Welcome to the 27th Annual Mid-Canada
AOAC Day

Thursday, June 16, 2016
Victoria Inn and Conference Center
1808 Wellington Avenue, Winnipeg, Manitoba
Registration Fee - $25.00
Registration begins at 8:00 a.m.

AOAC Day Highlights

- Laboratory Equipment/Supply Exposition
- Technical Presentations
- Annual General Meeting
- Keynote Address: **Dr. Mark Torchia**
  Associate Professor of Surgery, University of Manitoba
  "It actually is brain surgery – An Innovation Adventure"

GRAND PRIZE Draws ....
One $100 & three $50 gift certificates
Donated by Mid-Canada AOAC

- Free training courses (with registration):
  - EZGC™ Method Development Tools Suite
    Presented by Chromatographic Specialties Inc.
  - Design of Experiment and Chromatography Method Development - Presented by Chromatographic Specialties Inc.
  - Demonstration and hands-on experience with PerkinElmer Spectroscopy and Material Characterization Instrumentation - Presented by PerkinElmer
  - Challenging chromatography and mass spectrometry applications and novel solutions Presented by Agilent Technologies
  - Innovative atomic spectroscopy solutions and tips on enhancing your current elemental analysis methods - Presented by Agilent Technologies
  - Near Infrared Sample Analysis Techniques for Laboratory and On-line Applications Presented by Bruker Ltd.
  - LC-MS Quantitation Workshop: Method Development Pitfalls and Suggestions Presented by Bruker Ltd.

AOAC Day Vendor Participants

Gold Sponsor:
Agilent Technologies

Silver Sponsors:
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VWR
PerkinElmer For the Better

Bronze Sponsors:

Anton Paar Canada	CEM Corporation	Gamble Technologies	MilliporeSigma
ATS Scientific	Chromatographic Specialties	K' (Prime) Technologies	SCP SCIENCE
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Canadian Life Science	ESBE Scientific	Metrohm Canada	ThermoFisher Scientific
Cedarlane Laboratories	Fisher Scientific	Mettler Toledo	Waters

Program at a Glance

TIME	EMBASSY B	EMBASSY C
8:00	REGISTRATION OPENS	
WORKSHOPS - Please sign attendance forms in sessions so certificates can be prepared.		
NOTE – Presentations shaded in blue are student sessions. Please support our future scientists!		
8:45 – 9:10	**Knocking out two genes in pigs to modify the N-glycosylation of proteins** *Hélène Perreault, University of Manitoba*	**Elemental Impurities in Pharmaceuticals and Nutraceuticals** *Aaron Hineman, PerkinElmer Canada*
9:15 – 9:40	**A 129XE Co-magnetometer for Neutron Electric Dipole Moment at TRIUMF** *Michael Lang, University of Manitoba*	**Heavy Metals in Cosmetics by ICP-OES** *G. Minerva, K. Crackle, C. Ventura, S.Korchynsk, Red River College*
9:45 – 10:15	**Selective Capture of Azido Compounds by a Propalgyl Cleavable Linker** *Mike Doyle, University of Manitoba*	**CEM Microwave Sample Preparation for ICP Analysis** *Dan Alvarez, CEM Corporation*
10:15 – 10:45		
10:45 – 11:10	**Towards a Surficial Thermodynamic-spectral Continuum in the Solar System** *Daniel Applin, University of Winnipeg*	**Microwave Digestion of Fish Oil Samples - Avoiding A Runaway Exothermic Sample** *John Dykeman, SCP SCIENCE*
11:15 – 11:45	**Hyperspectral Imaging of Historical Objects** *Doug Goltz, University of Winnipeg*	**OXITEST – Oxidation Test Reactor for Determination of Oxidation Stability** *Clayton Babcock, ATS Scientific*
11:30 – 1:00		
1:00 – 1:25	**Transport Canada's Crude Oil Sampling and Analysis Campaign** *Greg Sliva, Transport Canada*	**WORKSHOP:** **EZGC™ Method Development Tools Suite** ***Dominique Lavigne, Chromatographic Specialties Inc.***
1:30 – 1:55	**PLACEHOLDER TITLE** *David Grant, Manitoba Hydro (retired)*	
2:00 – 2:25	**Transfer of Canola Near Infrared Calibrations** *Bert Siemens, Canadian Grain Commission*	**FAQs in Chromatography Tech Support** *Matt Clark, Chromatographic Specialties*
2:30 – 3:00		
3:00 – 3:25	**Titration of Multiparameter Samples on a Single, High-Throughput System** *Robert Le Blanc, Metrohm Canada*	**Accurate and Precise Mass Determination of Intact Proteins by UPLC-ESI-HRMS** *Ray Bacala, Canadian Grain Commission*
3:30 – 4:00	**Synthesize, Optimize and Characterize with Autochem** *George Kameka, Mettler-Toledo*	
4:00	PRIZE DRAWS IN THE VENDOR HALL	

