



*The Scientific Association Dedicated to Analytical Excellence®*

# **AOAC INTERNATIONAL**

**OMB APPROVAL REQUEST**

**DOCUMENTS REVIEW**

**Thursday, August 17, 2017**

AOAC INTERNATIONAL  
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*The Scientific Association Dedicated to Analytical Excellence®*

## MEMORANDUM

**Date:** August 10, 2017

**To:** AOAC Official Methods Board

**From:** Deborah McKenzie, Standards Development, AOAC INTERNATIONAL

**Subject:** Proposal for ERP for SPIFAN MCPD Methods

AOAC is planning to convene an Expert Review Panel for SPIFAN MCPD Methods on Tuesday, September 26, 2017 during the AOAC Annual Meeting and Exposition in Atlanta, Georgia. The purpose of this meeting is to review submitted candidate methods received based on an issued Call for Methods. To date, no methods have been received. The deadline for submissions date is later this month.

In the meantime, there are eight candidates who were invited or have responded to an issued Call for Experts to serve on this expert review panel. In alphabetical order of last name, the candidates are as follows:

1. Stefan Ehling (Abbott Nutrition)
2. Jessica Leigh (US FDA)
3. Katerina (Kate) Mastovska (Covance Laboratories)
4. Salvatore Parisi (Industry Consultant)
5. Joe Romano (Waters Corporation)
6. Cheryl Stephenson (Eurofins)
7. Sudhakar Yadlapalli (First Source Laboratory Solutions)
8. Zhang Jie (Mead Johnson Nutrition)

Kate Mastovska is being recommended as chair of this ERP based on her subject matter expertise and as a member of the AOAC OMB and several AOAC ERPs, she knows the process. Dr. Mastovska is a member of AOAC INTERNATIONAL in good standing.

### **RECOMMENDATION:**

To consider the candidates in this proposal for the AOAC ERP for SPIFAN MCPD Methods with Kate Mastovska as chair of the ERP.

In the following pages are the CSO assessment and recommendation to OMB for each candidate; summaries of expertise for each candidate; balance of the candidate as a panel; and candidate CVs.

<b>Name</b>	<b>Organization</b>	<b>CSO Comments</b>	<b>Recommendation</b>
<b>Stefan Ehling</b>	Abbott Nutrition	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest.	Appoint to ERP.
<b>Jessica Leigh</b>	FDA	A well-qualified analytical chemist with direct experience with the analyte of interest.	Appoint to ERP.
<b>Katerina (Kate) Mastovska</b>	Covance Laboratories	A well-qualified analytical chemist with direct experience with the analyte of interest.	Appoint to ERP.
<b>Salvatore Parisi</b>	Independent (Industry Consultant)	A well-experienced analytical chemist. I did not see direct experience with the analyte of interest (in CV or statement of expertise), but he has participated in the MCPD working conference calls.	Appoint to ERP.
<b>Joe Romano</b>	Waters Corporation	A well-experienced analytical chemist. I did not see direct experience with the analyte of interest.	Appoint to ERP.
<b>Cheryl Stephenson</b>	Eurofins Central Analytical Laboratories	A well-qualified analytical chemist with direct experience with the analyte of interest.	Appoint to ERP.
<b>Sudhakar Yadlapalli</b>	First Source Laboratory Solutions	A well-experienced analytical chemist. I did not see direct experience with the analyte of interest, but well acquainted with AOAC processes.	Appoint to ERP.
<b>Zhang Jie</b>	Mead Johnson Nutrition	A well-qualified analytical chemist with direct experience with the analyte of interest.	Appoint to ERP.

**Table 1. CSO Assessment and Recommendation of Candidates for ERP**

## SUMMARIES OF CANDIDATES' EXPERTISE

### **KATERINA MASTOVSKA (Covance Laboratories)**

Dr. Katerina (Kate) Mastovska is an Associate Scientific Director at Covance Food Solutions, where she leads the Chemistry Solutions Global Research, Development and Innovation group. Prior to joining Covance Laboratories in 2009, she worked at the US Department of Agriculture (USDA) and served as an expert in the United Nations Food and Agricultural Organization (FAO) panel of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR).

Dr. Mastovska is a Fellow of AOAC INTERNATIONAL. Other activities include serving as a member of the AOAC Official Methods Board and a former co-chair of the AOAC Chemical Contaminant and Residues Community. She has also served as stakeholder panel working group chair for PDE5 Inhibitors and has served on numerous AOAC expert review panels. As an expert in MCPD and GE, she launched the SPIFAN working group for MCPD and GE during the AOAC Mid-Year meeting in 2017.

Dr. Mastovska has authored/co-authored more than 60 scientific publications (journal articles, book chapters, and monographs). She received her Ph.D. in Food Chemistry and Analysis from the Institute of Chemical Technology in Prague, Czech Republic.

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### **STEFAN EHLING (Abbott Nutrition)**

Expert on development and validation of GC/MS and LC/MS-based analytical methods for food contaminants.

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### **JESSICA LEIGH (US Food and Drug Administration)**

Over the last several years I have developed a method for the extraction and direct analysis (LC-MS/MS) of MCPD and glycidyl esters in infant formula and processed foods. In addition, I have participated in the EC collaborative study for the analysis of MCPD and glycidyl esters in oils and processed foods using pressurized liquid extraction and indirect (GC-MS) analysis. I have also worked with a number of researchers (in Canada and Europe) comparing extraction and analytical methods for the detection of these compounds. I have hands-on experience with a number of extraction techniques and both direct and indirect analysis of these contaminants.

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### **SALVATORE PARISI (Independent – Industry Consultant)**

My expertise and competencies include:

Analytical chemistry: metals, fertilizers (at present: AOAC ERP member for fertilizers), foods and beverages (in particular: preserved and fresh fish products, meat preparations, milk and dairy products, cheeses), food packaging materials and objects

Organic chemistry: polymers for industrial applications (in particular: plastic matters, packaging films, coatings, inks); metals for food and non-food packaging applications (metal cans)

Food Microbiology: Enterobacteriaceae, Coliforms, *E. coli*, *Salmonella*, *L. monocytogenes*, Yeasts, Moulds, Total Viable Count, *S. aureus*

Environmental Microbiology: *Legionella* spp

HACCP & Food-related matters: quality systems, HACCP, HARCP, food law (including the U.S. FSMA and PCQI qualification); food defects and critical failures, food packaging failures with HACCP implications

Food and environmental hygiene

Instrumental drug analyses (illegal drugs; drug abuse)

Editorial skills: at present, I am the Series Editor for SpringerBriefs in Chemistry of Foods

(<http://www.springer.com/series/11853>). I have published more than 120 papers and books on different arguments.

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### **JOE ROMANO (Waters Corporation)**

LC/MS/MS

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### **CHERYL STEPHENSON (Eurofins Central Analytical Laboratories)**

Method has been established in our laboratory and we are routinely testing oils as well as infant nutritionals using AOCS protocol as well as ASE extraction followed by AOCS protocol. Have extensive experience as a result regarding pitfalls and method issues. Our method has been validated and is currently within our ISO 17025

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accreditation scope.

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**SUDHAKAR YADLAPALLI (First Source Laboratory Solutions)**

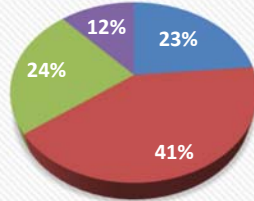
Contributed in various AOAC SPIFAN collaborative studies. Hands on experience on high end mass spectrometers and also sample preparative technology. Expertise in technology used to separate bound and unbound analytes in various food matrices. Working as a member of AOAC SPSFAM Allergens ERP

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**ZHANG JIE (Mead Johnson Nutrition)**

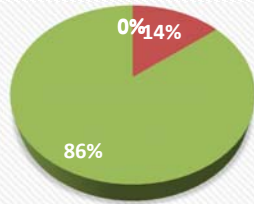
- Work in the area of food safety and analytical science in infant formula industry;
  - Ph.D. in Analytical Chemistry;
  - Good knowledge of different sample preparation and analytical techniques;
  - Proven experience in Infant formula analytical method development and validation (both nutrient and contaminant);
  - Experienced in risk assessment of 3-MCPD and GE in infant formula products, and mitigation of 3-MCPD and GE from supply chain;
  - Familiar with AOAC SPIFAN program;
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## Candidates' Expertise



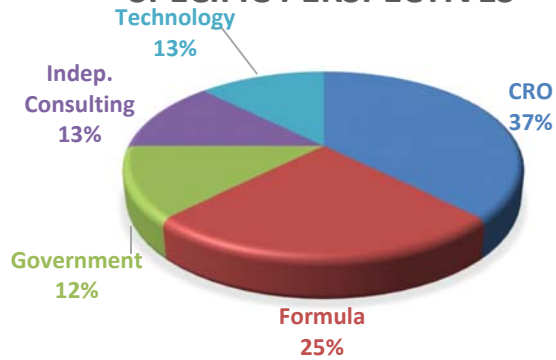
■ MCPD & GE      ■ Methods/Technology  
■ Food/Food Contaminants      ■ Infant Formula

## Broad Perspectives

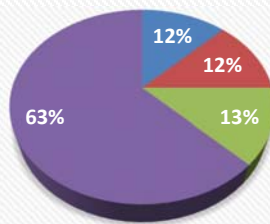


■ Academia      ■ Government      ■ Industry      ■ NGO

## SPECIFIC PERSPECTIVES



## Region



■ India      ■ Italy      ■ Singapore      ■ USA



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## MEMORANDUM

**Date:** August 10, 2017

**To:** AOAC Official Methods Board

**From:** Deborah McKenzie, Standards Development, AOAC INTERNATIONAL

**Subject:** Proposal for ERP for SPSFAM BPA Methods

AOAC is planning to convene an Expert Review Panel for SPSFAM BPA Methods on Tuesday, September 26, 2017 during the AOAC Annual Meeting and Exposition in Atlanta, Georgia. The purpose of this meeting is to review submitted candidate methods received based on an issued Call for Methods. To date, the following methods have been received.

- **BPA-01: 216\_005\_05 – Bisphenol A in Water: HPLC with Electrochemical Detection**
  - Author(s): Nico Reinbound
  - Submitted by: Nico Reinbound
  
- **BPA-02: Determination of free Bisphenol A in commercially packaged ready to consume carbonated/non-carbonated water and beverages by immunoaffinity purification and HPLC fluorescent detection**
  - Author(s): J. Liu, Z. Wu, H. Zhang, C. Xi, X. Wang, L. Chen, D. Toth
  - Submitted by: Darney Toth
  
- **BPA-03: Use of AFFINIMIP®SPE Bisphenols as clean up method for the determination of Bisphenol A from COLA drinks by Fluorescence detection**
  - Author(s): Kaynoush Naraghi, Sami Bayoudh, Michel Arotçaréna
  - Submitted by: Michel AROT CARENA
  
- **BPA-04: Determination of Bisphenol A (BPA) in Commercially Packaged Ready to Consume Carbonated and Non-Carbonated Water and Non-Alcoholic Beverages using LC-MS/MS**
  - Author(s): Siheng Li, Jeffrey Shippar, and Katerina Mastovska
  - Submitted by: Katerina Mastovska

In the meantime, there are twelve (12) candidates who were invited or have responded to an issued Call for Experts to serve on this expert review panel. In alphabetical order of last name, the candidates are as follows:

1. Luke Ackerman (US FDA CFSAN)
2. Xu-Liang Cao (Health Canada)
3. Mehmet Gumustas (Ankara University-Faculty of Pharmacy)
4. Siheng Li (Covance Laboratories)
5. Katerina Mastovska (Covance Laboratories)
6. Melissa Phillips (US NIST)
7. Tom Seipelt (Abbott Nutrition)
8. Kasi Somayajula (The Coca-Cola Company)
9. Darryl Sullivan (Covance Laboratories)
10. TAN Jing (Abbott Nutrition)
11. Tomasz Tuzimski (Medical University of Lublin)
12. Sudhakar Yadlapalli (First Source Laboratory Solutions)

A chair has not been recommended and any recommendation of the OMB is welcomed. The CSO has reviewed the submitted credentials of each candidate and his recommendations are included.

**RECOMMENDATION:**

To consider the candidates in this proposal for the AOAC ERP for SPSFAM BPA Methods.

To recommend a chair from the slate of approved ERP members

**ATTACHMENTS:**

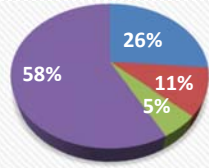
In the following pages are the assessment of the applicants by the CSO; perspectives of the overall ERP based on the applicants; and the summaries of expertise for each candidate with CVs thereafter.



**Table 1. CSO Assessment of Candidates for ERP**

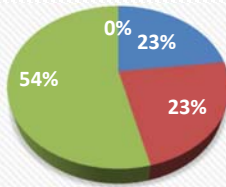
<b>Name</b>	<b>Organization</b>	<b>CSO Comments</b>
<b>Luke Ackerman</b>	US FDA CFSAN	A well-qualified analytical chemist with direct experience with the analyte of interest.
<b>Xu-Liang Cao</b>	Health Canada	A well-qualified analytical chemist with direct experience with the analyte of interest.
<b>Mehmet Gumustas</b>	Ankara University Faculty of Pharmacy	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest.
<b>Siheng Li</b>	Covance Laboratories	BPA and Technology <b>(NOT INCLUDED IN CSO REVIEW)</b>
<b>Katerina Mastovska</b>	Covance Laboratories	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest, but well-known to AOAC as a contributor to many method reviews.
<b>Melissa Phillips</b>	US NIST	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest, but well-known to AOAC as a contributor to many method reviews, and as a connection to NIST.
<b>Tom Seipelt</b>	Abbott Nutrition	A well-qualified analytical chemist with direct experience with the analyte of interest.
<b>Kasi Somayajula</b>	The Coca-Cola Company	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest.
<b>Darryl Sullivan</b>	Covance Laboratories	Food and Beverage; food contaminants; methods and technology <b>(NOT INCLUDED IN CSO REVIEW)</b>
<b>TAN Jing</b>	Abbott Nutrition	A well-qualified analytical chemist with direct experience with the analyte of interest.
<b>Tomasz Tuzimski</b>	Medical University of Lublin	A well-qualified analytical chemist with direct experience with the analyte of interest.
<b>Sudhakar Yadlapalli</b>	First Source Laboratory Solutions	A well-qualified analytical chemist. I did not see direct experience with the analyte of interest.

