[FREE WORKSHOP]

CURRENT ANALYSIS IN FOOD AND NUTRACEUTICALS

THURSDAY, NOVEBER 1, 2018

TA Instruments | 890 West 410 North | Lindon, UT 84020

AGENDA

9:15am **Arrival and Registration**

10:00am **Welcome to TA in Lindon.**
Brief introduction of TA instruments – Product Line with a Spotlight on Microcalorimetry
Colette Quinn, Microcalorimetry Product Manager

10:10am **Welcome from Waters.**
Overview of the schedule for today & what we hope to achieve : collaborations & net-working.
Jesse Canales, Chemistry Consumables Specialist, Waters Corporation

10:20am **Routine Food QC Testing using Mass Detection**
Abstract: Add Mass Detection to your laboratory without hiring a MS Chemist. The ACQUITY™ QDa™ can help you track peaks, quantitate analytes with no chromophore, and reach detection limits you have only dreamed about.
John Shinoda, Sr. Support Specialist, Waters Corporation

10:50am **Calorimetric Determination of the Shelf-Life of Foods and Nutraceuticals.**
Abstract: Calorimetric methods have been very successful for determining mechanisms and rates of changes in pharmaceutical formulations, explosives, batteries, adhesives, and plastics, but has not been widely adopted for studying changes in foods and nutraceuticals during processing and storage. Physical chemists view foods and nutraceuticals as too complex to study with a non-specific method, and food scientists do not have the training to interpret the thermodynamic and kinetic data afforded by calorimetry. This presentation addresses these issues.
Dr. Lee D. Hansen, Prof. Emeritus, Department of Chemistry and Biochemistry, Brigham Young University

11:20am **HILIC Chromatography: Method Development and Trouble Shooting for Polar Compounds**
Polar compounds in nutraceuitcals and food are real challenges. Waters offers an approach utilizing HILIC chromatography.
Jesse Canales, Chemistry Consumables Specialist, Waters Corporation

11:50am **Lunch - Compliments of Waters Corporation**

12:40pm **Using Isothermal Titration Calorimetry to Determine Enzymatic Stability in Enzymes used in Food Production**
Abstract: There are several applications for enzymes in food production that are currently in use. Further, there are many more enzymes that could be used if they were stable enough to use and reuse in inline production. In this presentation I will demonstrate calorimetric assays that can be used to determine enzyme stability. Differential scanning calorimetry can be used to measure the thermal stability of the structure and a real concentration of invertase on the membrane. Isothermal titration calorimetry can be used to determine stability of the enzyme activity over time. These two calorimetric assays can be used to autonomously determine enzyme stability. The assays are compatible with most enzyme reactions and can be done in opaque media. Ultimately, these assays will enable a more rapid assessment of enzyme stability, assay the stability of enzymes that are difficult to assay with conventional enzymatic assays, and assay enzymes in solutions like milk that cannot be assayed another way.
Jason Kenealey, Ph.D, Assistant Professor, Brigham Young University, Department of Nutrition, Dietetics and Food Science

1:10pm **Applications and Benefits of Supercritical Fluid Chromatography Using the Waters UPC2 System.**
Abstract: A brief introduction to supercritical fluid chromatograph (SFC) will be given. Applications will be presented for fast, reliable, and sensitive analyses of a family of carotenoid compounds and D vitamins, using the Waters ACQUITY™ UPC2 system coupled with either a photodiode-array detector (PDA) or quadrupole mass spectrometer (QDa™). Advantages and benefits of alternative instrument configurations will be discussed, such as utility of a PDA detector for analytes that are not well-suited for electrospray ionization (ESI). For example, with a variety of different Nu Skin product containing carotenoid ingredients, we have developed a 12-minute SFC assay to chromatographically resolve beta-carotene, alpha carotene, lycopene, lutein, zeaxanthin and astaxanthin. SFC combined with ESI and the QDa mass detector is well suited for D vitamin analyses in nutritional supplement products.
Dr. Hui Zhou, Sr Associate Analytical Chemist, Nu Skin

1:40pm **Introduction to Rheology for Food Applications**
Abstract: There are three main reason for rheological testing: characterization, process performance and end product properties. This presentation will offer a brief overview of capabilities as well as pertinent examples of how rheology, the science of flow and deformation of matter, can be used to answer questions focusing on food production and product quality.
Steve Page, Account Manager, TA Instruments

2:00pm **Conclusion**

Learn more at: www.waters.com/NUTRA2018

For more information or questions, contact Jesse_Canales@waters.com

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