Quantitative basic analyses as well as an untargeted GC×GC–MS analysis were performed. More than 200 onion metabolites were relatively quantified. In the fresh state, nine varieties could be separated into three groups, mainly according to differences in the sugar and amino acid profiles. The variety “Jaune des Cévennes” was characterized by remarkably low fructan levels and a higher content of monosaccharides. While this variety suffered from increasing Botrytis and Aspergillus infestations already after two month of cold storage, all other varieties demonstrated minimal water loss and no visual appearance of degradation even after five months. Storage lead, among others, to increased levels of glutamine, glutamate, asparagine, phenylalanine, serine, several sulfur-containing amino acids, fructose, sucrose, xylose, trehalose, raffinose, myo-inositol, phosphate, malate and a substantial decrease in, e.g., citrate, nystose and other di-, tri- and tetrasaccharides.

P-410 Increased throughput and coverage for the annotation of Saponins using a structure-based MSn approach on a Tribrid Orbitrap mass spectrometer

PRESENTING AUTHOR: ***Reiko Kiyonami, Thermo Fisher Scientific, United States***

CO-AUTHORS: ***Caroline Ding, Seema Sharma, Andreas Huhmer***

Saponins are major components of Chinese medicines and exert various pharmacological effects, such as cardiovascular protective activity and anticancer activity. Plus, they could reduce the side-effects of radiotherapy and chemotherapy. The comprehensive annotation of Saponins from various Chinese medicines remains challenging because of the limited availability of authentic standards and the structural diversity of this class of compounds. Taking advantages of high resolution MS and MSn capability offered by the tribrid Oribitrap mass spectrometer, we developed a product ion-dependent MSn data acquisition method in which MS2 data is constantly collected and further followed by higher order FTMSn if sugar neutral lose are detected from the MS2 data. The collected MSn tree data were used to identify the Saponin class compounds which contain the triterpenoid or spirostane aglycones. Chemspider and custom databases are further used for final saponin structure annotation. As the proof of concept, 80% methanol extracts from Sanqi, a Chinese medicine was analyzed. A Thermo Scientific™ Orbitrap ID-X™ Tribrid™ mass spectrometer was used for collecting HRAM MS and MSn (up to MS4) data. The MSn data were searched against msCloud spectral library using Thermo Scientific™ Mass Frontier ™ 8.0 software for identifying the saponin class compounds. The novel structure ranking tools included in the Thermo Scientific™ Compound Discoverer™ 3.0 software was used for final structure annotation of identified saponin class compounds. More than 60 sapanins were annotated from the Sanqi extract. The MSn data were critical for the identification of triterpenoid or spirostane aglycones.