## Relative Expertise



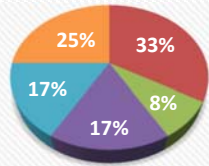
■ BPA ■ Food and Beverage ■ Food Contaminants ■ Methods/Technology

## Broad Perspectives



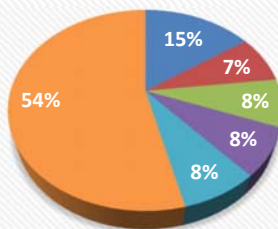
■ Academia ■ Government ■ Industry ■ Nongovernmental Orgs

## Specific Perspectives



■ CRO ■ Food and Beverage ■ Formula ■ Regulatory ■ Research

## Region



■ Canada ■ India ■ Poland ■ Singapore ■ Turkey ■ USA

## SUMMARIES OF CANDIDATES' EXPERTISE

### **ACKERMAN, LUKE – FDA**

I have developed and validated BPA methods for foods and beverages. I have used BPA methods to generate measurements of exposure and product specific data to support regulatory decision making and risk assessments for the US Food & Drug Administration. I have conducted reviews and commentary of the food-BPA literature. I have reviewed and selected methods for validation work, participated in method validation standard setting, and participated in, and developed reference materials for inter-laboratory proficiency testing. I have participated in multiple aspects of collaborative methods and standards setting.

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### **CAO, XU LIANG – HEALTH CANADA**

I have been working on method development for determination of BPA and other bisphenol analogues in foods since 2007, and applied the methods to investigate occurrence of the bisphenols in various foods and exposure assessment, which have been summarized in numerous publications. I am also one of the experts at the 2010 WHO/FAO meeting on BPA.

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### **GUMUSTAS, MEHMET - ANKARA UNIVERSITY FACULTY OF PHARMACY**

HPLC, Capillary electrophoresis, validation, chiral, electroanalytical.

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### **LI, SIHENG – COVANCE**

I'm the BPA analysis method developer in Covance Laboratories Inc. I have been working on this topic since January 2017. I developed a LC-MS/MS based method to determine BPA concentration in various food matrices. I have validated the method in commercially packaged non-alcoholic beverages, infant formula products and food simulating solvents with satisfactory accuracy and precision.

### **MASTOVSKA, KATERINA - COVANCE**

Advance knowledge and experience in the analysis of chemical residues and contaminants and various chromatographic and mass spectrometric techniques.

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### **PHILLIPS, MELISSA – NIST**

While not an expert in these particular areas (cannabis, BPA), I have extensive experience with method development and also with evaluation of analytical methods with respect to SMPRs for infant formula, foods, and dietary supplements.

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### **SEIPELT, TOM – ABBOTT NUTRITION**

Lab manager responsible for method development and routine testing of infant formula and adult nutritionals in support of BPA packaging mitigation. Managed packaging projects to eliminate the use of BPA in infant formula packaging. Participated in FAO/WHO stakeholder panel on BPA in 2010.

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### **SOMAYAJULA, KASI – THE COCA-COLA CO.**

I have been working in the area of trace level quantification in various matrices using LC/MS/MS and GC/MS/MS methods during my career.

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### **SULLIVAN, DARRYL – COVANCE**

Darryl Sullivan is a Fellow of AOAC and has been an active member since 1980. He has served terms as secretary, president-elect, president, past president, and director of the Board of Directors, and previously served a three-year term as chair of the Official Methods Board, and is currently serving as Chair of the AOAC Stakeholder Panel on Infant Formula and Adult Nutritionals. In 2012 Darryl lead a very successful AOAC engagement with government and industry thought leaders in India and China on behalf of SPIFAN. He is also active with the Stakeholder Panel for Strategic Food Analytical Methods and the Stakeholder Panel for Agent Detection Assays. Sullivan also served a three-year term as a director on the AOAC Research Institute Board of Directors. He was a founding member and chair of the Presidential Task Force on Dietary Supplements and a member of the Task Force on Bacillus anthracis, as well as the AOAC Task Force on Nutrition Labeling and the AOAC Task Force on Sulfites. Prior to chairing the OMB, he served as a member and chair of the Methods Committee on Commodity Foods and Commodity Products. Sullivan was a founding member of the AOAC Technical Division on Reference Materials and served three terms on the Division's Executive Board. He has also presented a significant number

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**TAN, JING – ABBOTT NUTRITION**

I have acquired strong knowledge and skill set on food contaminants analysis from my 13+ year of academic and industrial working experience. During my tenure in Abbott Nutrition, I have done various contaminants analyses including bisphenol A and I am well-versed in sample preparation and instrument analysis.

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**TUZIMSKI, TOMASZ – MEDICAL UNIVERSITY IN LUBLIN**

My scientific interest includes the theory and application of liquid chromatography, taking into considerations optimisation of chromatographic systems for separation and quantitative analysis of analytes in multicomponent mixtures of xenobiotics and unknown compounds residue in food, environmental and biological samples. The main of research interest during last four years (2013-2017) was to develop analytical methods for xenobiotics analysis in food products of plant and animal origin by high performance liquid chromatography (HPLC-DAD, HPLC-MS and/or HPLC-MS/MS). In order to accomplish this goal, optimization experiments were conducted for, both, the chromatographic conditions of separation and quantitative analysis, as well as sample preparation approach for efficient isolation of the analytes (eg., pesticides, 5-nitroimidazoles (NDZs), sulfonated azo dyes, drugs, bisphenol A and its metabolites) from different food samples and subsequent extract clean-up. Sample preparation procedures for the analysis of various commodities, including sunflower seeds, edible oils, milk, soya milk, wines, different beverages, candies and caviar/fish roe, were developed by the optimization of the conditions of analytes isolation from complex matrices and extracts clean-up. For that purpose, different extraction and clean-up techniques were used, mainly QuEChERS (quick, easy, cheap, effective, rugged and safe), ultrasound assisted extraction (UAE), solid-phase extraction (SPE), dispersive-SPE (d-SPE) and matrix solid-phase dispersion (MSPD).

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**SUDHAKAR YADLAPALLI - FIRST SOURCE LABORATORY SOLUTIONS**

Having knowledge and analytical experience in analysis of Bisphenol in water samples as per EPA. Contributed in collaborative study toward method to detect agricultural residues at sub –parts–per–billon levels in Soft drinks published as AOAC Official method 2007.08, First Action.

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## CURRICULUM VITAE

LUKE K. ACKERMAN, PhD

1. Educational Background:

- 1997-2001 Gonzaga University, Spokane, WA: BS Chemistry (ACS Certified)  
SPME/SFC method for detecting labile pesticides Advis: Dr. Joanne Smieja
- 2001-2007 Oregon State University, Corvallis, OR: Ph.D. Analytical Chemistry  
Analysis of Semi-Volatile Contaminants and Their Accumulation in Remote  
Aquatic Ecosystems of the Western U.S. Advis: Dr. Staci Massey-Simonich

2. Professional Experience:

- 2002-2007 Doctoral Researcher, Oregon State University, Department's of  
Chemistry and Environmental & Molecular Toxicology, Corvallis, OR
- 2007-2008 Post-Doctoral Fellow, FDA, Center for Food Safety and  
Applied Nutrition, College Park, MD
- 2008-2016 Chemist, FDA, Center for Food Safety & Applied Nutrition, College  
Park, MD
- 2016-present Research Analytical Chemist, FDA, Center for Food Safety & Applied  
Nutrition, College Park, MD

3. Publications:

A. Refereed Research Publications

1. H.Dion, **LK. Ackerman**, H.Hill. (2001) Initial study of electrospray ionization-  
ion mobility spectrometry for the detection of metal cations. *International  
Journal of Ion Mobility Spectrometry* 4(1): 31-33.
2. H.Dion, **LK. Ackerman**, H.Hill. (2002) Detection of inorganic ions from water  
by electrospray ionization-ion mobility spectrometry. *Talanta* 57(6):1161-'71.
3. **LK. Ackerman**, G.Wilson, S. Simonich. (2005) Quantitative Analysis of 39  
PBDEs by Isotope Dilution GC/Low-Resolution MS. *Analytical Chemistry*  
77(7):1979-1987.
4. **LK. Ackerman**, A.Schwindt, C.Schreck, M.Kent, D.Koch, S.Massey-Simonich,  
D.Landers. (2008) Atmospherically deposited PBDEs, pesticides, PCBs, and  
PAHs in Western US National Park fish: Concentrations and consumption  
guidelines. *Environmental Science & Technology* 42(7): 2334-2341.
5. A.Schwindt, **LK. Ackerman**, S.Simonich, T.Blett, C.Schreck, M.Kent, D.Landers.

- (2009) Reproductive Abnormalities in Fish from Western U.S. National Parks. *Global Transactions of the American Fisheries Society* 138:522-531.
6. D.Landers, S.Massey-Simonich, D.Jaffe, L.Geiser, D.Campbell, A.Schwindt, C.Schreck, M.Kent, W.Hafner, H.Taylor, K.Hageman, S.Usenko, **LK. Ackerman**, J.Schrlau, N.Rose, T.Blett, M.Erway (2010) The Western Airborne Contaminant Assessment Project (WACAP): An Interdisciplinary Evaluation of the Impacts of Airborne Contaminants in Western U.S. National Parks. *Environmental Science & Technology* 44(3):855-859.
  7. S.Genualdi, K.Hageman, **LK. Ackerman**, S.Usenko, S.M.Simonich. (2011) Sources and fate of chiral pesticides in western U.S. National Park ecosystems. *Environmental Toxicology and Chemistry* 30(7):1533-1538.
  8. **LK. Ackerman**, G. Noonan, T.Begley. (2009) Assessing direct analysis in real-time-mass spectrometry (DART-MS) for the rapid identification of additives in food packaging. *Food Additives & Contaminants: A* 26(12):1611 – 1618.
  9. **LK. Ackerman**, G. Noonan, W.Heiserman; J.Roach, W.Limm, T.Begley. (2010) Determination of Bisphenol A in U.S. Infant Formulas: Updated Methods and Concentrations. *Journal of Agricultural and Food Chemistry* 58(4):2307–2313.
  10. **LK. Ackerman**, G. Noonan, T.Begley, E.Mazzola. (2011) Accurate mass and nuclear magnetic resonance identification of bisphenolic can coating migrants and their interference with liquid chromatography/tandem mass spectrometric analysis of bisphenol A. *Rapid Communications in Mass Spectrometry* 25(9):1336–1342.
  11. G. Noonan, **LK. Ackerman**, T.Begley. (2011) Concentration of Bisphenol A in Highly Consumed Canned Foods on the U.S. Market. *Journal of Agricultural and Food Chemistry* 59 (13):7178–7185.
  12. **LK. Ackerman**, G. Noonan. (2011) Comment on “Bisphenol A (BPA) in U.S. Food. *Environmental Science & Technology* 45(8):3812–3813.
  13. K.Bentayeb, **LK. Ackerman**, T.Begley. (2012) Ambient Ionization–Accurate Mass Spectrometry (AMI-AMS) for the Identification of Nonvisible Set-off in Food-Contact Materials. *Journal of Agricultural and Food Chemistry* 60(8):1914–1920
  14. K.Bentayeb, **LK. Ackerman**, T.Lord, T.Begley. (2013) Non-visible print set-off of photoinitiators in food packaging: detection by ambient ionization mass spectrometry. *Food Additives & Contaminants: A* 30(4):750–759.
  15. GA. Newsome, **LK. Ackerman**, K.Johnson. (2014) Humidity Affects Relative Ion Abundance in DART Mass Spectrometry of Hexamethylene Triperoxide

Diamine. *Analytical Chemistry* 86 (24):11977–11980.

16. GA. Newsome, **LK. Ackerman**, K.Johnson. (2015) Humidity Effects on Fragmentation in Plasma-Based Ambient Ionization Sources. *Journal of American Society for Mass Spectrometry* 27 (1):135-143.
17. MA. Lago, **LK. Ackerman**. (2016) Identification of print related contaminants in food packaging. *Food Additives & Contaminants: A* 33 (3): 518–529.
18. B. Yakes, M. Bergana, P. Scholl, M. Mossoba, S. Karunathilaka, **LK. Ackerman**, J. Holton, B. Gao & J. Moore. (2017) Effects of Wet-Blending on Detection of Melamine in Spray-Dried Lactose. *Journal of Agricultural and Food Chemistry* (In Print).

B. Book Chapters, Reviews, Theses

1. Analysis of semi-volatile organic contaminants and their accumulation in remote aquatic ecosystems of the western US by **Ackerman, Luke K.** Ph.D., Oregon State University. (2007) 153 pages (Dissertation); <http://hdl.handle.net/1957/4592>

C. Other Publications

1. D.Landers, S.Simonich, D.Jaffe, L.Geiser, D.Campbell, A.Schwindt, C.Schreck, M.Kent, W.Hafner, H.Taylor, K.Hageman, S.Usenko, **LK. Ackerman**, J.Schrlau, N.Rose, T.Blett, M. Erway. (2008) The Fate, Transport and Ecological Impacts of Airborne Contaminants in Western National Parks. EPA/600/R-07/138. [www.nature.nps.gov/air/Studies/air\\_toxics/wacap.cfm](http://www.nature.nps.gov/air/Studies/air_toxics/wacap.cfm)

D. Presentations

1. **LK. Ackerman**, J.Smieja. Bis-arylimido Ruthenium Porphyrin Complexes; Synthesis and NMR Characterization, 9th M. J. Murdock Conference on Undergraduate Research; November 1999. McMinnville, OR.
2. **LK. Ackerman**, S.Simonich. Optimized Benchtop GC-MS Parameters for the Measurement of PBDEs. 24th Annual SETAC-NA, Nov 2003. San Antonio, TX.
3. **LK. Ackerman**, G.Wilson, S.Simonich. Polybrominated Diphenyl Ether Residue Analysis Method for Fish Tissues from Remote, High Elevation Ecosystems. 3rd International Workshop on Brominated Flame Retardants; June 2004. Toronto, ON.
4. A.Schwindt, C.Schreck, D.Landers, **LK. Ackerman**, J.Ramsay, S.Simonich, M.Kent. Do Airborne Contaminants Affect Fish in the Lakes of Western U.S. National Parks? 5th International Symposium on Fish Endocrinology, September 2004. Castellon, Spain.



