

4<sup>th</sup> World Congress on

# MASS SPECTROMETRY

June 19-21, 2017 London, UK

## Mass spectrometry impact on natural complex products comprehensive analysis: From research to routine quality control

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Natural products in medicine have a long tradition of use all over the world. Today, it is mandatory to assure their efficacy and safety through standardized processes (following Good Manufacturing Practices, GMPs) from the raw material to the formulated products. It is obvious that together with rigorous process controls, an adequate analytical policy can help to ensure the production chain's quality. Mass spectrometry plays a relevant role as by using HRLC-MS, GC-MS, IRGC-MS, ICP-MS, it is possible to characterize globally natural complex products. As the technology improved, today the research results can be transferred in the real world of the quality control of industrial production facilities. Untargeted metabolomics analysis by means of ESI-MS methods with multivariate statistical analysis can be an effective tool to check batch compliance, assuring constancy on the therapeutic effect. Targeted metabolomic analysis, by using a in house compound library (Aboca was able to build up a library of about 1000 standards) through HRLC-MS and GC-MS methods is useful to identify and quantify as much compounds as possible, achieving the correct compositional knowledge of complex natural products. Metallomic analysis by ICP-MS (also coupled with HPLC or ionic chromatograph) is essential, as inorganic salts or organometallic complexes are naturally presents and contribute to give the characteristic bioavailability to natural complex products. In conclusion, as it is known that all the compounds present in natural complex products contributes to their multi-targeted action and consequently to their specific effect, here it is presented an holistic approach to get a comprehensive panorama of natural complex product's composition, useful in routine quality control: identification test and batch release, stability monitoring program and check of production process robustness.

### Biography

Luisa Mattoli has completed her PhD at University of Perugia, Italy. She is Medicinal Chemistry Pharmacist and Scientific Head of Aboca Spa Phytochemistry Research Area. She has published 19 papers in reputed journals and serving as an Editorial Board Member of reputed journals. She is a member of the executive board of the Mass Spectrometry Division of Italian Chemical Society.

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