TIME	EMBASSY D	EMBASSY E
8:00	REGISTRATION OPENS	
8:30	WORKSHOP: Demonstration and hands-on experience with PerkinElmer Spectroscopy and Material Characterization Instrumentation *Brian Wong, Perkin Elmer*	WORKSHOP: Challenging chromatography and mass spectrometry applications and novel solutions *Agilent Technologies*
8:45 – 9:10		
9:15 – 9:40		
9:45 – 10:15		
10:15 – 10:45		
10:45 – 11:10	WORKSHOP: Near Infrared Sample Analysis Techniques for Laboratory and On-line Applications *Dr. Robert Cocciardi, Bruker Ltd.*	Challenging chromatography and mass spectrometry applications and novel solutions *(CONTINUED)*
11:15 – 11:45		
11:30 – 1:00		
1:00	WORKSHOP: LC-MS Quantitation Workshop: Method Development Pitfalls and Suggestions *Dr. Xuejun Peng and Dr. Jim Kapron Bruker Ltd.*	WORKSHOP: Innovative atomic spectroscopy solutions and tips on enhancing your current elemental analysis methods *Agilent Technologies*
1:30		
2:00		
2:30		
3:00	WORKSHOP: Design of Experiment and Chromatography Method Development *Matt Clark, MSc., Chromatographic Specialties Inc.*	Innovative atomic spectroscopy solutions and tips on enhancing your current elemental analysis methods *(CONTINUED)*
3:30		
4:00	PRIZE DRAWS IN THE VENDOR HALL	

Keynote Address

2016 AOAC Day Keynote Address

Thursday June 16th 2016

IT ACTUALLY *IS* BRAIN SURGERY

An Innovating Adventure

Dr. Mark Torchia
Associate Professor of Surgery,
Universiry of Manitoba

About the speaker:

Mark thrives in collaborating for positive and lasting change; opportunities he has had in health care, teaching, and business. Early on, Mark completed a Diploma in Biochemical Technology from Red River College and then went on to Graduate studies in the Faculty of Medicine at University of Manitoba. The majority of his career has been spent at the two tertiary care teaching hospitals in Winnipeg during which time, two medical device companies were born. Currently, as the Executive Director of the Centre for the Advancement of Teaching and Learning at the University of Manitoba, he and his colleagues provide partnership for innovation in the teaching and learning mission. Mark enjoys writing and has co-authored two international bestselling medical textbooks as well as many scientific publications and patents. Mark is a winner of the Manning Foundation Principle Award and also the Inaugural Governor General's Award for Innovation.

Technical Workshops
Advance registration not required!

EZGC™ Method Development Tools Suite
EMBASSY C 1:00 – 2:00

Dominique Lavine, Chromatographic Specialties

Whether you are developing a new GC method or looking to reliably optimize an application, Restek's EZGC™ method development tools will save you hours of calculations, guesswork, and trial-and-error. These free, web-based applications are easily accessible by visiting www.restek.com/ezgc — and Windows users can also download the newest component, the EZGC™ method translator and flow calculator, for offline use.
The new EZGC™ method translator and flow calculator makes it simple to switch carrier gases, change column dimensions or detectors, or to optimize a method for speed or efficiency. Simply enter your current method specifications and you will receive a full set of calculated method conditions that will provide similar chromatography. Results include oven program and run time as well as average velocity, flow rate, splitless valve time, and other control parameters—all in an easy-to-use, single-screen interface with seamless transfer between tools.
Already a favorite of analysts around the world, the EZGC™ chromatogram modeler helps you develop a new method from scratch, including the column and conditions. Simply enter your analyte list to generate a customized, interactive model chromatogram that provides a specific phase, column dimension, and conditions. Zoom in, view chemical structures, and even overlay mass spectra of co-eluting compounds.
On a PC or Mac, desktop or tablet, our EZGC™ method development tools make it easy to tailor a perfect solution for your method development challenges.

Demonstration and hands-on experience with PerkinElmer Spectroscopy and Material Characterization Instrumentation
EMBASSY D 8:30 – 10:15

Brian Wong, PerkinElmer

Bring questions about your samples, sample types and sample preparation. Demonstration and hands on experience of PerkinElmer FTIR microscope, DSC and UV/VIS instrumentation.

Near Infrared Sample Analysis Techniques for Laboratory and On-line Applications
EMBASSY D 10:45 – 11:45

Dr. Robert Cocciardi, Bruker Ltd.