5. **LK. Ackerman**, A.Schwindt, S.Simonich. Profiles of Semi-Volatile Pollutants in North American Alpine Fish. 4th World Congress of the Society of Environmental Toxicology & Chemistry, Nov 2004. Portland, OR.
6. A.Schwindt, **LK. Ackerman**, C.Schreck, D.Landers, S.Simonich, M.Kent. Evidence of Xenoestrogen Exposure in Fish from Rocky Mountain National Park, USA. 4th World Congress of the Society of Environmental Toxicology & Chemistry, Nov 2004. Portland, OR.
7. **LK. Ackerman**, G.Wilson, S.Simonich. Optimized GC/ Low Resolution Isotope Dilution MS for PBDE Analysis: Interferants, & Limitations. 7th Annual Workshop on Brominated Flame Retardants, June 2005. National Institute of Standards and Technology, Gaithersburg, MD.
8. **LK. Ackerman**, D.Koch, S.Simonich. Profiles and Levels of POPs and SOCs in Fish from Alpine Lakes of US National Parks. 25<sup>th</sup> International Symposium on Halogenated Environmental Organic Pollutants - DIOXIN, Aug 2005. Toronto, ON.
9. **LK. Ackerman**, D.Koch, S.Simonich. Benchtop GC-ECNI-IDMS Analysis of PBDEs in Fish from Remote Mountain Lakes: Effects of Ion Source Parameters and Br Substitution Patterns. 54th American Society for Mass Spectrometry Conference; May, 2006. Seattle, WA.
10. A.Schwindt, **LK. Ackerman**, C.Schreck, D.Landers, S.Simonich, M.Kent. Evidence of Xenoestrogen Exposure in Fish from Rocky Mountain National Park, USA. 4th World Congress of the Society of Environmental Toxicology & Chemistry, Nov 2004. Portland, OR.
11. D.Landers, T.Blett, D.Campbell, S.Simonich, **LK. Ackerman**, M.Erway, L.Geiser, K.Hageman, B.Rice, A.Schwindt, S.Usenko. Impacts of Historic and Current-Use Chemicals in Western National Parks. US National Park Service Science Symposium, Sep 2006. Denali NP, AK.
12. **LK. Ackerman**, S.Usenko, K.Hageman, D.Campbell, D.Landers, S.Simonich. PBTs in high places: Modeling Fate of PBTs in Western US National Parks. Persistent Bioaccumulative & Toxics Symposia, ACS Fall Conference, Sep 2006. San Francisco, CA.
13. S.Simonich, **LK. Ackerman**, H.Taylor, K.Hageman, S.Usenko, J.Schrlau, D.Campbell, L.Geiser, A.Schwindt, M.Kent, C.Schreck, D.Jaffe, M.Erway, D.Landers, T.Blett. Contaminants Present in Western National Parks. George Wright Symposium, April 2007. St. Paul, MN.
14. D.Jaffe, W.Hafner, **LK. Ackerman**, K.Hageman, S.Usenko, D.Campbell, L.Geiser, A.Schwindt, M.Kent, C.Schreck, M.Erway, S.Simonich, D.Landers. Spatial and



temporal distribution of contaminants in Western National Parks. George Wright Symposium, April 2007. St. Paul, MN.

15. **LK. Ackerman**, G. Noonan, T.Begley. Optimizing DART-MS Sampling for Quadrupole MS Analysis: Food Contaminants. 56th American Society for Mass Spectrometry Conference; June, 2008. Denver, CO.
16. G. Noonan, **LK. Ackerman**, T.Begley. Identification of fluorochemical paper coatings and characterization of packaging by LC-MS/MS and DART-MS. 56th American Society for Mass Spectrometry Conference; June, 2008. Denver, CO.
17. **LK. Ackerman**. Contaminants in Fish: Human and wildlife health thresholds and ecosystem linkages in California Sierra Nevadas. Sierra Nevada Southern Cascades Contaminants (SNSCC) Workshop, June, 2008. Sequoia Nat.Park, CA.
18. **LK. Ackerman**, G. Noonan, T.Begley. Rapid identification of additives in food contact materials using DART-MS. 4th International Life Sciences Institute Symposium on Food Packaging, Nov 2008. Prague, Czech Republic.
19. **LK. Ackerman**, G. Noonan, T.Begley, C.Simoneau; M.Suman. DART-MS/MS Analysis of Foamed PVC Jar Lids. 57th American Society for Mass Spectrometry Conference, May, 2009. Philadelphia, PA.
20. **LK. Ackerman**, G.Noonan, J.Roach, P.Delamonte, E.Mazzola T.Begley. Mass Spectrometric Investigations of Bisphenol A and Other Migrants in Canned Food. 58th American Society for Mass Spectrometry Conference, May, 2010. Salt Lake, UT.
21. K.Bentayeb **LK. Ackerman**, T.Begley, J.Callahan. Ambient Ionization High Resolution Mass Spectrometry to determine non-visible set-off in food contact materials. 59th American Society for Mass Spectrometry Conference, June, 2011. Denver, CO.
22. **LK. Ackerman**, G.Noonan, T.Begley. Bisphenolic can coating migrants interfering with BPA: Accurate mass/NMR identification and levels in canned food. 59th American Society for Mass Spectrometry Conference, June, 2011. Denver, CO.
23. **LK. Ackerman**, K.Bentayeb, T.Begley. Identifying Contaminants/Components on Food Contact Materials. National Print Ink Research Institute Technical Conference, October, 2011. Itasca, IL.
24. **LK. Ackerman**. Assessing DART-MS for the Rapid Screening of Phthalates in Food Contact Polymers. US Consumer Product Safety Commission Phthalate Testing Symposium, March, 2012. Gaithersburg, MD.
25. **LK. Ackerman**. DART-MS off Food Contact Polymers. 60th American Society for Mass Spectrometry Polymer Workshop, May, 2012. Vancouver, BC.

26. **LK. Ackerman**, K.Bentayeb, T.Begley. Ambient Ionization Mass Spectrometry to Identify Unknowns and Contaminated Polymeric Packages. 60th American Society for Mass Spectrometry, May, 2012. Vancouver, BC.
  27. **LK. Ackerman**, K.Bentayeb, T.Begley. Detecting print contamination of food contact surfaces by ambient ionization- mass spectrometry. 4th International Life Sciences Institute Symposium on Food Packaging, Nov 2012. Berlin, DEU.
  28. **LK. Ackerman**, K.Bentayeb, T.Begley. Screening a Large Food Safety Sample Set for Contaminants by DART-MS; Limitations & Advantages. 61st American Society for Mass Spectrometry, June, 2013. Minneapolis, MN.
  29. **LK. Ackerman**, K.Bentayeb, T.Begley. False or not: Direct mass spectrometric screening for food contaminants. ACS & IUPAC Food & Agricultural Chemistry Conference, August, 2014. San Francisco, CA.
  30. R.Shah, **LK. Ackerman**. Direct-Mass Spectrometry to Rapidly Screen Foods for Sweeteners. Pittsburgh Conference on Applied Analytical Chemistry, March, 2015. New Orleans, LA.
  31. **LK. Ackerman**. Direct Mass Spectrometry Screening for Food Contaminants. Pittsburgh Conference on Applied Analytical Chemistry, March, 2015. New Orleans, LA.
  32. **LK. Ackerman**, R.Shah. Screening Beverages for Added Sweeteners: DART-HRMS and LC-MS/MS. 64th American Society for Mass Spectrometry Conference, June 2016, SanAntonio, TX.
  33. **LK. Ackerman**, M.Lago. Identification of Novel Print-Related Substances on Flexible Packaging. 5th International Life Sciences Institute Symposium on Food Packaging, Nov 2016. Barcelona, Spain.
  34. **LK. Ackerman**. LC-MS/MS and DART-HRMS Screening of Beverages for Sweeteners. 65th American Society for Mass Spectrometry Conf., June 2017, Indianapolis, IN.
  35. **LK. Ackerman**, M.Lago. Novel Printing Substances on Polymeric Packaging. 65th American Society for Mass Spectrometry Conf., June 2017, Indianapolis, IN.
4. Honors and Awards:
- |            |   |
|------------|---|
| 1997-1999  | Gonzaga University Honors Program, Merit Scholarship  |
| 2000       | Undergraduate Research Fellowship -National Science Foundation Integrative Graduate Environmental Research Training (NSF-IGERT) |
| 2002,03,04 | Student Travel Award - Society for Environmental Toxicology And Chemistry (SETAC)   |

- 2005 Best Student Presentation - SETAC
- 2006 Environmental Chemistry Certificate of Merit – ACS
- 2006 Student Conference Award - American Society for Mass Spectrometry (ASMS)
- 2008 Commissioner’s Special Citation: Rapid Melamine-Protein Adulteration Method & Response
- 2010 FDA Excellence in Analytical Science Award - BPA Method Development and Research
- 2010 CFSAN Exceptional Achievement Award - BPA Research in Response to Science Review Board Concerns
- 2011 USEPA Scientific & Technological Achievement Award – Research Publication
- 2009-14 FDA Performance Award
- 2016 FDA Peer review promotion to Research Analytical Chemist

5. Special Invitations:

- (1) Invited speaker, 7th Annual Workshop on Brominated Flame Retardants, National Institute of Standards and Technology, Gaithersburg, MD, June
- (2) Invited speaker, 25th International Symposium on Halogenated Environmental Organic Pollutants – DIOXIN, Toronto, ON, 8/2005
- (3) Invited speaker, Persistent Bioaccumulative & Toxics Symposia, ACS Fall Conference, San Francisco, CA, 9/2006
- (4) Invited speaker, Sierra Nevada Southern Cascades Contaminants (SNSCC) Workshop, Sequoia National Park, CA, 4/2008
- (5) Invited speaker, 4th International Symposium on Food Packaging; International Life Sciences Institute (ILSI), Prague, Czech Republic; 11/2008
- (6) Invited to speak, National Printing Ink Research Institute Technical Conference, Itasca, IL, 10/2011.
- (7) Invited speaker, US Consumer Product Safety Committee Symposium on Phthalate Testing, Rockville, MD, 3/2012
- (8) Invited speaker, American Society for Mass Spectrometry Polymer MS Workshop, Vancouver, BC, 5/2012
- (9) Invited grant reviewer, Technology Foundation STW, Netherlands Organization for Scientific Research (NWO), Utrecht, NL; 2/2013
- (10) Invited grant reviewer, EU Horizon-2020 Future & Emerging Technologies Grant Program (EC-REA), 2015-present
- (11) Invited speaker, American Society for Mass Spectrometry Polymer MS Workshop San Antonio TX, 6/2016

6. Licenses and Certifications:

2013-present Federal Acquisitions, Contract Officer's Representative –I

7. Membership in Professional or Honorary Societies:

1999-present American Chemical Society (ACS)

2001-2008 National Chemistry Honor Society, Gamma Sigma Epsilon

2002-2008 Society for Environmental Toxicology And Chemistry (SETAC)

2002-present Analytical Chemistry Division, ACS

2002-2008 Environmental Chemistry Division, ACS

2006-present Agricultural & Food Chemistry Division, ACS

2006-present American Society for Mass Spectrometry (ASMS)

8. Offices, Committee Assignments or Special Assignments Held in Professional and Honorary Societies:

2012 Chaired the session "Food Safety: Advances in MS for Characterization of Additives and Contaminants" at the American Society for Mass Spectrometry 61<sup>st</sup> Annual Conference, May 24<sup>th</sup>, Vancouver, BC.

2013 Chaired the session "Polymer- and Packaging-Related Contaminants and Degradants in Food, Drugs, and Consumer Products" at the American Society for Mass Spectrometry 61<sup>st</sup> Annual Conference, June 13<sup>th</sup>, Minneapolis, MN.

9. Participation in National/International Scientific Meetings, Technical Conferences, Workshops, Seminars etc.:

2003 Poster, at 24th Annual SETAC-North America Meeting; Austin, TX

2004 Poster, at 3rd International Workshop on Brominated Flame Retardants. Toronto, ON, June.

2004 Poster, at 4th World Congress, Society of Environmental Toxicology and Chemistry (SETAC), Portland, OR, November.

2005 Talk, at 7th Annual Workshop on Brominated Flame Retardants, National Institute of Standards and Technology, Gaithersburg, MD, June.

2005 Talk, at 25th International Symposium on Halogenated Organic Pollutants – DIOXIN, Toronto, ON, August.

2006 Talk, at the 54th American Society for Mass Spectrometry Conference; Seattle, WA, May.

- 2006 Talk, at the Persistent Bioaccumulative & Toxics Symposia, American Chemical Society Fall Conference, San Francisco, CA, September.
- 2008 Poster, at the 56th American Society for Mass Spectrometry Conference, Denver, CO, June.
- 2008 Talk, at the Sierra Nevada/Southern Cascades Contaminants (SNSCC) Workshop, Sequoia National Park, CA, April.
- 2008 Talk, at the 4th International Symposium on Food Packaging, (ILSI), Prague, Czech Republic, November.
- 2009 Poster, at the 57th American Society for Mass Spectrometry Conference, Philadelphia, PA, June.
- 2010 Poster, 58th American Society for Mass Spectrometry Conf., SLC, UT, May.
- 2010-present Poster, at the FDA Foods and Veterinary Medicine Science and Research Conference, White Oak, MD, July/August.
- 2011 Presented two posters at the 59th American Society for Mass Spectrometry Conference, Salt Lake City, UT, June.
- 2012 Talk, at the US Consumer Product Safety Committee Phthalate Testing Symposium. Rockville, MD, March.
- 2012 Chaired a session, Talk, and poster at the 60th American Society for Mass Spectrometry Conference, Vancouver, BC, May.
- 2013 Chaired a session, Talk, at the 61st American Society for Mass Spectrometry Conference, Minneapolis, MN, June.
- 2014 Attended the American Society for Testing of Materials (ASTM) F02 Flexible & Barrier Packaging Committee meeting, East Lansing, MI, April.
- 2014 Attended the 62nd American Society for Mass Spectrometry Conference, Baltimore, MD, June.
- 2014 Talk, at the American Chemical Society & International Union of Pure and Applied Chemists' Food & Agricultural Chemistry Conference, San Francisco, CA, August.
- 2015 Talk, at the Pittsburgh Conference of Applied Analytical Chemistry, New Orleans, LA, March.
- 2016 Poster 64th American Society for Mass Spectrometry Conference, San Antonio, June.
- 2016 Attended the American Society for Testing of Materials (ASTM) Conference on Detection Limits, Raleigh, NC, September.
- 2016 Poster, 6th International Symposium on Food Packaging, (ILSI), Barcelona, Spain, November.
- 2017 3 Posters, 65th American Society for Mass Spectrometry Conference, Indianapolis, June.

