APAF Seminar by Dr KC Hyland
Global Technical Marketing Manager for Food and Environmental applications, SCIEX

Global Trends in Food, Environmental, and Cannabis Testing
Wednesday 6th February, 2019, 1 – 2pm
APAF Seminar Room, 4WW422, Macquarie University

Abstract

In this talk, we will highlight three hot topics garnering interest in global analytical testing spaces.

1. Food Testing: Beyond Residues and into Profiling and Characterization
2. Poly- and Perfluorinated Alkyl Substances (PFAS) in the Environment
3. Cannabis Testing: Unique Landscape, Unique Challenges

We will dive into each topic from a high level, discussing global impact and motivation driving the growth and development of analytical science in these specialized fields. Example data and relevant studies utilizing modern, novel or advanced mass spectrometry workflows will be covered for each topic, and the unique offerings of SCIEX hardware and software to make these workflows possible will be highlighted.

Food testing which integrates advanced “-omics” technologies and approaches to improve consumers’ well-being, health, and knowledge, and protects against global food fraud requires a shift in mindset from food safety testing as being defined by the detection and quantitation of undesirable residues. LC-MS/MS technologies, including high resolution-accurate mass (HRAM) and advanced data processing, have long been applied to profile and characterize biological samples. Turning the lens of this approach on the global food market allows us to answer questions like, “Does this food product match what the label says?” and “What makes this food product different from another?”

Poly- and perfluorinated alkyl substances (PFAS) are primarily used to impart stain repellency in commercial products as well as surfactants in fire-fighting foams and as polymerization aids in fluorinated polymers. Global recognition of potential harm these compounds may have on humans and the environment drive development in regulation and testing needs. However, as the industry takes steps to reduce PFOA and PFOS use, novel replacements chemicals are increasing in use. As such, accurate and adaptable analytical methods are needed. This presentation discusses data and methods of LC-MS/MS analysis of PFAS in the environment.

The globalization of the Cannabis industry for medical and adult use substantiates the need for robust and reproducible methods for analysis of Cannabis products for consumer health and safety. SCIEX has long demonstrated analytical capability in meeting maximum residual levels (MRLs) for residues in Cannabis flower matrix required by regions in North America. However, regulations in this area, across the globe and with sometimes little to no legal oversight, are challenging and demand flexibility and care in analytical approach. The analysis of Cannabis products has demonstrated that these matrices are some of the most complex and difficult to analyze, with a plethora of interferences and ion suppressors; analysis using both electrospray ionization (ESI) and atmospheric pressure chemical ionization (APCI) to analyze diverse constituents in complex Cannabis matrix will be discussed.
Biography

KC Hyland, PhD. is the Global Technical Marketing Manager for Food and Environmental applications at SCIEX. Dr. Hyland is primarily responsible for the development of new LC-MS methods using SCIEX Triple Quadrupole, QTRAP® and QTOF LC-MS/MS technology for the Food- and Environmental-Testing markets, and the dissemination of these methods to the SCIEX global applications team and SCIEX customers worldwide. KC joined SCIEX in 2014 as an Applications Specialist, working closely with food-, cannabis-, and environmental-testing laboratories throughout the USA to develop and streamline testing methods and workflows, and is the author or co-author of nearly thirty SCIEX application notes to date. KC’s areas of expertise include, perfluorinated surfactants in the environment, cannabis product analysis, novel areas in food testing such as food-OMICs, as well as water/wastewater treatment processes and testing. KC received her PhD. (2014) and MSc (2011) in Environmental Science and Engineering from the Colorado School of Mines in Golden, Colorado. She is currently based in the San Francisco Bay Area, California, and enjoys that her global role allows her to interact with scientists, researchers, and laboratories all over the world.