Near Infrared (NIR) spectroscopy is a powerful and rapid analytical tool for analyzing samples non-destructively giving accurate quantitative and qualitative results in seconds. Almost any type of sample can be measured by NIR Spectroscopy if the right sampling technique is used. Common measurement techniques for NIR are diffuse reflectance or diffuse transmittance for solids, transmittance for clear liquids and transflectance for emulsions and suspensions. Chemometric tools such as partial least squares (PLS) and principal component analysis (PCA) are employed to develop statistical models for qualitative and quantitative analysis of the acquired NIR data. One of the keys in getting the most precise and accurate results is in choosing the right sampling technique, as sometimes more than one measurement technique can be used, by taking into account the sample's homogeneity, distribution of particles and absorption range. For on-line continuous monitoring measurements, the same sampling techniques exist but need to be adapted in a form so as it can be interfaced to the process stream. Different probe designs, fiber options and sensor options are available for making measurements in process in diffuse reflectance, transmittance and transflectance. As with laboratory samples, the best sampling option to choose depends on the properties of the samples as well as taking into consideration which part of the stream is being measured and whether it is representative of the process. In this workshop the best NIR sample analysis techniques to use for different types of samples in order to get optimal results will be discussed

LC-MS Quantitation Workshop: Method Development Pitfalls and Suggestions
EMBASSY D 1:00 – 2:30

Dr. Xuejun Peng and Dr. Jim Kapron, Bruker Ltd.

Bring your questions and real-world problems to this practical workshop. When developing a quantitative method and faced with early evidence of variability, what actions can you take? What if the r-squared is less than 0.98, or the percent deviation is greater than 20% at the lower level of quantitation? Other common issues include but are not limited to:

a) Stability: standard solvent & matrix stability, bench top stability, reconstitution stability, batch re-injection stability, sample in-process stability, sample storage stability, sample collection procedure, light sensitive compounds, etc.b) How to improve extraction recovery – solvent, pH and others
c) LC peak shape, mobile additives & pH selection
d) Carryover from one sample to the next
e) How to improve method sensitivity
f) LLOQ/ULOQ – regulatory requirements, accuracy & precision
g) Chiral or isomer/isobaric component quantification
h) How to quantify endogenous components – matrix selection and parallel test
i) Matrix effect – variability observed including when using stable isotope labelled internal standards
j) Hemolysis effect if handing biological matrix (blood, serum, plasma)
k) How to get the simplest regression model vs. weighting selection, including discussion about regression coefficient
l) Validation – partial validation, cross-validation and full validation
m) How to handle outlier data

Design of Experiment and Chromatography Method Development
EMBASSY D 3:00 – 4:00

Matt Clark, Technical Support Supervisor, Chromatographic Specialties

Each time we develop a new method in gas or liquid chromatography we are conducting an experiment to determine the optimum conditions for separating our set of analytes in a reasonable length of time, with reasonable stability and reasonable resolution.
Neither one factor at a time and fully factorial method development schemes are entirely suitable for new method development in chromatography. With one factor at a time method development, it is very easy to miss optimal conditions generated by an interaction of two or more conditions.
Fully factorial experimental design ensures that we will capture all possible interactions between our selected variables, but the number of test runs grows as cv with c being the number of conditions in each variable, and v the number of variables. If we test 3 levels for buffer, organic modifiers, gradient profile and stationary we have 81 runs to test – before we run replicates!
Reduced factorial design is a method of testing for the most likely interactions between variables in a chromatography method (or any other experiment). It involves using generally applicable rules (the chance of requiring the interaction of three or more factors to get a result is low), and general knowledge of our analytes (if you have an acidic or basic molecules, you're likely to see pH interactions with other variables.

Challenging chromatography and mass spectrometry applications and novel solutions
EMBASSY E 8:30 – 11:30

Agilent Technologies

This workshop will focus on several new application areas in GC, LC, and GCMS/LCMS analysis. Hot topics such as Extractables and Leachables, 2-dimensional HPLC, and improving workflows by implementing better sample preparation and GC/LC tips will be discussed. Unique advantages using accurate mass analysis will also be discussed. Bring your difficult questions as there will also be time at the end of the day for some one-on-one and small group problem solving with our experts.
Modules:

45 min 1. Challenging Separations Solved Using a Unique 2D HPLC Approach
45 min 2. The Innovation of Workflows for Extractables and Leachables
45 min 3. Target and non-target pesticide residue analysis using GC/QQQ and GC/Q-TOF with a discussion on ways to use sandwich injections
45 min 4. Analysis and Profiling of Non-volatile Compounds in Whiskies by High Resolution, Accurate Mass LC-MS and the MassHunter Software Suite

Innovative atomic spectroscopy solutions and tips on enhancing your current elemental analysis methods (3 hours)
EMBASSY E 1:00 – 4:00