10. Outside Professional Advisory and Consulting Activities:

- 2006-present Invited Reviewer for following journals: Analytical & Bioanalytical Chemistry(ABC); Analytical Chimica Acta(ACA); Analytical Methods; Central European Journal of Chemistry; Dyes & Pigments; Environmental Science & Technology(ES&T); ES&T Letters; Environmental Science and Pollution Research (ESPR), Environmental Toxicology and Chemistry(ET&C); Food Additives & Contaminants; Journals of: Agricultural and Food Chemistry (J AFC), AOAC, American Society for Mass Spectrometry (JASMS), American Water Resources Association(JAWRA), Food Science, Polymer Degradation and Stability, Packaging Technology and Science, Rapid Communications in Mass Spectrometry(RCMS); and Science of the Total Environment.
- 2008 Invited to address state, local & federal agencies/parties regarding implications of Western US fish contaminants/pollutants.
- 2009 Invited to participate in FAPAS BPA infant formula RM validation.
- 2010 Asked to review Maryland state Department of Health Laboratory methods for BPA measurements.
- 2011 Invited to provide DART-MS Analysis of experimental food packaging samples for UK-FSA/PIRA research project.
- 2012 Invited to speak with multiple CPSC stakeholders regarding Ambient Ionization MS methods for phthalate analysis.
- 2013 Invited to review grant proposals on ambient mass spectrometry technology transfer (STL) for Netherlands Organization for Scientific Research (NWO).
- 2013 Review BPA exposure pathways, methods for foods, and food contact materials for Maine Centers for Disease Control.
- 2013 Invited to review Ambient Ionization methods for food contact polymer analysis at ASMS Polymer MS workgroup.
- 2014 Asked to comment on proposed ASTM phthalate identification method standard.
- 2015-present Invited & reviewed EU Horizon 2020 Future & Emerging Technology Grant program proposals.

11. FDA Special Assignments and Advisory Activities:

- 2008-2013 Conducted research to develop and validate BPA methods, fill knowledge gaps of BPA diet and exposure sources in support of quantitative risk assessment and answer Science Board questions.

- 2010 Consulted on Gulf Oil Spill seafood contaminant methods, specifically PAH methods; identified NOAA validated methods, co-ordinated method transfer to ORA. Reviewed analytical packages.
- 2010-2011 Supervised, trained, collaborated and published with Post-Doctoral candidate Karim Bentayeb from Univ. Zaragoza, Spain.
- 2011-2012 Conducted investigation into packaging sources and identity of phthalates in food/packaging during economic adulteration/ /import-alert incident. Avoided unsupported regulatory action.
- 2011-2012 Conducted research to establish that DART-MS is not the best analytical tool for regulatory enforcement of phthalate residues.
- 2013-present Invited to help teach ORA laboratory course on Advanced Mass Spectrometry
- 2013-2014 Advised/draft Method Validation Requirement guidelines, consulted & advised High Resolution Accurate Mass Identification Criteria Guidelines.
- 2013 Consulted with ORA-PHL and KAN on developing direct-MS screening methods for pharmaceutical and supplements
- 2013 Assisted review of analytical phthalate method for ASTM standards committee vote.
- 2013 Assisted OFAS in reviewing BPA diet literature for quality/completeness to support updated exposure assessment.
- 2014 Requested to, trained for, and was granted Contracting Officers Representative (COR) Level-1 certification (Fed. Acquis. Inst.).
- 2014 Proposed research for, supervised, trained, conducted traineeship and published with graduate student Miguel Lago from the University Santiago De Compostella, Spain.
- 2014 Assisted review of diagnostic phthalate method for ASTM standards committee vote.
- 2014 Assisted review of literature for CFSAN BPA Working Group.
- 2014-present Requested and conducted In-depth promotion and cyclic reviews.
- 2016 Assisted review of Honey authenticity analytical packages, literature.
- 2016-present Co-development of honey authenticity reference materials and multi-lab/multi-method proficiency testing experiment.



# Curriculum Vitae : Xu-Liang Cao, Ph.D.

## ADDRESS

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## EDUCATION

1990 – 1993 Ph.D. in Environmental Analytical Organic Chemistry; [Lancaster University](#),  
1989 – 1990 M.Phil. in Environmental Analytical Organic Chemistry; [Brunel University](#),  
U.K.  
1986 – 1988 Postgraduate program in Environmental Science, [Harbin Institute of  
Technology](#), P.R. China.  
1980 – 1984 B.Sc. in Analytical Chemistry; Shandong Institute of Building Material  
Industry, P.R. China.

## EMPLOYMENT EXPERIENCE

2006 – present Research Scientist, Food Research Division, Health Canada,  
Ottawa  
2001 – 2006 Chemist, Food Research Division, Health Canada, Ottawa  
1995 – 2001 Analytical Chemist/NSERC Visiting Research Fellow, Health  
Canada, Ottawa  
1994 – 1995 Postdoctoral Research Associate, Lancaster University, Lancaster,  
U.K  
1984 – 1986 Analytical Chemist, Heilongjiang Fishery Research Institute,  
Harbin, P.R. China

## PROFESSIONAL ACTIVITIES

- Member of AOAC International, 2002 –
- Member of Health Canada Laboratory Task Group for the JEPC sub-Committee on Chemical Emergencies, 2005 – 2010
- Member of CFIA (Canadian Food Inspection Agency) Chemical Hazards Working Group, 2009 –
- Reviewer for proposals on Health Canada CMP (chemical management plan) research on bisphenol A, 2008
- Reviewer for the Natural Science and Engineering Research Council (NSERC) visiting fellowship applications, 2008 –
- Expert invited by FAO/WHO to attend the Expert Meeting on Bisphenol A held in Ottawa, Canada, on 1 – 5 November 2010



- Reviewer of manuscripts for various journals:

<i>Analytica Chimica Acta</i>	<i>Journal of Chromatography A</i>
<i>Analytical Sciences</i>	<i>Journal of Agricultural and Food Chemistry</i>
<i>Journal of Food Science</i>	<i>Food Additives and Contaminants</i>
<i>International Journal of Environmental Analytical Chemistry</i>	<i>Archives of Environmental Contamination Toxicology</i>
<i>Food Chemistry</i>	<i>Journal of AOAC International</i>
<i>Journal of Food Processing &amp; Technology</i>	<i>Journal of Liquid Chromatography and Related Techniques</i>
<i>Talanta</i>	<i>Science of the Total Environment</i>
<i>Methods</i>	<i>Journal of Toxicological Science</i>
<i>Marine Pollution Bulletin</i>	<i>Environment International</i>
<i>Environmental Research</i>	<i>Analytical Chemistry</i>
<i>Food and Chemical Toxicology</i>	<i>Trends in Analytical Chemistry</i>
<i>Environmental Health Perspectives</i>	<i>Food Research International</i>
<i>Analytical and Bioanalytical Chemistry</i>	<i>Analytical Methods</i>
<i>Environmental Science &amp; Technology</i>	

## **AREAS OF RESEARCH INTEREST**

Research focuses on identification and determination of food packaging organic chemicals (e.g., phthalates, bisphenol A) and other volatile organic chemical contaminants occurring in the Canadian food supply in order to determine human exposure to these chemicals. Major activities are the development of methods of analysis for such chemicals in various food samples, conduct of targeted surveys (e.g., benzene in soft drinks, bisphenol A in canned liquid infant formula, canned soft drinks and other canned foods) and analysis of samples from the national surveys (e.g., the Total Diet Study, human milk survey) to determine the levels of these chemicals in foods, and migration studies of organic chemicals (e.g., phthalates, bisphenol A) from food packaging materials into foods. Gas chromatograph-mass spectrometer (GC-MS) and high performance liquid chromatography (HPLC) are used for analysis following sample extractions with various techniques (e.g., solvent extraction, solid phase extraction, solid-phase microextraction (SPME), headspace).

## **LIST OF PUBLICATIONS**

### **Refereed Journals and Book Chapters**

#### **1991**

1. **Cao, X.-L.**; Colenutt, B.A.; Sing, K.S.W. (1991) Study of microporous carbons by gas chromatographic determination of heats of physisorption. *Journal of Chromatography*, **555**, 183-190. [10]
2. **Cao, X.-L.** (1991) Determination of specific retention volumes at 20°C for hydrocarbons on microporous carbons. *Journal of Chromatography*, **586**, 161-165. [15]
3. **Cao, X.-L.** (1991) Determination of primary and secondary micropore volumes for microporous carbons. *Chemistry & Industry (London)*, 7 Oct. 1991, pp.729-730. [0]
4. **Cao, X.-L.**; Hewitt, C.N. (1991) Application of passive samplers to the monitoring of low concentration organic vapours in indoor and ambient air: a review. *Environment Technology*, **12**, 1055-1062. [38]

#### **1992**

5. **Cao, X.-L.**; Hewitt, C.N. (1992) Trapping efficiencies of capillary cold traps for C<sub>2</sub>-C<sub>10</sub> hydrocarbons. *Journal of Chromatography*, **627**, 219-226. [20]

#### **1993**

6. **Cao, X.-L.**; Hewitt, C.N. (1993) Evaluation of Tenax-GR adsorbent for the passive sampling of volatile organic compounds at low concentrations. *Atmospheric Environment*, **27A**, 1865-1872. [41]
7. **Cao, X.-L.**; Hewitt, C.N. (1993) Thermal desorption efficiencies for different adsorbate/adsorbent systems typically used in air monitoring programmes. *Chemosphere*, **27**, 695-705. [57]
8. **Cao, X.-L.**; Hewitt, C.N. (1993) Passive sampling and gas chromatographic determination of low concentrations of reactive hydrocarbons in ambient air with reduction gas detector. *Journal of Chromatography*, **648**, 191-197. [16]
9. Wei, C.-H.; **Cao, X.-L.** (1993) Adsorption and catalytic oxidation processes of cyanide solutions and acid-washed activated carbon. *Carbon*, **31**, 1319-1324. [7]

#### **1994**

10. **Cao, X.-L.**; Hewitt, C.N. (1994) Study of the degradation by ozone of adsorbents and of hydrocarbons adsorbed during the passive sampling of air. *Environmental Science and Technology*, **28**, 757-762. [54]
11. **Cao, X.-L.**; Hewitt, C.N.; Waterhouse, K.S. (1994) Determination of reactive hydrocarbons by capillary gas chromatography with the reduction gas detector. *Journal of Chromatography*, **679**, 115-121. [6]
12. **Cao, X.-L.**; Hewitt, C.N. (1994) An exposure system for the calibration of passive samplers to volatile organic compounds at low (ppbv) concentrations. *Journal of Air and Waste Management Association*, **44**, 1299-1302. [4]

13. **Cao, X.-L.**; Hewitt, C.N. (1994) Build-up of artifacts on adsorbents during storage and its effect on passive sampling and gas chromatography-flame ionization detection of low concentrations of volatile organic compounds in air. *Journal of Chromatography*, **688**, 368-374. [53]

## 1995

14. **Cao, X.-L.**; Hewitt, C.N.; Waterhouse, K.S. (1995) Study of the responses of gas chromatography-reduction gas detector system to gaseous hydrocarbons under different conditions. *Analytica Chimica Acta*, **300**, 193-200. [4]
15. **Cao, X.-L.**; Hewitt, C.N. (1995) Gas chromatographic determination of volatile alkenes with on-column bromination and electron-capture detection. *Journal of Chromatography*, **690**, 187-195. [7]
16. **Cao, X.-L.**; Hewitt, C.N. (1995) Detection methods for the analysis of biogenic non-methane hydrocarbons in air: a review. *Journal of Chromatography*, **710**, 39-50. [18]
17. Hewitt, C.N.; **Cao, X.-L.**; Boissard, C.; Duckham, S.C. (1995) Atmospheric VOCs from Natural Sources, *Volatile Organic Compounds in the Atmosphere*, Ed. RE Hester & RM Harrison, Royal Society of Chemistry, London, 1995, pp.17-36. [4]

## 1997

18. **Cao, X.-L.**; Boissard, C.; Juan, A.J.; Hewitt, C.N.; Gallagher, M. (1997) Biogenic emissions of volatile organic compounds from gorse (*Ulex Europaeus*): Diurnal emission fluxes at Kelling Heath, England. *Journal of Geophysical Research*, **102**, 18903-18915. [16]

## 1998

19. Otson, R.; **Cao, X.-L.** (1998) Evaluation of a small prototype passive sampler for airborne volatile organic compounds. *Journal of Chromatography*, **802**, 307-314. [11]

## 1999

20. **Cao, X.-L.**; Hewitt, C.N. (1999) The sampling and analysis of VOCs in the atmosphere, *Reactive Hydrocarbons in the Atmosphere*, Ed. C.N. Hewitt, Academic Press, pp. 119-157. [9]

## 2001

21. Boissard, C.; **Cao X.-L.**; Juan, C.-Y.; Hewitt, C.N.; Gallagher, M. (2001) Seasonal variations in VOC emission rates from gorse (*Ulex europaeus*). *Atmospheric Environment*, **35** (5), 917-927. [26]
22. **Cao, X.-L.**; Zhu, J. (2001) Monitoring methods for airborne glymes and its application in fuel exhaust emission measurement. *Chemosphere*, **45**, 911-917. [4]
23. Zhu, J.; **Cao, X.-L.**; Beauchamp, R. (2001) Determination of 2-butoxyethanol emissions from selected consumer products and its application in assessment of inhalation exposure associated with cleaning tasks. *Environment International*, **26**, 589-597. [65]

## 2002

24. Zhu, J.; Aikawa, B.; **Cao, X.-L.** (2002) Analysis of low molecular weight airborne carbonyl compounds in diesel engine exhaust gases by GC-(SIM)MS. *Canadian Journal of Analytical Sciences and Spectroscopy*, **47** (6), 171-176. [3]

## 2003

25. Zhu, J.; **Cao, X.-L.**; Pigeon, R.; Mitchell, K. (2003) Comparison of vehicle exhaust emissions from modified diesel fuels. *Journal of Air & Waste Management Association*. **53**, 67-76. [26]

## 2004

26. Rawn, D.F.K.; **Cao, X.-L.**; Doucet, J.; Davies, D.J.; Sun, W.-F.; Dabeka, R.W.; Newsome, H. (2004) Canadian Total Diet Study in 1998: pesticide levels in foods from Whitehorse, Yukon, Canada, and corresponding dietary intake estimates. *Food Contaminants and Additives*, **21**(3), 232-250. [22]

## 2006

27. Tittlemier, S.A.; Pepper, K.; Edwards, L.; **Cao, X.-L.** (2006) Concentrations of perfluorooctanesulfonamides in Canadian Total Diet Study composite food samples collected between 1992 and 2004. *Journal of Agricultural and Food Chemistry*, **54**, 8385-8389. [34]

