

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

Ambient Ionization with Plasmas and Charged Droplets.

Facundo M Fernández. School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta

In this plenary presentation, Dr. Fernández reviewed the different ambient ionization techniques employed in direct MS analysis. Desorption Electrospray Ionization (DESI) and Direct Analysis in Real Time (DART) have been the main ambient MS techniques used which have opened new fields of research and working strategies.

Dr. Fernández highlighted the advantages of ambient ionization approaches in applications such as biological tissue imaging, metabolic fingerprinting or the detection of counterfeit drugs. As an example, the use of ambient ionization techniques in direct MS analysis of antimalarial pills has been demonstrated to be a rapid and reliable strategy to detect impurities or fakes in their composition that allows the analysis of a wide amount of samples and, thus, generating a list of suspect samples in a short period of time. However, Dr. Fernández stressed that further LC-MS/MS experiments are required for the reliable determination of adulterants in those suspect samples. So, in a general view, direct MS analysis is an excellent strategy to have a first overview and, thus, limit the number of samples to be treated for further MS/MS experiments

Analytical Developments and Biomedical Applications of Capillary Electrophoresis in Non-Targeted Metabolomics

Coral Barbas, CEMBIO, Centre for Metabolomics and Bioanalysis, Universidad San Pablo CEU, Madrid

Prof. Barbas explained in detail an overview of her research group work in the metabolomics field at CEMBIO. Non-targeted metabolomics consists on the comprehensive measurement of the metabolic response of an organism to a stimulus, in other words, the aim is comparing the metabolic profile of individuals affected and not affected by external factors like diseases, nutritional challenges or drugs.

Due to the wide range of physicochemical properties and concentrations of analytes in biological samples, Prof. Barbas highlighted the importance of using complementary separation techniques (LC, GC and CE) together with HRMS to get them all and, thus, to obtain as much different information as possible about the sample providing more robustness and reliability to the research. These two factors are of high importance due to the great influence that these approaches have been demonstrated to be in medical fields.

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