Agilent Technologies

This workshop focuses on Innovations in Atomic Spectroscopy and Elemental Analysis Solutions. New applications for ICP-OES and ICP-MS, as well as unique MP-AES and ICP-QQQ solutions will be discussed. Agilent specialists and application chemists will be on-hand to present on the latest technological innovations in elemental analysis, discuss some of the newest applications, and go over helpful hardware, software, and sample prep tips & tricks to enhance your current workflows. Bring your difficult questions as there will also be time at the end of the day for some one-on-one and small group problem solving with our experts.
Modules:

45 min 1. New developments in QQQ ICPMS / MS
45 min 2. Introducing the new 5110 ICP-OES - Now you can have both speed and precision
45 min 3. Elemental impurity analysis made easy- the latest on USP and ICH for food, nutraceuticals, and pharmaceutical analysis
45 min 4. Molecular Spectroscopy in Compliant Environments: QC-QA to troubleshooting

Abstracts
Technical Presentations

EMBASSY B

8:45 – 9:10

Knocking out two genes in pigs to modify the N-glycosylation of proteins

Hélène Perreault1, Marjorie Buist1, Emy Komatsu1, Paul Lopez1, Lauren Girard1, Edward Bodnar1, Apolline Salama2, David Sachs3, Cesare Galli4,5,6, Andrea Perota4, Sophie Conchon2, Jean-Paul Judor2, Jean-Paul Concordet7, Giovanna Lazzari4,5, Jean-Paul Soulillou2*

1 Department of Chemistry, University of Manitoba, Canada; 2 INSERM UMR 10-64, Institute of Transplantation Urology Nephrology (ITUN), Université de Nantes, France; 3 Massachusetts General Hospital, Harvard University; 4 Avantea Laboratory of Reproductive Technologies, Cremona, Italy; 5 Avantea Foundation, Cremona, Italy; 6 Dept. Of Veterinary Medical Sciences, University of Bologna, Ozzano Emilia, Italy; 7 Université Paris Descartes, France.

The N-glycosylation patterns of immunoglobulins (IgGs) isolated from the serum of two varieties of knockout pigs (lacking N-glycolylneuraminic acid (Neu5Gc) and/or α1,3 galactose) were examined for the presence of potential glycan xenoantigens and compared to patterns obtained for wild-type (WT) pig IgGs. Focusing on the analysis of tryptic glycopeptides EEQFNSTYR and AEQFNSTYR allowed the characterization of IgGs, to the exclusion of IgA and IgM, in which N-glycosylated peptides have different masses. Single knockout (-Gal transferase) pig IgG was shown to contain Neu5Gc residues, and there was a definite absence of -Gal. Double knockout pigs (DKO, -Gal transferase and cytidine monophosphate-A-acetylneuraminic acid hydroxylase (CMAH)) showed the definite absence of -Gal and Neu5Gc. Instead of the latter, Neu5Ac residues were observed. Further investigation into the sialylation patterns of WT and DKO pig IgGs consisted in esterifying the glycopeptides and thus allowed the detection and differentiation of -2,3 and -2,6 sialic acid-galactose linkages. Fucosylation was also compared between IgG species, and was found highest in WT IgG samples.

9:15 - 9:40

Development of A 129Xe Co-Magnetometer for the Neutron Electronic Dipole Moment Experiment at TRIUMF

Michael Lang, Department of Physics and Astronomy, University of Manitoba, Winnipeg, Manitoba

A non-zero neutron electric dipole moment (nEDM) would signify a previously unknown source of fundamental symmetry violation. New sources of fundamental symmetry violation are believed to be required to explain the particle-antiparticle asymmetry of the universe. Employing a newly developed high-density ultra-cold neutron (UCN) source, an experiment at TRIUMF, Canada's national laboratory for particle and nuclear physics and accelerator-based science, aims to perform the world's best measurement of the nEDM, with a goal precision one order of magnitude better than the current limit. Precession frequency differences of UCN stored in a bottle subject to parallel and anti-parallel electric and magnetic fields signifies a permanent nEDM. Magnetic field instability and inhomogeneity, as well as field changes resulting from leakage currents (correlated with electric fields) are the dominant systematic effects in nEDM measurements. To address this, passive and active magnetic shielding are in development along with a dual species (129Xe and 199Hg) atomic co-magnetometer. Simultaneously introducing both atomic species into the UCN cell, the co-magnetometer can mitigate false EDMs. 199Hg precession will be detected by Faraday rotation spectroscopy, and 129Xe precession by two-photon excitation and emission. The present 129Xe co-magnetometer progress will be discussed, with focus on polarized 129Xe production and delivery.