## 2007

28. Tittlemier, S.A.; Van de Riet, J.; Burns, G.; Potter, R.; Murphy, C.; Rourke, W.; Pearce, H.; **Cao, X.-L.**; Dabeka, R.W.; Dufrense, G. (2007) Analysis of veterinary drug residues in fish and shrimp composite collected during the Canadian total diet study, 1993-2004. *Food Additives and Contaminants*, **24** (1), 14-20. [13]
29. Tittlemier, S. A.; Pepper, K.; Seymour, C.; Moisey, J.; Bronson, R.; **Cao, X.-L.**; Dabeka, R.W. (2007) Dietary exposure of Canadians to perfluorinated carboxylates and perfluorooctane sulfonate via consumption of meat, fish, fast foods, and food items prepared in their packaging. *Journal of Agricultural and Food Chemistry*, **55**, 3203-3210. [298]
30. **Cao, X.-L.**; Casey, V.; Seaman, S; Tague, B.; Becalski, A. (2007) Determination of benzene in soft drinks and other beverages by isotope dilution headspace gas chromatography/mass spectrometry. *Journal of AOAC International*, **90** (2), 479-484. [20]

## 2008

31. **Cao, X.-L.** (2008) Determination of phthalates and adipate in bottled water by headspace solid-phase microextraction and gas chromatography/mass spectrometry. *Journal of Chromatography A*, **1178**(1-2), 231-238. [121]
32. **Cao, X.-L.**; Casey, V. (2008) Improved method for determination of benzene in soft drinks at sub-ppb levels. *Food Additives and Contaminants*, **25**(4), 401-405. [4]
33. **Cao, X.-L.**; Corriveau, J. (2008) Determination of bisphenol A in water by isotope dilution headspace solid-phase microextraction and gas chromatography/mass

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#### **4. Publications**

##### **4.1. International peer reviewed papers (SCI ve SCI Expanded)**

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#### **4.2. International peer reviewed papers (Others)**

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- 2) Gumustas, M., Ozkan, S.A., Development and validation of an RP-LC method for the determination of granisetron in dosage forms. *Asian Chemistry Letters*, 16(1), 23-30, 2011.
- 3) Gumustas, M., Özkan, S.A., Simple, sensitive and reliable LC-DAD method of gemifloxacin determination in pharmaceutical dosage forms. *Turkish Journal of Pharmaceutical Sciences*, 9(2), 161-170, 2012.

- 4) Demiralay, C.E, Gumustas, M., Canbay H., Validation of method for simultaneous determination of paracetamol and phenylephrine in pharmaceutical formulation by reversed phase liquid chromatography, *Pharmacie Globale (IJCP)*, 2(6), 9, 2011.

### 4.3. International poster presentations

- 1) Mehmet GUMUSTAS, Senem ŞANLI, Nurullah ŞANLI, S.A. OZKAN 'Simultaneous Determination of Enalapril and Lercanidipine by HPLC-DAD Technique in Pharmaceutical Dosage Forms' (ISC 2010), 12-16 Eylül 2010, Valensiya, İSPANYA. Abstract P-270, 2010
- 2) Mehmet GUMUSTAS, Burcin Bozal, Burcu Dogan-Topal, Sibel A. OZKAN, Bengi Uslu 'Optimization of LC Methods for the Simultaneous Determination of Bisoprolol and Hydrochlorothiazide in Their Pharmaceutical Dosage Forms' (ISC 2010), 12-16 Eylül 2010, Valensiya, İSPANYA. Abstract P-288, 2010
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- 4) Mehmet GUMUSTAS, Sibel A. OZKAN 'Electrochemical Evaluation and Determination of Antiretroviral Drug Fosamprenavir in Pharmaceutical Dosage Forms and Biological Samples' (Euro Analysis 2009), 06-10 Eylül 2010, Innsbruck, AVUSTURYA. Abstract P-123, 2009
- 5) Mehmet GUMUSTAS, Sibel A. ÖZKAN Electrochemical Oxidation of Antiretroviral Drug Fosamprenavir at Glassy Carbon Electrode and Its Direct determination in Pharmaceutical Dosage Forms by Square Wave and Differential Pulse Voltammetry (5 th Blacksea Basin Conference on Analytical Chemistry), Fatsa/ORDU)
- 6) Mehmet GUMUSTAS, Sibel A. ÖZKAN Anodic voltammetry of antiretroviral drug fosamprenavir at boron-doped diamond and glassy carbon electrodes and its determination (8 th International Electrochemistry Meeting), Çolaklı/ANTALYA)
- 7) Hanif SHIRINZADEH, Mehmet GÜMÜŞTAŞ, Seçkin ÖZDEN, Sibel SÜZEN, Sibel A. ÖZKAN, Synthesis and investigation of electrochemical behaviour of n-methylindole-3-carboxaldehyde 1zonicotinoyl hydrazone(9th International Symposium on Pharmaceutical Sciences (ISOPS-9), AnkaraUniversity/ANKARA,23-26 Haziran 2009 )
- 8) Senem ŞANLI, Mehmet GÜMÜŞTAŞ, Meltem SAVAŞ, Nurullah ŞANLI, Güleren ALSANCAK, The UV-spectroscopy method for determination of dissociation constants of several cephalosporins in water (International Symposium on Drug Research and Development, Hacettepe University/ANKARA, 4-7 Mayıs 2009)
- 9) Mehmet GUMUSTAS, Sibel A. OZKAN A Novel Sensor for Antibiotic Drug Ertapenem Based on Electrochemical Oxidation Using Boron Doped Diamond Electrode (ISE 2011), 8-11 Mayıs 2011, Turku, Finlandiya, Abstract P-20,2011.
- 10) Bengi Uslu, Burcin Bozal, Mehmet Gumustas, Burcu Dogan Topal, Sibel A. Ozkan Analytical Applications Of Voltammetric Methods For The Simultaneous Determination Of Bisoprolol

Fumarate And Hydrochlorothiazide In Their Dosage Forms, (ISE 2011), 8-11 Mayıs 2011, Turku, Finlandiya, Abstract P-114,2011.

- 11) Mehmet GUMUSTAS, Sibel A. OZKAN Development Of Validated Rp-Hplc Method For The Estimation Of Gemifloxacin From Tablet Dosage Form (DRD 2011), 27-29 Mayıs 2011, Antalya, Türkiye, Abstract P-043,2011.
- 12) Mehmet GUMUSTAS, Sibel A. OZKAN Determination Of Granisetron By HPLC-DAD Technique In Pharmaceutical Dosage Forms (DRD 2011), 27-29 Mayıs 2011, Antalya, Türkiye, Abstract P-044,2011.
- 13) Nurgül Karadaş, Mehmet GUMUSTAS, Sibel A. Özkan, Electrochemical Oxidation of Benidipine at Glassy Carbon Electrode and Its Direct Determination in Pharmaceutical Dosage Forms, (9.Uluslararası Elektrokimya Kongresi ), 25-29 Eylül 2011, İzmir, Türkiye, Abstract P-012, 2011
- 14) Sevinç Tunçağıl, Mehmet GUMUSTAS, Burçin Bozal, Bengi Uslu, Sibel A. Özkan, Electrochemical Behavior of Epirubicin at Boron-Doped Diamond Electrode and Its Determination in the Presence of Surfactants, (9.Uluslararası Elektrokimya Kongresi ), 25-29 Eylül 2011, İzmir, Türkiye, Abstract P-044, 2011
- 15) Sevinç Tunçağıl, Mehmet GUMUSTAS, Burçin Bozal, Bengi Uslu, Sibel A. Özkan, Understanding Electrochemical Mechanism of Epirubicin on Glassy Carbon Electrode via Model Pharmaceuticals, (9.Uluslararası Elektrokimya Kongresi ), 25-29 Eylül 2011, İzmir, Türkiye, Abstract P-072, 2011
- 16) Sevinç Tunçağıl, Mehmet Gumustas, Burçin Bozal, Bengi Uslu, Sibel A. Özkan, Determination of anticancer drug epirubicine in pharmaceutical preparations via glassy carbon electrode, (14. International Conference on Electrochemistry ), 3-7 Haziran 2012, Portoroz, Slovenya, Abstract P2-9, 214, 2012.
- 17) Gokce Coskun, Mehmet Gumustas, Sibel A. Özkan, Electrochemical behavior and determination of antidiabetic drug repaglinide at glassy carbon electrode (14. International Conference on Electrochemistry ), 3-7 Haziran 2012, Portoroz, Slovenya, Abstract P2-10, 215, 2012.
- 18) Hanif Shırinzadeh, Çiğdem Karaaslan, Betül Tekiner-Gulbas, Ayse Didem Yılmaz, Mehmet Gumustas, Sibel A. Özkan, Sibel Suzen, Investigation on electrochemical behavior of indole-hydrazones. (10th International Symposium on Pharmaceutical Sciences (ISOPS-10), AnkaraUniversity/ANKARA,26-29 Haziran 2012 ), Abstract P125, 200, 2012.
- 19) Mehmet Gumustas, Senem Şanlı, Nurullah Şanlı, Sibel A. Özkan, Simultaneous determination of trandolapril and verapamil in pharmaceutical formulations. 10th International Symposium on Pharmaceutical Sciences (ISOPS-10), AnkaraUniversity/ANKARA,26-29 Haziran 2012 ), Abstract P196, 272, 2012.
- 20) Ceyda Sibel Kılıç, Abdullah Kaya, Halil Solak, Mustafa Işıloğlu, Fahrettin Gücin, Mehmet Gumustas, Maksut Coşkun, Psilocin and psilocibin content of some *Psathyrella* spp. Growing in Turkey, 10th International Symposium on Pharmaceutical Sciences (ISOPS-10), AnkaraUniversity/ANKARA,26-29 Haziran 2012 ), Abstract P298, 375, 2012.
- 21) Mehmet Gumustas, Ceyda Sibel Kılıç, Abdullah Kaya, Halil Solak, Mustafa Işıloğlu, Fahrettin Gücin, Maksut Coşkun, Psilocin And Psilocibin Contents Of Some *Panaeolus* Spp. Growing In

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- 22) M. Kılıçarslan, M. Gumustas, T. Baykara, Effect of drug/polymer ratio on the characteristics of clindamycin phosphate loaded spray dried chitosan microspheres prepared for periodontal administration. 16th IPTS on September 10 – 12, 2012 in Antalya, Turkey. Abstract P31, 170-172.
- 23) Sevinc Tuncagil, Mehmet Gumustas, Sibel A. Ozkan, Simultaneous estimation and validation of some binary mixtures of antihypertensive drugs by RP-LC method. 1 st International Conference on Analytical Chemistry RO-ICAC 2012, September 18-21, 2012 in Targoviste, Romania.
- 24) Lali Chankvetadze, Mehmet Gumustas, Sibel A. Ozkan, Salvatore Fanali, Bezhan Chankvetadze, Application of Novel Core-shell Type Polysaccharide-based Chiral Stationary Phases for Separation of Enantiomers in Nano Liquid Chromatography and Capillary Electrochromatography, 29th International Symposium on Micro Scale Bioseparations (MSB 2013), 10-14 March, 2013, Charlottesville, VA, ABD.
- 25) A. M. Ashrafi, M. Gumustas, K. Vytras, D. Nematollahi, B. Uslu, T. Mikysek, R. Jirasko, S. A. Ozkan, Determination and mechanism study of antiviral drug fosamprenavir using carbon paste electrode in the presence of Triton X- 100, 24 th International Symposium on Pharmaceutical and Biomedical Analysis, PBA 2013, Bologna, Italy.
- 26) Lali Chankvetadze, Mehmet Gumustas, Sibel A. Ozkan, Salvatore Fanali, Bezhan Chankvetadze, Application of Novel Core-shell Type Polysaccharide-based Chiral Stationary Phases for Separation of Enantiomers in Nano Liquid Chromatography and Capillary Electrochromatography, 6th Black Sea Basin Conference on Analytical Chemistry (6BBCAC), 10-14 Eylül, 2013, Trabzon, Türkiye, P160.
- 27) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, HPLC separation of enantiomers of chiral  $\beta$ -agonist derivatives using polysaccharide based chiral columns, ITP 2013, 6-9 October 2013, Tenerife, Spain. PS1-23, 145.
- 28) Merve Eylül Bozkurt, Aysen Gumustas, Mehmet Gumustas, Ahmet Akin, Sibel A. Ozkan, microbiological and HPLC method for the determination of gemifloxacin in pharmaceutical preparations and biological samples, ITP 2013, 6-9 October 2013, Tenerife, Spain, PS1-26, 148.
- 29) Sevinc Kurbanoglu, Mehmet Gumustas, Bengi Uslu, Sibel A. Ozkan, A novel sensitive and selective RP-LC method for the simultaneous determination of the antihypertensive drugs, enalapril-lercanidipine, ITP 2013, 6-9 October 2013, Tenerife, Spain, PS2-16, 213.
- 30) Mehmet Gumustas, Sibel A. Ozkan, Lali Chankvetadze, Bezhan Chankvetadze, Application of Novel Core-shell Type Polysaccharide-based Chiral Stationary Phases for Separation of Enantiomers in Nano Liquid Chromatography, 30th International Symposium on Micro Scale Bioseparations (MSB 2014), 27 April-1 May, 2014, Pecs, Hungary. P-24, 95.
- 31) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Enantiomeric separation of chiral  $\beta$ -agonist derivatives with using normal phase eluents by HPLC, PBA 2014, 23-25 June 2014, Liege, Belgium. CS-13.

