

2022 Flavor, Fragrance and Foodstuff Interest Group Workshop Report

Organizers: Travis Falconer & Joe Binkley

Topic: Utilizing GC/MS and Peripheral Technologies for Problem Solving in the Development of FFF (*Flavor, Fragrance & Foodstuffs Interest Group*)

The 2022 workshop for the Flavor, Fragrance & Foodstuff Interest group was originally planned to have 3 brief presentations delivered by invited panel members, followed by a question and answer session in which questions were submitted both by in person and online attendees through the ASMS app interface. Unfortunately, due to COVID travel restrictions, we ultimately ended up with a single panelist able to be present. Even though we only had the single panelist, there was good discussion and the complete allotted time for the session was utilized. Q&A session was moderated by the organizers. The single panelist was:

- James Redwine (Kalsec, Inc.): “Using GC-MS to Improve non-alcoholic beers” - Additional discussions regarding deconvolution and GC vs GCxGC we also initiated from James’ presentation.

The number of in person attendees including organizers and panelists was approximately 35, but due to the size of the room, it made it seem like less people. The workshop was placed in one of the large ballrooms which I imagine holds ~1,000. The number of online attendees was 9. There was a good amount of detailed discussion between the in person attendees and the panelist and organizers. Based on responses to a poll, the audience was made up of 40% each of industry and government/regulatory and 10% each of academia and students. In past years, polls have indicated this to be more balanced between these sectors. I’m not sure if this is enough information to indicate a trend up in industry and government/regulatory, but it is an interesting data point.

The presentation from James Redwine was approximately 10 minutes and James was kind enough to stay on stage for the remainder of the workshop to field questions which were guided towards him and to offer his experience where appropriate. His presentation was primarily focused on the non-targeted analysis of non-alcoholic vs. alcoholic beers. He had examples of where mass spectral deconvolution helped to detect and identify analytes which would not have been detected without deconvolution. A specific example was shown where trans-2-nonenal (primary staling aldehyde) was detected beneath a background peak. He also shared some data comparing a 1D separation to a GCxGC separation of an IPA beer where a region of the 1D chromatogram showed ~14 peaks detected and identified, while the same region of the GCxGC chromatogram had ~35 peaks successfully detected and identified.

The online tool within the app did not allow the online audience to participate in the live discussion which was unfortunate. It did however allow questions to come in from the online

attendees since they could hear the panelist presentation and see the slides as well as hear the discussions within the room.

A large portion of the discussion topics coming from the audience centered around a desire to make it easier for people to pull information from data. People stated that they don't have time to invest in learning new and/or complicated data analysis tools.

A review of the poll question responses is shown below.

1. What types of do you develop/study?

40% of the responses indicated foodstuffs with consumer products, flavors, and fragrances making up the remaining responses all with similar numbers (~20%).

2. Which instrument techniques do you use in conjunction with MS.

100% of those responding indicated that they use GC, followed by 60% LC, 20% ion mobility, and 10% each of GCxGC and ambient ionization.

3. Which topics would you like to discuss during next year's workshop?

Applications and challenges in the analysis of fragrances, flavors, and foodstuffs received the most votes (7), followed by advancements in food sample preparation (5), instrument choices for the FFF laboratory (4), ambient ionization applications (2), and ion mobility (1)

4. What format would you like the workshop to use in the future?

The top two recommendations were panelist mini presentations and group discussion (6) and Practical "how-to" lesson (6).

5. Would you like the FFF interest group to have an online presence? (e.g., ASMS Interest group forums, LinkedIn, other...)

Of the 10 responses to this question, there were 9 responses with yes and one response with "no opinion".

This year was Travis Falconer's second year of the two-year rotation. Joe Binkley (Leco Corporation) will transition into the chair position for next year. We are still seeking a co-chair to accompany Joe for 2023. Marc Engel (Florida Department of Agriculture and Consumer Services) had shown a desire to co-chair for this year, so I will reach out to him to see if his interest is still there.