9:45 – 10:15

Selective Capture of Azido Compounds by a Propalgyl Cleavable Linker

Michael G.J. Doyle, Michelle McLellan, Edward Bodnar, Paul G. Lopez, Ron Domalaon, Rini Roy, Katherine Cordova, Frank Schweizer, Hélène Perreault, University of Manitoba, Department of Chemistry*

A cleavable linker is designed and synthesized for the selective capture of azido compounds. This presentation gives a proof of concept of the methodology, which

involves the use silica beads pre-functionalized by aminopropyl groups, to which amino acids are successively added through a conventional peptide solid phase synthesis approach. The linker is terminated by propalgyl glycine (Pra) and thus has a triple bond for click chemistry, and contains an arginyl (Arg) residue for tryptic cleavage and product release. This solid phase material can be used to capture azido-functionalized compounds, and trypsin releases the product. The beads are tested on (clicked on) three azido compounds, 2-azido-2-deoxy-glucose (ADG), BOC-p-azido-Phe-OH (BAzPhe), and tetra-acetylated N-azido mannosamine (ManNAz). This method allows easy identification of captured compounds based on mass and fragmentation analysis. Is it also useful for the analysis of small azido compounds by MALDI-ToF-MS, which may not be possible due to matrix interferences.

10:45-11:10

Towards a Surficial Thermodynamic-spectral Continuum in the Solar System

Daniel Applin and Edward Cloutis, Department of Geography, University of Winnipeg

The 1961 paper by Kenneth Watson and coworkers explored the concept of volatile compounds being thermodynamically stable in shadowed regions of the lunar surface, suggesting there could be accumulation. Based on these ideas, investigators of surficial lunar and mercurian volatiles have long speculated the existence of water, and recently began computing evaporation rates of other expected compounds in order to constrain likely deposit compositions.

This concept can be applied beyond the lunar and mercurian surfaces. We propose that the thermal gradient in the solar system will strongly dictate the composition of the refractory carbon species on planetary surfaces. The combination of sublimation rate, photochemical equilibrium, renewal from the subsurface, and introduction from impacts should dictate which carbon compounds are concentrated in the uppermost surfaces of asteroids, comets, and other volatile-rich bodies.

Reflectance spectroscopy has long been used to derive compositional information about planetary surfaces. Parameters accessible to investigation by reflectance spectroscopy include compound phase identification and chemical/structural characterization, particle diameter distributions, and quantitative end-member unmixing. This has made reflectance spectroscopy the most widely used experimental technique in planetary exploration. Here we show that the reflectance spectra of volatile-rich solar system bodies are consistent with expected thermodynamically stable carbon species.

11:15 – 11:45

Hyperspectral Imaging of Historical Objects

Douglas Goltz, Dept. of Chemistry, Richardson College for the Environmental and Science Complex, The University of Winnipeg

Hyperspectral and multispectral imaging allows the user capture both spatial and spectral information of an object. In this sense the information acquired is stored in a 3-dimensional image cube which allows the user further enhance the appearance of an image. For example, single wavelength or combinations of multiple wavelengths can be used to reveal text or images that are difficult to see visually under normal lighting conditions. Near infrared imaging can be particularly useful for examining underdrawings and finally statistical approaches can also be applied such as principal components analysis (PCA) to classify objects with common spectral features. In this presentation a number of examples of the applications of hyperspectral imaging will be discussed.

1:00-1:25

Transport Canada's Crude Oil Sampling and Analysis Campaign

Greg Sliva, Transport Canada, Government of Canada

Over the last couple years, as a Transport Canada Inspector I was involved in the collection of petroleum crude oil samples across the Prairie and Northern Region (PNR) of Canada destined for transport by rail and/or highway tank. Analysis of the samples was performed by Alberta Innovates Technologies in order for Transport Canada to: assess the compliance with classification requirements under Part 2 of the TDG regulations, determine if there are any additional hazards posed by crude oil that should be considered and verify that current regulations and means of containment standards ensure the safe transportation of petroleum crude oil.

9:00-9:25

How To Write An Annual Carbon Budget

David Grant, Manitoba Hydro (retired)

Using standard chemical engineering mass balance techniques to compare various ways to reduce GHG production. If we are to have a national discussion of what our low carbon future will be like, we should all use the same, long-proven tools. These tools are easy to understand, and allow the user to choose to reduce or increase any type of fossil fuel use. Need a 30% per person reduction in the total? Not want to cut this use? Then reduce that use by 45%. This talk will explain how to find the accurate data you need to do this.

2:00-2:25

Transfer of canola Near Infrared calibrations from FOSS NIRSystems 6500 to Bruker Matrix-I

Bert Siemens, Oilseeds Research, Grain Research Laboratory, Canadian Grain Commission, Government of Canada

Different calibration transfer methods from the NIRS6500 to Matrix were examined for analysis of canola. The methods examined included a direct transfer of a large library of spectra from the NIRS6500 with the option of including a small spectral data set from the Matrix. The constituents analyzed were oil, protein, glucosinolates, oleic acid, linolenic acid and iodine values. The evaluation of the transfer of calibrations were accomplished by using standard error of prediction (SEP), coefficient of determination (R2), slope and bias tested against an independent set of samples with a comparison to the original NIRS6500 results.