- 32)** Nurgul Karadas, Mehmet Gumustas, Bengi Uslu, Sibel A.Ozkan,, Simultaneous determination of amlodipine and rosuvastatin in pharmaceuticals by LC and voltammetric techniques, PBA 2014, 23-25 June 2014, Liege, Belgium. PQ-21.
- 33)** Gokce Coskun Abbasoglu, Mehmet Gumustas, Sibel A. Ozkan, A comparative determination study of repaglinide by HPLC, UPLC and electrochemical methods. 2<sup>nd</sup> International Conference on Analytical Chemistry RO-ICAC 2014, September 17-21, 2014, Targoviste, Romania.
- 34)** Aysen Gumustas, Merve Eylul Bozkurt, Mehmet Gumustas, Ahmet Akın, Sibel A. Ozkan, Comparative study for the determination of gemifloxacin by HPLC and microbiological methods from pharmaceutical preparations and biological samples. 2<sup>nd</sup> International Conference on Analytical Chemistry RO-ICAC 2014, September 17-21, 2014, Targoviste, Romania. S4-P02.
- 35)** Canan Hascicek, Ceyda Tugba Sengel Turk, Mehmet Gumustas, Sibel. A Ozkan, Ayhan Savaser, Yalcin Ozkan, Fabrication of Fulvestrant loaded modified released nanoparticles: comparison of copolymer molecular weight, 13<sup>th</sup> European symposium on controlled drug delivery, April 16-18, 2014, Egmond aan Zee, Netherlands. 121-122.
- 36)** Canan Hascicek, Ceyda Tugba Sengel Turk, Filiz Bakar, Net Das-Evcimen, Mehmet Gumustas, Sibel. A Ozkan, Ayhan Savaser, Yalcin Ozkan, Fulvestrant loaded PLGA nanoparticles: influence of polymer copolymer composition on in-vitro properties and anti-proliferative potencies against MCF-7 breast cancer cells, 17<sup>th</sup> International Pharmaceutical Technology symposium, September 8-10, 2014, Antalya, 203.
- 37)** Canan Hascicek, Ceyda Tugba Sengel Turk, Filiz Bakar, Net Das-Evcimen, Mehmet Gumustas, Sibel. A Ozkan, Ayhan Savaser, Yalcin Ozkan, Fabrication of Fulvestrant loaded modified released nanoparticles: effect of copolymer molecular weight on particle characteristics, 4<sup>th</sup> International Meeting on Pharmacy Pharmaceutical Sciences (IMPPS-4), September 18-21, 2014, Istanbul, PP 138.
- 38)** B. Kaskatepe, S. Yildiz, M. Gumustas, S.A. Ozkan, rhamnolipid production by pseudomonas spp. In pulps, 11<sup>th</sup> International Symposium on Pharmaceutical Sciences (ISOPS 2015), June 9-12, 2015, Ankara, Turkey, OP-32, 60.
- 39)** M. Gumustas, M.G. Caglayan, F. Onur, S.A. Ozkan, Development of a capillary electrophoresis method for the determination of emtricitabine, rilpivirine and tenofovir from biological samples, 11<sup>th</sup> International Symposium on Pharmaceutical Sciences (ISOPS 2015), June 9-12, 2015, Ankara, Turkey, P-31, 95.
- 40)** Mehmet Gumustas, Bengi Uslu, Sibel A. Ozkan, Optimization and validation of a RP-LC method for the sensitive determination of antazoline and tetrahydrozoline, 26<sup>th</sup> International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2015), July 5-8, 2015, P23.
- 41)** Mehmet Gumustas, M. Gokhan Caglayan, Feyyaz Onur, Sibel A. Ozkan, Determination of emtricitabine, rilpivirine and tenofovir from biological samples with using LC and CE methods, 26<sup>th</sup> International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2015), July 5-8, 2015, P24.
- 42)** Gulin Amasya, Mehmet Gumustas, Ceyda Tuba Sengel-Turk, Ulya Badilli, Sibel A. Ozkan, Nilufer Tarimci, Optimization of sensitive and selective RP-LC method for the determination



of etofenamate from rat skin, The European Conference on Analytical Chemistry 18, Euroanalysis 2015, September 6-10, Bordeaux, France, 2015, P272.

- 43) Aysen Gumustas, Mehmet Gumustas, B. Bugra Barut, Sibel A. Ozkan and Bengi Uslu, the effect of core-shell particles on chromatographic determination and optimization of dutasteride and tamsulosin, 43rd Symposium of HPLC and related techniques (HPLC 2015), September 21-25, Beijing, China, 2015, pp. 165, P12.
- 44) Mehmet Gumustas, M. Gokhan Caglayan, Sibel A. Ozkan, chromatographic investigation and simultaneous determination of some antiviral pharmaceuticals from biological samples, International multidisciplinary symposium on Drug Research & Development 15 (DRD 2015), October 15-17, Eskisehir, Turkey, pp. 96, P26.
- 45) Mehmet Gumustas, Sibel A. Ozkan, Bezhana Chankvetadze, Separation of Enantiomers of Butoxamine Using Polysaccharide Based Chiral Columns with Emphasis on Enantiomer Elution Order, International Conference: 10<sup>th</sup> Aegean Analytical Chemistry Days, AACD 2016, 29 Eylül-2 Ekim 2016, Çanakkale, Türkiye
- 46) Mehmet Gumustas, Derya Ozgur, Sibel A. Ozkan, Simultaneous Estimation of Irbesartan, and Hydrochlorothiazide in Their Binary Mixture by HPLC and UPLC, International Conference: 10<sup>th</sup> Aegean Analytical Chemistry Days, AACD 2016, 29 Eylül-2 Ekim 2016, Çanakkale, Türkiye
- 47) Canan Hascicek, Ceyda Tugba Sengel Turk, Filiz Bakar, Net Das-Evcimen, Mehmet Gumustas, Sibel A. Ozkan, Ayhan Savaser, Yalcin Ozkan, Antiproliferative Potential of Nanoparticle-Based Delivery System of Fulvestrant on MCF-7 Human Breast Cancer Cells, AAPS 2016, 13-17 Kasım, Denver, Amerika
- 48) Mehmet Gumustas, Sibel A. Ozkan, Bezhana Chankvetadze, Enantiomeric separation of beta-adrenergic agonists by HPLC with polysaccharide-based chiral columns using various mobile phases, 27-th International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2016), 13-16 Kasım 2016. Guangzhou/Çin
- 49) Cem Erkmen, Mehmet Gumustas, Sibel A. Ozkan, Bengi Uslu, The role of HILIC separation for the simultaneous determination of some antivirals, 27-th International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2016), 13-16 Kasım 2016. Guangzhou/Çin

#### **7.4. National poster presentations**

- 1) Mehmet GUMUSTAS, Senem ŞANLI, Nurullah ŞANLI, Sibel A. ÖZKAN, Fosamprenavir'in farmasötik dozaj formlarından RP-HPLC yöntemiyle miktar tayini, Kromatografi Sempozyumu 2009 Trabzon.
- 2) Mehmet GUMUSTAS, Sibel A. OZKAN Oseltamivir' in Farmasötik Dozaj formlarından Ters Faz YPSK Yöntemiyle Miktar Tayini (Kromatografi 2011), 7-10 Eylül 2011, Diyarbakır, Türkiye,

- 3) Sevinç Tunçağıl, Mehmet Gumustas, Sibel A. Özkan, Yeni nesil kolonlarla antihipertansif ilaç etken maddeler için eş zamanlı tayin yöntemleri ve validasyonu, 6. Ulusal Analitik Kimya Kongresi (3-7 Eylül Antakya) Abstract P254, 296, 2012.
- 4) Mehmet Gumustas, Ceyda Sibel Kılıç, Abdullah Kaya, Halil Solak, Mustafa Işıloğlu, Fahrettin Gücin, Maksut Coşkun, Türkiye’de yetişen bazı inocybe (inocybaceae) türlerinin psilosin ve psilosibin içeriği, BIHAT 2012, 10-13 Ekim, Antalya, Türkiye.
- 5) Mehmet Gumustas, Derya Cicek Polat, Arabaci Anul S., Ceyda Sibel Kılıç, Akalin K., Maksut Coşkun, Colchicum speciosum Steven ve Gloriosa superba Linn. Türleri Tohumlarının YBSK Yöntemi ile Kolşisin ve Kolşikozit İçerikleri Açısından Karşılaştırılması, BIHAT 2012, 10-13 Ekim, Antalya, Türkiye
- 6) Mehmet Gumustas, Ceyda Tugba Sengel Turk, Canan Hascicek, Sibel. A Ozkan, Kanser tedavisinde kullanılan Fulvestrant’ın ters faz sıvı kromatografik yöntemle analizi, Kromatografi 2013, 19-22 Haziran 2013, Bursa, Türkiye.
- 7) Mehmet Gumustas, Sibel A. Özkan, Bezhan Chankvetadze, Separation of chiral  $\beta$ -agonist derivative enantiomers using High Performance Liquid Chromatography, 7. Ulusal Analitik Kimya Kongresi (1-5 Eylül, Kahraman Maraş), 142, 2014.
- 8) Banu Kaşkatepe, Sulhiye Yıldız, Mehmet Gümüştas, Sibel Aysıl Özkan. Hastane enfeksiyonu etkeni Pseudomonas aeruginosa suşlarında biyosümfaktan üretimi. 36. Türk Mikrobiyoloji Kongresi. 12-16 Kasım 2014, Antalya
- 9) Mehmet Gumustas, Ceyda Tugba Sengel Turk, Canan Hascicek, Sibel. A Ozkan, Filiz Bakar, Net Das-Evcimen, Ayhan Savaser, Yalcin Ozkan, Fulvetrantin Ters Faz Sivi Kromatografik Yontemle Biyolojik Sivilar ve Polimerik Bazli Nanopartikullerden Analizi, 15. Ulusal Kromatografi Kongresi (Kromatografi 2015), 40, 8-10 Nisan 2015, Usak, Türkiye
- 10) Sevinc Kurbanoglu, Mehmet Gumustas, Sibel. A Ozkan, Antihipertansif Enalapril, Lerkandipin, Nitrendipin in TF-SK ile es zamanli Tayin Yontemleri ve Validasyonu, 15. Ulusal Kromatografi Kongresi (Kromatografi 2015), 138, 8-10 Nisan 2015, Usak, Türkiye
- 11) Memis, H., Gumustas, M., Uslu, B., Ozkan, S. A., Entakapon’un Farmasötik Dozaj Formundan UV Spektrofotometrik Tayini, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.
- 12) İsbilir, İ, Gumustas, M., Uslu, B., Ozkan, S. A., Tenofovirin Farmasötik Dozaj Şeklinden Analizi için UV Spektrofotometrik Yöntem Geliştirilmesi, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.
- 13) Konuralp, H., Memis, H., Gumustas, M., Uslu, B., Ozkan, S. A., Valgansiklovir’in UV Spektrofotometrik Yöntemle Analizi ve Validasyonu, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.
- 14) Gumustas, M., Ozgur, D., Ozkan, S. A., İrbesartan ve Hidroklorotiyazidin Ypsk ve Upsk ile Eş Zamanlı Analizi, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.

- 15) Gumustas, M., Ozkan, S. A., Chankvetadze, B., Ritodrin Enantiyomerlerinin Ayrımı için YPSK Yöntemi Geliştirilmesi, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.
- 16) Erkmen, C., Gumustas, M., Uslu, B., Ozkan, S. A., oseltamivir'in farmasötik dozaj şekillerinden tayininde core-shell parçacıkların etkisi, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.
- 17) Barut, B.B., Gumustas, A., Gumustas, M., Ozkan, S.A., Uslu, B., Dutasterit ve Tamsulosin'in Eş Zamanlı Kromatografik Analizi, 8. Ulusal Analitik Kimya Kongresi 30 Mayıs-3 Haziran 2016, Isparta, Türkiye.

#### 4.6. Oral Presentations in International and National Conferences

##### 4.6.1. International Conferences

- 18) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Separation of enantiomers of chiral beta-agonists in capillary electrophoresis and high performance liquid chromatography 4 th Annual Symposium on Physical and Analytical Chemistry, December 29 and 30, 2014 Tbilisi, Georgia
- 19) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Comparative capillary electrophoresis and HPLC separation of enantiomers of selected chiral  $\beta$ -Agonists ,31 st International Symposium on Micro Scale Bioseparations (MSB 2015), April 26-29, 2015, Pudong, Shanghai, China.
- 20) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Separation the enantiomers of selected chiral  $\beta$ -agonists derivatives from the view point of high performance liquid chromatography and capillary electrophoresis, 26-th International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2015), July 5-8, 2015. Tbilisi, Georgia.
- 21) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Enantiomeric separation of beta-adrenergic agonists by HPLC with polysaccharide-based chiral columns using various mobile phases, 27-th International Symposium on Pharmaceutical and Biomedical Analysis (PBA 2016), 13-16 Kasım 2016. Guangzhou/Çin
- 22) Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, HPLC separation of enantiomers of some beta-agonists by using polysaccharide-based chiral columns, 7 th Annual Symposium on Physical and Analytical Chemistry, 28-29 Kasım 2016, Tiflis, Gürcistan

##### 4.6.2. National Conferences

- 1) Mehmet Gumustas, Bengi Uslu, Sibel A. Özkan, Antiparkinson etkili maddelerin farmasötik dozaj formundan HPLC yöntemiyle eş zamanlı miktar tayini, . Ulusal Analitik Kimya Kongresi (3-7 Eylül Antakya) Sözlü sunum. 18, 27, 2012.
- 2) Mehmet Gumustas, Ceyda Tugba Sengel Turk, Canan Hascicek, Sibel. A Ozkan, Filiz Bakar, Net Das-Evcimen, Ayhan Savaser, Yalcin Ozkan, Fulvetrantin Ters Faz Sivi Kromatografik Yontemle Biyolojik Sivilar ve Polimerik Bazli Nanopartiküllerden Analizi, 15. Ulusal Kromatografi Kongresi (Kromatografi 2015), 8-10 Nisan 2015, Usak, Turkiye

## 7.7. Book chapters and dictionaries

- 1) Gümüřtař, M., Özkan, S.A., Genç, L.(Ed.), *Elektrokimyasal Dedektörlü Yüksek Performanslı Sıvı Kromatografisi*, Kromatografik Sistemler, Anadolu Üniversitesi BİBAM yayınları, 2011. ISBN:9789750608865
- 2) Uslu, B., Gümüřtař, M., Savaşer, A., Özkan, Y., Özkan, S. A., *Sözlük Dergisi*, 3 (2), Analiz terimleri sözlüğü, 2012. ISSN:1308-1500
- 3) Özkan, S.A., Gümüřtař, M., Tunçağıl, S., Gökçel, İ.(Ed.), 2. Uygulamalı Elektrokimya Lisansüstü Yaz Okulu Kitabında Bölüm: Elektrokimyasal analizlerde analitik yöntem optimizasyonu ve validasyonu, 95-118, 2012.
- 4) Tunçağıl, S., Gümüřtař, M., Özkan, S.A., Gökçel, İ.(Ed.), 2. Uygulamalı Elektrokimya Lisansüstü Yaz Okulu Kitabında Bölüm: Anti Parkinson ilaç etken maddesi L-Dopa'nın elektrokimyasal analizi ve validasyonu, 263-275, 2012.
- 5) Uslu, B., Gümüřtař, M., Bozal- Palabiyik B. Savaşer, A., Özkan, Y., Özkan, S. A., *Sözlük Dergisi*, 6 (2), Eczacılık Terimleri Sözlüğü, İlaç Analizleri Terimleri, 2015 (Kabul tarihi: Haziran, 2016; Basım tarihi: Aralık, 2016). ISSN:1308-1500
- 6) Sengel-Turk C. T., Gumustas M., Uslu B., Ozkan S. A. 2017. 10 - Nano-Sized Drug Carriers for Oral Delivery of Anti-Cancer Compounds and The Place of The Chromatographic Techniques - Grumezescu, A. M. (Ed.). Nano- and Microscale Drug Delivery Systems 1st Edition Design and Fabrication. Elsevier, Netherlands.
- 7) Gumustas M., Sengel-Turk C. T., Gumustas A., Ozkan S. A., Uslu B. 2017. 5 - Effect of Polymer-Based Nanoparticles on the Assay of Antimicrobial Drug Delivery Systems - Grumezescu, A. M. (Ed.). Multifunctional Systems for Combined Delivery, Biosensing and Diagnostics. Elsevier, Netherlands.
- 8)

