

Title of workshop: Botanical dietary supplements: How mass spectrometry is impacting the assessment of the quality

Date of workshop: June 6, 2022

Organizers/Presiders list: Angela I. Calderón, Ph.D., Auburn University

Description or goals of the workshop: The botanical dietary supplements (BDS) are complex mixtures of natural products with health benefits. This type of dietary supplement is popular among the US population. Their consumption has increased during the pandemic to enhance the immune response. The increasing popularity of these products has generated an increase in adulteration and low quality in these DS. State-of-the-art techniques such as LC-MS with high resolution and sensitivity are necessary to address the quality of the complex BDS. The good quality of these DS will assure their efficacy and safety in humans. Traditionally, the evaluation of the quality of BDS is carried out with thin layer chromatography and LC-UV. This workshop aims to present 1) the status on the use of LC-MS for analysis of BDS, 2) the perspective on the introduction of LC-MS to monographs of quality by United States Pharmacopeia (USP), and 3) more suitable LC-MS for the quality assessment of these products presented by Agilent, Waters, and Thermo. The order of the presentations will be topic 1 by presider 1, topic 2 by a representative of USP, and topic 3 by a representative of each LC-MS company Agilent, Waters, and Thermo. The audience for the workshop will be the industry community, researchers in academia, and analytical contract laboratories. Appropriate time will be destined to encourage participation and idea exchange with the audience. An expected outcome is to trigger the interest in the industry to embrace LC-MS's capabilities to assure the quality of BDS.

Titles and summaries of presentations:

- Introduction to the topic
 - Angela Calderon – Auburn University
 - Increased popularity of botanical dietary supplements
 - Lack of consistency of the quality in the market
 - United States Pharmacopeia monographs are based on HPTLC and HPLC-UV
 - Standardization of botanical dietary supplements
 - Untargeted chemical fingerprinting
 - Quantitation of bio/chemical markers
 - Opportunities for Mass spectrometry
- Presentations of perspectives on the topic
 - Amanda Guiraldelli – United States Pharmacopeia
 - Daniel Cuthbertson – Agilent
 - Ed George - Thermo Fisher Scientific
 - Naren Meruva - Waters
- Questions and Answers
- Concluding remarks

This workshop was well attended and interactive.