

The Society of Flavor Chemists Inc.®

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Dear Members,

We had another really well attended and great program in Cincinnati last month. Ryan McCoy was kind enough to write a wonderful synopsis for the day which is below.

*April 18, 2019 Meeting in Cincinnati, OH
by Ryan McCoy*

CSA Presentation

Sweegen - Presented by Shari Joslin

Shari spoke about the wide array of new and interesting stevia glycosides being isolated and researched at Sweegen. She also discussed the use of bioconversion to produce Reb M and Reb D in far greater quantities than with the use of physical extraction methods. She touched on the FEMA approvals of these new ingredients as flavors and their use levels, Reb-M FEMA 4922 @ 24ppm and Reb-D FEMA 4921 @ 32.5 ppm. Samples that were provided for tasting illustrated a 30% reduction in sugar comparing both the individual ingredients as well as a blend of Reb-M and Reb-D to provide a more rounded sugar profile. Shari answered some questions about potential solubility issues especially in glycerin, she suggested heated propylene glycol and water as the best solvent system for flavor use.

Omega Ingredients - Presented by Jim Kavanaugh

Jim's presentation opened with a very artful and inspiring video about Omega showing the companies passion and culture of creativity. He touched on a brief history of the company and their certifications. Omega prides itself on innovation through problem solving for customers and providing high quality natural products. The presentation included Omega's Kiinotes line of extracts and distillates and their Megasweet line natural flavor systems for sugar reduction and mouthfeel enhancement. The Kiinotes tasting samples included a provenance focused citrus and floral beverage that was completely developed using their clean label products. The

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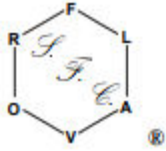
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Megasweet tasting samples also used a clean label developed whiskey cola beverage with 50% sugar reduction using Megasweet. In addition to Megasweet's sugar reduction without stevia, Omega is doing new development in the realm of mouthfeel enhancement specifically looking at enhancing texture in gluten free beers. They are also beginning development in a small list of organic certified Kiinotes.

New Look at Spirits Research
Dr. Tom Asquith, Whiskey Scientist at OTR Still House

Dr. Asquith gave an interesting talk about spirits research concerning the chemical composition of spirits and how those compositions can affect burn and mouthfeel. His presentation began with commonly known knowledge of high proof distillate production and how those are processed into bottle strength products. Dr. Asquith discussed how congeners, the minor and varying chemical constituents produced in spirits production, have been found to form clusters of ethanol "rich" and water "rich" compound structures that significantly impact the perception of burn and mouthfeel in products. These differences are far more pronounced in colored spirits due to higher amounts of congeners and chemical compounds from wood ageing. The research into these clusters of chemicals bound to ethanol and water shows that the burn of spirits is likely tied to the relative amounts of "free" vs structured or clustered ethanol and that the mouthfeel of products is tied to structured water in a spirit. This continued research seems to be leading to product development that is testable and measurable for desired affects in spirits development.

Novel Molecular Drivers of Trigeminal Burn in Alcoholic Products
Dr. Devin Peterson, Director of the Flavor Research and Education Center at The Ohio State University

Dr. Peterson began his presentation by giving some insight into the goals of FREC, The Flavor Research and Education Center at The Ohio State University. He discussed how important the role of flavor is in our society today and why flavor is the key driver helping our society make better food choices. FREC spends a lot of time trying to understand what drives "liking" of foods

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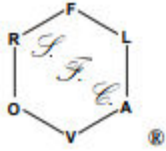
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to determine how to increase “liking” of healthier food options. Dr. Peterson concluded that if healthier food tastes better people will consume more of it and our society will become healthier in the process. He also spoke a little about FREC’s process of partnering with industry leaders as members to spread out the cost of this important research among many members. They are also exploring and developing models to allow for proprietary research to members for commercial products.

Dr. Peterson spoke about two interesting projects being explored at FREC as examples of the type of research being done. The first was using LCMS to identify novel non-volatile chemicals in coffee that consistently raised the statistical cupping score of coffee when added to lower quality coffee. The second was research into breeding of wheat for “liking” by decreasing the generation of a bitter molecule in the process of bread making.

In conclusion of his presentation Dr. Peterson discussed the research that is being conducted on alcohol burn. Asking the question “Is it just alcohol that is causing the burn” the researchers looked at pH to determine if a change in pH would affect the perceived burn in spirits. They found that the increasing the pH effectively lowered the aldehydes present in a spirit and decreased the alcohol burn. Dr. Peterson tied these findings rather well to the previous presentation of Dr. Tom Asquith showing that the congener aldehydes identified in spirits can drastically change the perceived burn of a spirit. In addition to this research Dr. Peterson mentioned that these findings centered on pH could be very useful in the process and use of proofing water to decrease ageing time of spirits.

Presentation by 2019 William Jaggard Memorial Scholarship Recipient
Brianna Linne

Identification of characterization of the tactile chemical compound of coffee body

Brianna gave a great presentation of her research work on identifying chemicals that contribute to the body of coffee. She began by describing how professional coffee cuppers use “body” to describe the tactile qualities of mouthfeel, fullness and amplitude of a coffee when determining its quality. Her research began with studying the tactile sensitivity of the tongue by similar

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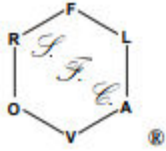
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comparison to the tactile sensitivity of touch. This was done by identifying chemical compounds that activate similar tactile touch receptors of the tongue. After conducting extensive sensory guided tastings, she decided to pursue four key attributes of chalkiness, thickness, mouth coating and astringency. Through processing with ultra-filtration separation and solid phase extraction separation Brianna found that low molecular weight organic elution chemicals seemed to be of the most interest for study. Following this finding she performed time-based LC/MS fractionation of a coffee sample and compared each fraction against control samples containing caffeine to identify which fractions demonstrated her four key attributes. While she was unable to come to a conclusive fraction for thickness she had very good success identifying fractions associated with mouth coating, chalkiness, astringency and a fraction that contained both mouth coating and astringency. This very detailed and successful research sets up the possible next steps of identifying specific compounds or groups of compounds in these fractions that could be used to better understand and modulate coffee body levels that contribute to the flavor experience of coffee.

The minutes from our 440th business meeting are now available via the following links. Please take a moment and have a look to stay informed. I hope to see you all at the CSA Roundtable in Newark on May 9th.

- [\(April 2019 minutes link\)](#)
- [\(February-March 2019 Treasurer's Report link\)](#)

Yours truly,

Chris Williams
SFC Secretary 2018-2020

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