3:00-3:25

Faster, Safer, Easier Titration of Multiparameter Samples on a Single, High-Throughput System

Robert Le Blanc – Sales Representative – Metrohm Canada

What would you do with an extra hour of free time every day? Using traditional methods, improving sample turnaround times in the environmental lab can compromise accuracy. Systems configured to operate within the natural workflow of the lab create efficiency opportunities that can reduce error and improve accuracy. Efficiency is gained using simple, multiparameters analyzers to combine measurements and titrations into a single system. Hear how the new OMNIS platform from Metrohm cuts analysis times in half with sample-focused operations.

3:00-3:25

Synthesize, Optimize and Characterize with Autochem

George Kameka - Advance Instrument Sales Specialist – Mettler-Toledo

Autochem products (Easy Max & OptiMax for the Synthesis / Optimization and the REACt iR, FBRM & PVM for real time characterization.

EMBASSY C

8:45-9:10

Elemental Impurities in Pharmaceuticals and Nutraceuticals

Aaron Hineman - Product Specialist - PerkinElmer Canada

Information updates on ICH Q3D and USP are presented in this talk. It will present a brief overview of the USP and FDA relationship as well as historical information on USP Chapter . A summarization of USP will be presented along with the harmonization of USP and other international pharmacopoeias. The presentation will conclude with information on how to implement this methodology in your laboratory in a timely manner.

9:15-9:40

Heavy Metal Concentrations in Cosmetics by ICP-OES

Gerwaine Minerva, Karley Crackle, Czareanah Ventura, Stephanie Korchynski, Red River College, Winnipeg, Manitoba

Are the levels of mercury(Hg), lead(Pb), arsenic(As), and cadmium(Cd) in common cosmetic products above the safe levels as determined by Health Canada (Pb 10 ppm As, Cd, Hg 3 ppm)? An acid digestion with a mixture of nitric and hydrochloric acids was performed on a variety of 40 cosmetic products (eyeshadows, lipsticks, foundations, bronzers and blushes). The sample solutions were then analyzed on a Perkin-Elmer Optima 8000 ICP-OES instrument using peak height with detection limits for Hg 0.1 ppm, Cd 0.05 ppm, As 0.06 ppm, and Pb 0.05 ppm. Only one cosmetic sample had heavy metal concentrations below the safe levels. All of the other 39 cosmetic samples had at least one heavy metal above the safe levels.

9:45 – 10:15

CEM Microwave Sample Preparation for ICP Anal

Dan Alvarez - Sales Representative – CEM Corporation

Trace metals found in dietary supplements can be nutritionally beneficial, or highly toxic depending on the type of metal and its concentration. As the ingredients for supplements are sourced throughout the world it is important to be able accurately measure the metals in these products. The world leader in Microwave Sample Preparation (CEM) will discuss one tool to accurately and safely prepare samples for ICP Analysis, and show recovery data from ICP.

10:45 – 11:10

Microwave Digestion of Fish Oil Samples - Reducing the Risk of a Runaway Exothermic Sample

John Dykeman – North American Sales Manager – SCP SCIENCE

The digestion of fish oil, in a gel cap format, was done using a NovaWAVE microwave digestion system. During the digestion, the fatty acids of the fish oil may result in an exothermic reaction within the vessel leading to a loss of the sample. Several temperature profiles will be presented highlighting the effectiveness of the NovaWAVE system to reduce the risk an exothermic reaction (runaway sample). For each sample temperature is monitored and optimized in real-time by applying the correct microwave energy when needed. The flexibility of the NovaWAVE system, of digesting different samples in one rack, will also be discussed.

11:15 – 11:45

OXITEST – Oxidation Test Reactor for Determination of Oxidation Stability

Clayton Babcock – Technical Sales Representative - ATS Scientific

The chemical reactions occurring between oxygen and several sensitive components of foods are one of the most important causes of quality alteration of food products. The auto-oxidation of fats/lipids contained in foods is one of the main factors affecting their shelf life.

The OXITEST oxidative test reactor allows the user to rapidly obtain a sample oxidation curve from their product, characterized by an Induction Period. The Induction Period information be then used to estimate product freshness, shelf life, product reproducibility, packaging applicability and more.

2:00 – 2:25

FAQs in Chromatography Technical Support

Matt Clark – Technical Support Supervisor – Chromatographic Specialties Inc

Some of the most common HPLC and GC related questions we hear in technical support, and the common questions we ask in return. If you've ever wondered why you're asked what seem to be strange or simple questions about your chromatography problems – now's your chance to find out what we we're thinking!

