

XV Reunión Científica de la SECyTA y VII Reunión Nacional de la SEEM

Ambient Ionization with Plasmas and Charged Droplets.

Facundo M Fernández. Georgia Institute of Technology, Atlanta, USA

An interesting conference about advances in the field of ambient sampling/ionization mass spectrometry was presented by Dr. Fernández, from Georgia Institute of Technology (Atlanta, USA). First, an overview of ambient ionization techniques based on a variety of desorption and ionization principles were reviewed; and advantages and drawbacks were described. The main characteristic of ambient mass spectrometry is that it allows direct analysis of samples in open air with no or little sample preparation. Sample is positioned at the entrance of a MS in the open environment and molecules released from the sample are ionized and transferred into the MS. A variety of methods, based on different desorption/ionization mechanisms, allow the direct MS analysis of a diversity of compounds with a wide range of molecular weights and polarities. Among them, direct and desorption electrospray ionization (DESI), and direct analysis in real time (DART) are currently the two most prevalent techniques. An attractive perspective about actual and future applications of the ambient MS techniques in the field of Metabolomics, screening of counterfeit drugs, tissue characterization and molecular imaging, among others, to study ovarian and other types of cancer, was presented.

Lipidomics Based On High Resolution Mass Spectrometry: A Novel Strategy Employed In Food and Nutrition Research.

Jana Hajslova. Institute of Chemical Technology, Prague, Czech Republic

Novel lipidomic strategies based on different high resolution mass spectrometry (HRMS) techniques and data processing were presented by Prof. Hajslova, from Institute of Chemical Technology (Prague). Lipidomics is a subfield of metabolomics, with the focus on the study of lipids in biological matrices. It covers not only the analysis of lipid species and their abundance but also their biological activities, subcellular localization, and distribution. To achieve the analysis of these compounds a powerful analytical platform is essential, and sophisticated methods have been recently coupled to HRMS. Interesting case studies, such as olive oil quality and authentication, and analysis of lipids isolated from human/animal tissue using HRMS detection, were presented by Prof. Hajslova. The application of an ambient HRMS employing direct Analysis in Real Time (DART) ion source for analysis of lipids quality was discussed, as well as, the use of supercritical fluid chromatography (SFC) coupled with ion mobility mass-spectrometry (IM-MS) for evaluation of frying oils, and a novel method for the determination of free and ester-bound cholesterol in human adipose tissue employing ultraperformance convergence chromatography (UPC2) with HRMS.

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