## 5. Projects

Project Name	Supporter	Budget	Date	Position	Type
Melatonin Analogu Yeni Antioksidan İlaç Etken Maddeleri Geliřtirilmesi: Biyolojik Aktivite, Sitotoksisite ve Olası Metabolitlerinin İn-vitro Elektrokimyasal Deęerlendirilmeleri (109S099)	TUBITAK	90000	15.11.2009-15.11.2011	Bursary	National
Akdeniz Bölgesi' nde Yetiřen Psilosin ve Psilosibin Tařıyan řapkalı Mantar Türleri Üzerinde Arařtırmalar (109T149)	TUBITAK	75012	01.05.2009-01.07.2011	Bursary	National

Meme Kanseri Tedavisinde Kullanılmak Üzere Fulvestrant Yüklü Polimerik Nanopartiküler Sistemlerin Geliştirilmesi (112S290)	TUBITAK	82836	15.11.2012-15.11.2014	Bursary	National
Yeni nesil kolonlar kullanılarak bazı antiviral ilaçların sıvı kromatografik yöntemlerle eş zamanlı analizi ve optimizasyonu (12L336003)	Ankara Üniversitesi BAP	29996	01.01.2013-01.01.2014	Researcher	National
Dutasterit ve tamsulosin HCl'nin yeni nesil kolonlar kullanarak bazı sıvı kromatografik yöntemlerle eş zamanlı analizi ve optimizasyonu (15L0237004)	Ankara Üniversitesi BAP	19000	03.06.2015-03.06.2016	Researcher	National
Yeni nesil HILIC kolon kullanılarak bazı antiviral ilaçların farmasötik dozaj şekillerinden sıvı kromatografisi ile analizi (16L0237001)	Ankara Üniversitesi BAP	16000	08.06.2016-08.11.2016	Researcher	National
Terazosin hidroklorür dihidrat ve Tamsulosin HCl'nin kapiler elektroforez ile analizi ve validasyonu (16H0237011)	Ankara Üniversitesi BAP	19886	08.06.2016-08.01.2017	Researcher	National

## 6.Organizations

- 1) Kimyagerler Derneği
- 2) International Society of Electrochemistry 2010-
- 3) The Electrochemical Society 2012-2014
- 4) The Chromatographic Society 2012-
- 5) International Separation Science Society (CASSS) 2012-

## 7.Prizes

- 1) PCCP and Turkish Chemical Society Ord. Prof. Dr. İlhami Civaoglu Award for Poster Presentation in 9th International Electrochemistry in Turkey (Poster Award). Sevinç Tunçağıl, Mehmet GUMUSTAS, Burçin Bozal, Bengi Uslu, Sibel A. Özkan, Electrochemical Behavior of Epirubicin at Boron-Doped Diamond Electrode and Its Determination in the Presence of Surfactants. 25-29 September 2011
- 2) Amerikan Kimya Derneği (American Chemical Society) Best poster award, Mehmet Gumustas, Gokce Coşgun Abbasoglu, Sibel A. Ozkan "A comparative determination study of repaglinide by HPLC, UPLC and electrochemical methods" 2nd International Conference on Analytical Chemistry. Analytical Chemistry for a Better Life. Targoviste, September 17-21, 2014.

- 3) Best poster award, Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Ritodrin Enantiyomerlerinin Ayrımı İçin YPSK Yöntemi Geliştirilmesi, 8. Ulusal Analitik Kimya Kongresi, Isparta, Türkiye (30 Mayıs – 3 Haziran 2016)
- 4) Best poster presentation award, Mehmet Gumustas, Sibel A. Ozkan, Bezhan Chankvetadze, Separation of Enantiomers of Butoxamine Using Polysaccharide Based Chiral Columns with Emphasis on Enantiomer Elution Order. 10th Aegean Analytical Chemistry Days (AACD2016) International Conference, Canakkale, Turkey.(29 September - 2 October 2016)

## **8. Other activities**

### **8.1. Organization of Conferences**

- 1) 2.Uygulamalı Elektrokimya Yaz Okulu (Çanakkale), Teknik Kurul Üyesi
- 2) ISOPS 10 (10th International Symposium on Pharmaceutical Sciences, Ankara) Sosyal Komite üyesi. 26-29 Haziran 2012.
- 3) 19 th EAFP Annual Conference 2013, Ankara, Sosyal Komite Uyesi. 16-18 Mayıs 2013.
- 4) ISOPS 11 (11th International Symposium on Pharmaceutical Sciences, Ankara) Sosyal Komite üyesi. 9-12 Haziran 2015.
- 5) 8. Ulusal Analitik Kimya Kongresi, Isparta, Türkiye, Organizasyon komitesi üyesi 30 Mayıs – 3 Haziran 2016

### **8.2. Working experience in abroad**

- 1) Prof. Dr. Bezhan Chankvetadze (Tiflis/Gürcistan), Kiral bileşenlerin kromatografik (HPLC, nano-LC) ve kapiler elektroforetik analizleri üzerine araştırma. 19 Ocak - 2 Şubat 2013.
- 2) Prof. Dr. Bezhan Chankvetadze (Tiflis/Gürcistan), Kiral bileşenlerin kromatografik (HPLC, nano-LC) ve kapiler elektroforetik analizleri üzerine araştırma. 21 Şubat - 1 Eylül 2014.
- 3) Prof. Dr. Bezhan Chankvetadze (Tiflis/Gürcistan), Kiral bileşenlerin kromatografik (HPLC, nano-LC) ve kapiler elektroforetik analizleri üzerine araştırma. 17 Haziran - 17 Temmuz 2015.

### **8.3. National Working experience**

- 1) Prof. Dr. Sibel A. Ozkan (Ankara Üniversitesi/Türkiye), Kiral bileşenlerin kromatografik ve kapiler elektroforetik analizleri üzerine çeşitli araştırmalar. 30 Eylül 2016- 30 Mart 2017.

### **8.4. Editorial Board Membership**

- 1) American Journal of PharmTech Research
- 2) UK Journal of Pharmaceutical and Biosciences

### **8.5. Reviewer Position in International Journals**

- 1) Journal of Pharmaceutical and Biomedical Analysis,
- 2) Electrophoresis,
- 3) Talanta,
- 4) Instrumentation Science and technology,
- 5) International Journal of Electrochemistry,
- 6) Journal of Liquid Chromatography and Related Technologies,
- 7) Journal of Analytical Methods in Chemistry,
- 8) Spectroscopy Letters,
- 9) Journal of AOAC International,
- 10) Chromatography Research International,
- 11) Journal of Electrochemical Society,
- 12) Current Analytical Chemistry,
- 13) Current Chromatography,
- 14) Current Drug Therapy,
- 15) Natural Product and Research,
- 16) The Open Analytical Chemistry Journal,
- 17) Science Journal of Analytical Chemistry,
- 18) The Scientific World Journal.
- 19) Current Pharmaceutical Analysis.
- 20) Drug Development and Industrial Pharmacy
- 21) Arabian Journal of Chemistry
- 22) Electrochimica Acta
- 23) Eurasian Journal of Analytical Chemistry
- 24) Chemistry Central Journal
- 25) International Journal of Pharmaceutical sciences and Developmental Research
- 26) Journal of Materials and Environmental Science

# Siheng Li, Ph.D.

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## WORK EXPERIENCE

- Jan. 2017 – present **Staff Scientist, Covance Laboratories Inc. (Madison, WI)**  
Covance Food Solutions  
Method development and validation for food contaminants analysis (BPA, Nonylphenol, Veterinary drugs).
- Jun. 2012 – Jan.2017 **Manager, Mass Spectrometry Laboratory, University of Houston (Houston, TX)**  
Manage the operation of the Mass Spectrometry Laboratory; Train researchers in mass spectrometry/chromatography instrumentation; Develop methods for diverse types of samples for MS-based analysis. Collaborate on complex research projects using advanced mass spectrometry and chromatography instrumentation. Perform maintenance and troubleshooting mass spectrometry/chromatography instrumentation.

## EDUCATION

- 2015 University of Houston (Houston, TX)  
Ph.D., Chemistry  
Research Advisor: Professor Chengzhi Cai  
Thesis: Bioconjugation using copper-catalyzed azide-alkyne cycloaddition reaction.
- 2010 South China University of Technology (Guangzhou, China)  
B.S., Material Science and Engineering

## RESEARCH PROJECTS

### **Method development and validation – Determination of bisphenol-A (BPA) in commercially packaged beverages and infant formulas**

Developed a novel LC-MS/MS based method to determine BPA concentration in various food matrices. Validated the method in ten types of on ten most-widely consumed commercially packaged non-alcoholic beverages, infant formula products and food simulating solvents with satisfactory accuracy and precision.

### **Method development and validation – Determination of nonylphenol in infant formula ingredients and products**

Developed a simple and robust sample extraction approach applicable for nonylphenol isomers quantitative analysis in various food matrices. Validated the method in infant formula products, milk powders, food oils and sugars with satisfactory accuracy and precision.

### **Method development and validation – Determination of trimethylamine N-oxide (TMAO) in krill oil feeds and products**

Established a high through-put infusion nano-ESI-MS analysis method to determine the concentration of TMAO in krill oil feeds and products. The validation meet the method performance requirements.

### **Bioconjugation using copper-catalyzed azide-alkyne cycloaddition reaction**



Investigated peptide/protein oxidative side-reaction in CuAAC reaction by combinatorial peptide synthesis and MS-based protein modification analysis. Discovered a new type of copper-binding ligand to significantly reduce peptide/protein oxidative degradation and accelerate CuAAC reaction. Developed a new catalyst for CuAAC bioconjugation reaction inside living mammalian cells. Studied the intracellular reaction by MS-based quantitative analysis, immunofluorescence and immunoblotting assays. Identified a key inhibitor for intracellular CuAAC reaction.

## AWARDS & MEMBERSHIPS

2010-2015      DSTF Fellowship, UH  
2010            Outstanding Senior Student, SCUT  
2009-2010     Undergraduate Research Fellowship, SCUT

American Society for Mass Spectrometry (ASMS)  
Association of Official Analytical Chemists (AOAC)

## OTHER ACTIVITIES

Scientific reviewer for *Molecules*, *International Journal of Molecular Sciences*, *Chemistry & Biodiversity*, *Materials Chemistry and Physics*, *Chemical Biology & Drug Design*.

## PUBLICATIONS

1. Li, S., Wang, L., Yu, F., Zhu, Z., Shobaki, D., Chen, H., Wang, M., Wang, J., Qin, G., Erasquin, U., Ren, L., Wang, Y. and Cai, C. Copper-catalyzed click reaction on/in live cells. *Chem. Sci.*, **2017**, 8, 2107–2114.
2. Zhu, Z., Chen, H., Li, S., Yang, X., Bittner, E. and Cai, C. Tripodal amine ligands for accelerating Cu-catalyzed azide-alkyne cycloaddition: efficiency and stability against oxidation and dissociation. *Catal. Sci. Technol.*, **2017**, 7, 2474–2485.
3. Chen, H., Cai, C., Li, S., Ma, Y., Luozhong, S. and Zhu, Z. Intermediates stabilized by tris(triazolylmethyl)amine in CuAAC reaction. *Eur. J. Chem.*, **2017**, 23, 4730–4735.
4. Chen, Q., Zhu, Z., Wang, J., Lopez, A., Li, S., Kumar, A., Yu, F., Chen, H., Cai, C. and Zhang, L. Probiotic E.Coli Nissle 1917 biofilms on silicone substrates for bacterial interference against pathogen colonization. *Acta Biomater.*, **2017**, 50, 353–360.
5. Qin, G., Zhu, Z., Li, S., McDermott, A. and Cai, C. Development of ciprofloxacin-loaded contact lenses using fluororous chemistry. *Biomaterials*, **2017**, 124, 55–64.
6. Li, S., Cai, H., He, J., Chen, H., Lam, S., Cai, T., Bark, S. and Cai, C. Extent of the oxidative side-reactions to peptides and proteins during CuAAC reaction. *Bioconjugate Chem.*, **2016**, 27, 2315–2322.
7. Qin, G., Zhu, Z., Li, S., Cai, C. and McDermott, A. Contact lens surface modification utilizing fluororous chemistry. *Invest. Ophthalmol. Vis. Sci.*, **2016**, 57, 1458–1458.
8. Contreras-Caceres, R., Santos, C., Li, S., Kumar, A., Zhu, Z., Kolar, S., Casado-Rodriguez, M., Huang, Y., McDermott, A., Lopez-Romero, J. and Cai, C. Modification of fluororous substrates with oligo(ethylene glycol) via “click” chemistry for long-term resistance of cell adhesion. *J. Colloid Interface Sci.*, **2015**, 458, 112–118.
9. Zhu, Z., Wang, J., Lopez, A., Yu, F., Huang, Y., Kumar, A., Li, S., Zhang, L. and Cai, C. Surfaces presenting  $\alpha$ -phenyl mannoside derivatives enable formation of stable, high coverage, non-pathogenic Escherichia coli biofilms against pathogen colonization. *Biomater. Sci.*, **2015**, 3, 842–851.
10. Wang, L., Zhao, M., Li, S., Erasquin, U., Wang, H., Chen, C. and Cai, C. “Click” immobilization of a VEGF-mimetic peptide on decellularized endothelial extracellular matrix to enhance angiogenesis. *ACS Appl. Mater. Interfaces*, **2014**, 6, 8401–8406.