3:00 – 3:25

Accurate and Precise Mass Determination of Intact Proteins by UPLC-ESI-HRMS

Ray Bacala, Wheat Enzymes, Asian Products and Analytical Services, Grain Research Laboratory, Canadian Grain Commission, Government of Canada

Liquid chromatography coupled with electrospray high resolution mass spectrometry (LC-ESI-HRMS) is capable of determining the mass of intact proteins with <2 Da (SD) mass precision and better than 0.01% mass accuracy. This presentation will illustrate the process of obtaining accurate and precise intact protein masses and obtaining cysteine content directly from mass measurements. This methodology has been applied to the analysis of high molecular weight glutenin subunit (HMWGS) variants in Canadian Breadwheat varieties led to the identification of previously unobserved and unexpected protein variants that likely would not have been detected by other methods.

Abstracts – Poster Session

Posters may be viewed throughout the day in the Vendor Exhibit Hall. Authors will be present during the afternoon coffee break to answer questions.

Posters that have been presented at a previous conference may have been published in that conference's Proceedings and may be subject to Copyright. Please refer to the original conference Proceedings for proper citation of these works.

P01: Determination of 25 mycotoxins in Western Canadian oats from 2014-2015 crop years using LC-ESI/MS/MS with fast polarity switching and scheduled MRMs
Richard Blagden, M. Roscoe and S.A Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: richard.blagden@grainscanada.gc.ca

P02: Determination of six major ergot alkaloids and their epimers in cereal grains using LC-MS/MS
Dainna Drul, M. Roscoe and S.A. Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: dainna.drul@grainscanada.gc.ca
Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P03: Analysis for Fusarium mycotoxins in single kernels of wheat
Don Gaba, J. Chan, W. Harnden, E. Thomas, J. Bamforth, M. Shahin and S.A. Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: don.gaba@grainscanada.gc.ca
Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P04: Analysis of mycotoxins in cereals using a simple extraction and LC-ESI/MS/MS with fast polarity switching and scheduled MRMs (multiple reaction monitoring)
Mike Roscoe, R. Blagden and S.A. Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: mike.roscoe@grainscanada.gc.ca
Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P05: Performance of grinders and dividers for preparing whole oats for mycotoxin analysis
J. Chan, W. Harnden, D. Bockru, Michael Tran, T. McMillan, D. Gaba and S.A. Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: michael.tran@grainscanada.gc.ca
Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P06: Application of biomolecular methods for the quantification of mildew damage and its causal agents in red spring wheat from Western Canada
Michael Tran, S.K. Patrick, J. Bamforth, M. Roscoe, S.A. Tittlemier and T. Gräfenhan
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: michael.tran@grainscanada.gc.ca
Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P07: An in vitro experiment to determine the levels of ochratoxin a produced under controlled temperature and moisture conditions in wheat kernels

Robert Trelka, R. Blagden, D. Drul, S.K. Patrick, M. Roscoe, T. Gräfenhan and S.A. Tittlemier
Grain Research Laboratory, Canadian Grain Commission, Canada.
Corresponding author: robert.trelka@grainscanada.gc.ca

Presented at: Joint meeting of the 9th conference of The World Mycotoxin Forum and the XIVth IUPAC International Symposium on Mycotoxins, Winnipeg, June 6-10, 2016

P08: Decrease in Cadmium levels in Canadian Western Amber Durum from 1995 to 2013

A. Richter, E. Gawalko, K. Jarrin, N. Pereira and S. Tittlemier
Grain Research Laboratory, Canadian Grain Commission
Corresponding author: anja.richter@grainscanada.gc.ca

Presented at: 2016 Winter Conference on Plasma Spectrochemistry, Tucson, Arizona, January 10-16,2016

P09: The Immunoregulatory function of N myristoyltransferase (NMT) during HIV infection.

Daniel Udenwobele , Ruey-Chyi Su , Anurrag Shrivastav,
Department of Biology, University of Winnipeg

Presented at: 2016 annual meeting of microbiology society held in liverpool, UK between March 21-24, 2016

P10: Analysis of Trimethylsilyl Derivatives of Cyanogenic Glycosides from Flaxseed (Linum usitatissimum) by GC/MS

