Food Safety & Authenticity: HRMS Applications (Flavor, Fragrance & Foodstuff Interest Group)
Organizers: Sara Kern and Melanie Downs
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2018 ASMS Annual Conference Workshop Report

For the 2018 workshop of the Flavor, Fragrance, and Foodstuff Interest Group, a panel of experts was organized to discuss topics related to high-resolution MS applications for food safety, security, and quality issues. The panelists were as follows:

> Michelle Colgrave, CSIRO (Australia)
> Melinda McFarland, FDA CFSAN
> Kevin McHale, Thermo Fisher
> Christine (O'Donnell) Fisher, FDA CFSAN
> David Schroeder, Kraft Heinz

The audience for the workshop was an estimated 90 attendees. A poll at the beginning of the workshop indicated that most of the audience already had access to high-resolution MS instruments in their laboratories. The attendees were from a mixture of sectors, but primarily industry, followed by academia and government agencies. The vast majority of the audience was currently conducting small molecule analyses (e.g. for pesticides, flavor profiles, and veterinary drugs), with only a few attendees reporting conducting peptide or protein analysis. The audience was very engaged with the panel throughout the session, with minimal prompting required from the moderators to stimulate the lively discussion.

Discussion topics were quite wide-ranging. Initial discussion focused on how to make purchasing decisions for HRMS instrumentation. The panel provided a number of perspectives on how to evaluate the needs and capabilities of a laboratory and match those with a particular instrument platform. The panel also discussed the types of methods that are being used in different scenarios. For example, very broad pesticide screening methods may be used in third-party laboratories for initial supplier qualifications while in house laboratories frequently focus on risk-based analyses or troubleshooting of particular issues (e.g. identification of off-flavor components). The panel also provided insights into the types of software tools available for untargeted analysis and compound identification, which can be critical in many applications.

The audience also expressed a substantial amount of interest in how regulatory agencies are employing HRMS methods in various situations, including more novel applications such as food

allergen and gluten detection methods. The representatives from FDA CFSAN provided insights into the current research priorities and interests for relevant food safety issues. In some cases the methods have been more thoroughly developed and are being used in field laboratories and for enforcement, while other methods are still in the development stages. Given the complexity and diversity of food products in the marketplace, the panelists emphasized some of the difficulties with developing universally applicable methods. It was pointed out that AOAC International has ongoing activities to support thorough validation of methods for food analysis.

Lastly, there was discussion about how MS methods can be used for applications beyond food safety, including product innovation and quality. Several food industry representatives indicated that they frequently utilize MS to improve and troubleshoot product functionality, processes, and nutritional quality.

At the conclusion of the workshop, interest group co-chair volunteers were organized and James Redwine (Kalsec Incorporated) agreed to serve as incoming co-chair. Melanie Downs will continue to serve as co-chair for the second year.