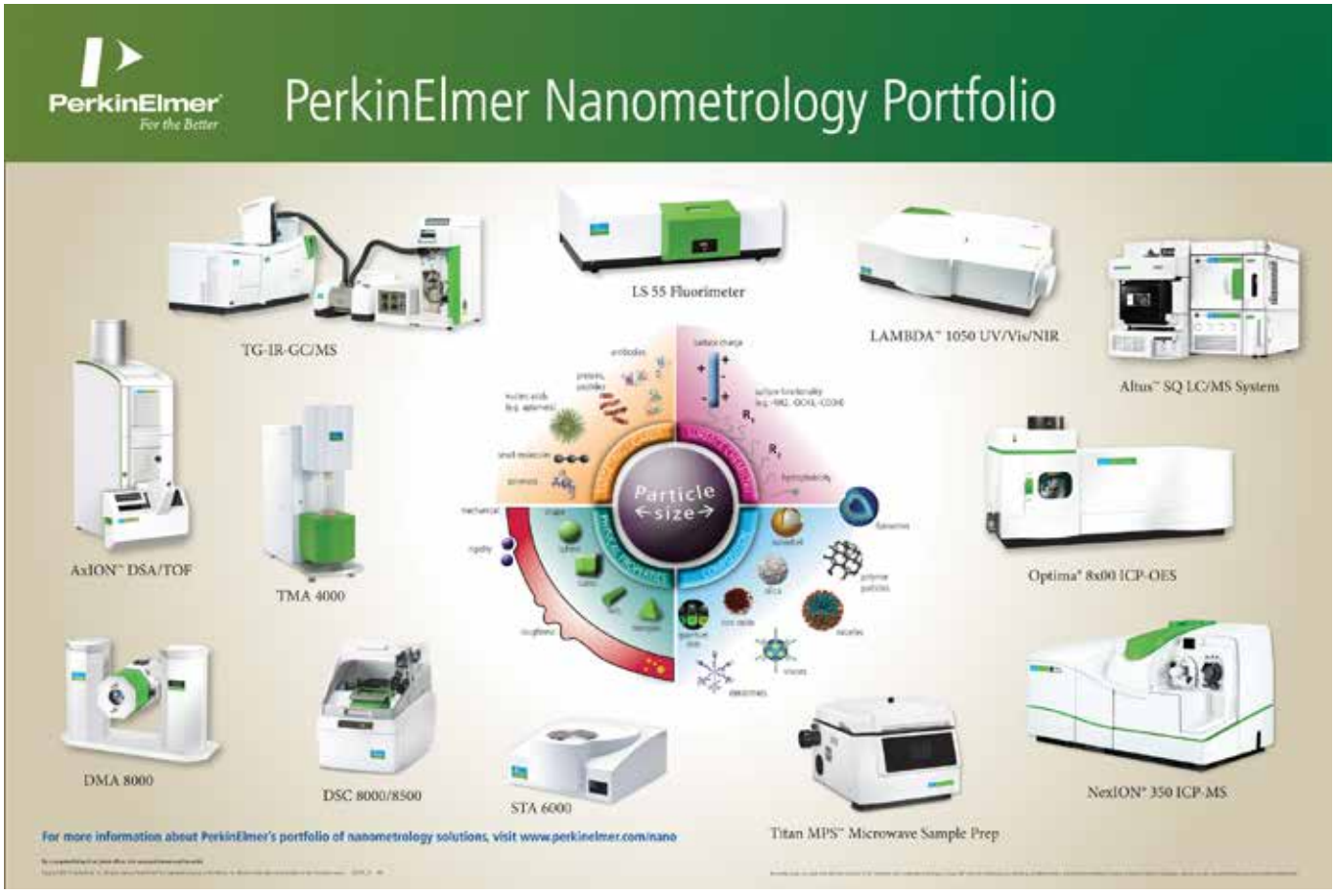
Tao Fan and Véronique J. Barthet
Grain Research Laboratory, Canadian Grain Commission

Presented at: 64th ASMS Annual Conference on Mass Spectrometry and Allied Topics from June, 5-9, 2016

P11: Using UHPLC-ESI-HRMS to detect small mass differences in high molecular weight glutenin subunits of wheat

Ray Bacala and Dave Hatcher
Grain Research Laboratory, Canadian Grain Commission

Presented at: 64th ASMS Annual Conference on Mass Spectrometry and Allied Topics from June, 5-9, 2016



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Instructor – Jane Weitzel Biosketch

Jane Weitzel has been working in analytical chemistry for over 35 years for mining and pharmaceutical companies with the last 5 years at the director/associate director level. She is currently a consultant, auditor, and Quality Assurance Person for a medical marihuana company. Jane has applied Quality Systems and statistical techniques, including the estimation and use of measurement uncertainty, in a wide variety of technical and scientific businesses. She has obtained the American Society for Quality Certification for both Quality Engineer and Quality Manager. For the 2010 – 2015 cycle, Jane is a member of the USP Reference Standards committee and Expert Panel on Method Validation and Verification. In 2014 she was pointed to the Chinese National Drug Reference Standards Committee and attended their inaugural meeting in Beijing.

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