## CURRICULUM VITAE: KATERINA MASTOVSKA

## CURRENT POSITION

Title: Associate Director - Research, Development and Innovation  
Department: Covance Food Solutions (CFS)  
Madison, WI

## EDUCATION

PhD Food Chemistry and Analysis, Institute of Chemical Technology (ICT), Faculty of Food and Biochemical Technology, Prague, Czech Republic, January 2002

MS Food Chemistry and Analysis (summa cum laude), Institute of Chemical Technology (ICT), Faculty of Food and Biochemical Technology, Prague, Czech Republic, June 1998

## PROFESSIONAL EXPERIENCE

2016-present: Associate Director - Research, Development and Innovation, CFS, Madison, WI

Dr. Mastovska leads the global chemistry R&D and Innovation group at Covance Food Solutions (CFS). She directs the internal development of new analytical methods, and research and adoption of new technologies to support strategic business growth objectives. Dr. Mastovska serves as a scientific leader in the community and represents CFS at scientific meetings and organizations.

2013-2016: Associate Scientific Director, NCFS, Covance Laboratories Inc., Madison, WI

2011-2013: Lead Staff Scientist, NCFS, Covance Laboratories Inc., Madison, WI

2009-2011: Senior Technical Manager, NCFS, Covance Laboratories Inc., Greenfield, IN

Dr. Mastovska was responsible for development of new analytical methods and strategies for testing of chemical residues, contaminants, and adulterants in food and dietary supplements. She served as a scientific and technical resource for the Nutritional Chemistry and Food Safety (NCFS) department in this field. In addition to leading new analytical method development, she also took a lead role in identifying and solving analytical problems, and in interfacing with clients in terms of technical expertise, problem solving, and business development activities.

2002-2009: Research Chemist, USDA, Agricultural Research Service, Wyndmoor, PA

Dr. Mastovska developed efficient methods for pesticide and veterinary drug residues and other chemical contaminants in food, such as acrylamide or dioxins, mainly based on advanced gas and liquid chromatographic techniques coupled with (tandem) mass spectrometry. She investigated and evaluated new analytical techniques and tools to be implemented in chemical residue analysis, and conducted successful method transfer to routine testing laboratories.

## CURRICULUM VITAE: KATERINA MASTOVSKA

1995-2002: Researcher, Laboratory of Food Contaminants & Toxicants, ICT, Prague, Czech Republic

Dr. Mastovska worked during her undergraduate, graduate and post-graduate studies as a researcher developing and running methods for analysis of pesticide residues and other food and environmental contaminants, primarily based on gas chromatographic separations with mass spectrometric or element-selective detection. She participated in numerous international projects, mainly focused on method harmonization within the EU. She spent three short-term stays as a visiting scientist in Pesticide Residue Group at the Central Science Laboratory (CSL – now FERA) in York, UK in 1997, 1998, and 1999 and one two-month stay at the USDA Agricultural Research Service in Wyndmoor, PA in 2000, conducting successful method development for the analysis of pesticide residues.

## EXPERT AND ADVISORY ACTIVITIES

AOAC International

Official Methods Board member (2015 – present)

Co-chair of the AOAC Int. Community on Chemical Contaminants and Residues in Food (2011 – 2016)

Dietary Supplement Expert Review Panel on PDE5 inhibitors, member (2015 – present)

Chair of the PDE5i Working Group for the Stakeholder Panel on Dietary Supplements (2014)

Study Director for the AOAC Int. study on polycyclic aromatic hydrocarbons (PAHs) in seafood as a response to the oil spill in the Gulf of Mexico (2010 – 2013)

AOAC Int. Topic Advisor for the Veterinary Drug Residue Methods (2009 – present)

Veterinary Drug Expert Review Panels, member (2009 – present)

Joint FAO/WHO Meeting on Pesticide Residues (JMPR)

Dr. Mastovska served (2006-2009) as an expert in the UN Food and Agricultural Organization (FAO) panel of the JMPR (Joint FAO/WHO Meeting on Pesticide Residues) evaluating pesticide submissions and recommending world-wide pesticide maximum residue levels in foods and feeds to the Codex Alimentarius Commission.

Other activities:

European Commission, Research Executive Agency (REA) – independent expert evaluating research proposals (2010-present)

North American Chemical Residue Workshop (NACRW) – program committee and organizing committee member (2010-present)

International Symposium on Recent Advances in Food Analysis (RAFA) – instructor of interactive seminars (2011, 2013, 2015)

Interagency Residue Control Group (IRCG) – member (2006-2009)

USDA FSIS Surveillance Advisory Team (SAT) – member (2006-2009)

General Mills, Medallion Laboratories, Minneapolis, MN – consultant (2006-2009)

International Atomic Energy Agency (IAEA) – invited advisor (invitation declined in 2009)

Georgian National Science Foundation – invited grant reviewer (2006-present)

Residue Analytical Workshop at ICT, Prague – invited lecturer (2006, 2009)

USDA/EPA Pesticide Workshop for FIFRA laboratories – co-organizer and instructor (2004)

Peer-reviewer for: J. AOAC Int., J. Chromatogr. A, Anal. Chim. Acta, Anal. Chem., J. Agric. Food. Chem., J. Anal. Bioanal. Chem., Food Chem., Talanta, Metabolomics, *etc.*

## CURRICULUM VITAE: KATERINA MASTOVSKA

## PROFESSIONAL MEMBERSHIPS AND AFFILIATIONS

American Chemical Society, Divisions of Agrochemicals and Analytical Chemistry  
American Society for Mass Spectrometry  
AOAC International

## HONORS AND AWARDS

AOAC Int. Method of the Year award, 2016 (AOAC 2015.12 method)  
AOAC Int. Award for Achievement in Technical and Scientific Excellence, 2016  
AOAC Int. Method of the Year award, 2015 (AOAC 2014.08 method)  
AOAC Int. Fellow award, 2014  
Finalist of Covance inaugural Science and Technology award, 2014  
AOAC Int. Study Director of the Year award, 2013  
AOAC Int. Expert Review Panel of the Year award, 2013  
Scientific Program Chair of the 50<sup>th</sup> Florida Pesticide Residue Workshop/North American Chemical Residue Workshop (FPRW/NACRW), 2013  
ARS Technology Transfer Award for "Partners in QuEChERS", Outstanding Effort, 2009  
Federal Laboratory Consortium (FLC) Mid-Atlantic Regional Excellence in Technology Transfer Award, 2009  
Excellence in Government Award for private sector involvement, Silver Medalist, Federal Executive Board, 2008  
U.S. Department of Agriculture Certificate of Merit for outstanding research contributions, 2006, 2007, 2008, and 2009  
U.S. Department of Agriculture Extra Effort Award, 2005  
Granted U.S. Permanent Residency in the Extraordinary Ability category, 2005 (Naturalized U.S. Citizen since August 2011)  
U.S. Environmental Protection Agency Certificate of Appreciation, 2004  
Josef Hlavka Award for the best young researchers in the Czech Republic who demonstrated exceptional abilities and creative thinking in their field, 1998  
ICT Rector Award, 1998

## PUBLICATIONS

Peer-Reviewed Articles:

H. Zhao, J. Zulkoski, K. Mastovska: Development and validation of a multi-class, multi-residue method for veterinary drug analysis in infant formula and related ingredients using UHPLC-MS/MS. *J. Agric. Food Chem.*, in press (DOI: 10.1021/acs.jafc.7b00271).

L. Vaclavik, J.R. Schmitz, J.-F. Halbardier, K. Mastovska: Single-laboratory validation study of a method for screening and identification of phosphodiesterase type 5 inhibitors in dietary ingredients and supplements using liquid chromatography/quadrupole-orbital ion trap mass spectrometry: First Action 2015.12. *J. AOAC Int.* **99** (2016) 55–72.

## CURRICULUM VITAE: KATERINA MASTOVSKA

K. Mastovska, W.J. Sorenson, J. Hajslova: Determination of polycyclic aromatic hydrocarbons (PAHs) in seafood using gas chromatography-mass spectrometry: Collaborative study, *J. AOAC Int.* **98** (2015) 477-505.

Z. Veprikova, M. Zachariasova, Z. Dzuman, A. Zachariasova, M. Fenclova, P. Slavikova, M. Vaclavikova, K. Mastovska, D. Hengst, J. Hajslova: Mycotoxins in plant-based dietary supplements: Hidden health risk for consumers, *J. Agric. Food Chem.* **63** (2015) 6633-6643.

K. Mastovska: 50<sup>th</sup> Anniversary of the Florida Pesticide Residue Workshop and the birth of the North American Chemical Residue Workshop, *J. Agric. Food Chem.* **62** (2014) 3649-3650.

S.J. Lehotay, K. Mastovska, A.R. Lightfield, A. Nunez, T. Dutko, C. Ng, L. Bluhm: Rapid analysis of aminoglycoside antibiotics in bovine tissues using disposable pipette extraction and ultrahigh performance liquid chromatography - tandem mass spectrometry. *J. Chromatogr. A* **1313** (2013) 103-112.

K. Mastovska, P.L. Wylie: Evaluation of a new column backflushing set-up in gas chromatographic-tandem mass spectrometric analysis of pesticide residues in dietary supplements, *J. Chromatogr. A* **1265** (2012) 155-164.

S.J. Lehotay, A.R. Lightfield, L. Geis-Asteggiane, M.J. Schneider, T. Dutko, C. Ng, L. Bluhm, K. Mastovska: Development and validation of a streamlined method designed to detect residues of 62 veterinary drugs in bovine kidney using ultrahigh performance liquid chromatography – tandem mass spectrometry. *Drug Testing and Analysis* **4** (2012) 75-90.

M.J. Schneider, K. Mastovska, M.B. Solomon: Distribution of penicillin G residues in culled dairy cow muscle. *J. Agric. Food Chem.* **58** (2010) 5408-5413.

K. Mastovska, K. Dorweiler, S.J. Lehotay, J. Wegscheid, K. Szpylka: Pesticide multiresidue analysis in cereal grains using modified QuEChERS method combined with automated direct sample introduction GC-TOFMS and UPLC-MS/MS techniques, *J. Agric. Food Chem.* **58** (2010) 5959-5972.

U. Koesukwiat, S.J. Lehotay, K. Mastovska, K. Dorweiler, N. Leepipatpiboon: Evaluation of a modified QuEChERS method for pesticide residues in flaxseeds, peanuts, and doughs, *J. Agric. Food Chem.* **58** (2010) 5950-5958.

S.J. Lehotay, K. Mastovska, A.R. Lightfield, R.A. Gates: Multi-analyst, multi-matrix performance of the QuEChERS approach for pesticide residues in foods and feeds using LC-MS/MS analysis with different calibration techniques. *J. AOAC Int.* **93** (2010) 355-367.

E. Hoh, S.J. Lehotay, K.C. Pangallo, K. Mastovska, H. Ngo, C.M. Reddy, W. Vetter: Simultaneous quantitation of multiple classes of organohalogen compounds in fish oils with direct sample introduction-comprehensive two-dimensional gas chromatography and time of flight mass spectrometry. *J. Agric. Food Chem.* **57** (2009) 2653-2660.

E. Hoh, S.J. Lehotay, K. Mastovska, H. Ngo, W. Vetter, K.C. Pangallo, C.M. Reddy: Capabilities of direct sample introduction - comprehensive two-dimensional gas chromatography – time-of-flight mass spectrometry to analyze organic chemicals of interest in fish oils. *Environ. Sci. Technol.* **43** (2009) 3240-3247.

## CURRICULUM VITAE: KATERINA MASTOVSKA

M.J. Schneider, K. Mastovska, S.J. Lehotay, A.R. Lightfield, B. Kinsella, C. Shultz: Comparison of screening methods for antibiotics in beef kidney juice and serum. *Anal. Chim. Acta* **637** (2009) 290-297.

B. Kinsella, S.J. Lehotay, K. Mastovska, A.R. Lightfield, M. Danaher, A. Furey: New method for the analysis of flukicides and other anthelmintics in bovine milk and liver using liquid chromatography-tandem mass spectrometry. *Anal. Chim. Acta* **637** (2009) 196-207.

S.J. Lehotay, K. Mastovska, A. Amirav, A.B. Fialkov, T. Alon, P. Martos, A. de Kok, A.R. Fernandez-Alba: Identification and confirmation of chemical residues by chromatography-mass spectrometry and other techniques. *Trends in Anal. Chem.* **27** (2008) 1070-1090.

E. Hoh, S.J. Lehotay, K. Mastovska, J.K. Huwe: Evaluation of automated direct sample introduction with comprehensive two-dimensional gas chromatography/time-of-flight mass spectrometry for the screening analysis of dioxins in fish oil. *J. Chromatogr. A.* **1201** (2008) 69-77.

K. Mastovska, A.R. Lightfield: Streamlining methodology for the multiresidue analysis of beta-lactam antibiotics in bovine kidney using liquid chromatography-tandem mass spectrometry. *J. Chromatogr. A* **1202** (2008) 118-123.

E. Hoh, K. Mastovska: Large volume injection techniques in capillary gas chromatography. *J. Chromatogr. A*, **1186** (2008) 2-15 (a review in a special volume on *Recent Trends and Developments in Gas Chromatography*).

T. Cajka, O. Lacina, J. Hajslova, K. Mastovska, S.J. Lehotay: Rapid analysis of multiple pesticide residues in fruit-based baby food using programmed temperature vaporiser-low-pressure gas chromatography-high-resolution time-of-flight mass spectrometry. *J. Chromatogr. A*, **1186** (2008) 281-294.

E. Hoh, K. Mastovska, S.J. Lehotay: Optimization of separation and detection conditions for comprehensive two-dimensional gas chromatography – time of flight mass spectrometry (GC×GC-TOF MS) analysis of dibenzo-*p*-dioxins and dibenzofurans. *J. Chromatogr. A* **1145** (2007) 210-221.

S.C. Cunha, S.J. Lehotay, K. Mastovska, J.O. Fernandes, M.B.P.P. Oliveira: Evaluation of the QuEChERS sample preparation approach for the analysis of pesticide residues in olives and olive oil. *J. Sep. Sci.* **30** (2007) 620-632.

X. Fan, K. Mastovska: Effectiveness of ionizing radiation in reducing furan and acrylamide levels in foods. *J. Agric. Food Chem.* **54** (2006) 8266-8270.

K. Mastovska, S.J. Lehotay: Rapid sample preparation method for LC-MS/MS or GC-MS analysis of acrylamide in various food matrices. *J. Agric. Food Chem.* **54** (2006) 7001-7008.

M. Janska, S.J. Lehotay, K. Mastovska, J. Hajslova, T. Talon, A. Amirav: A simple and inexpensive “solvent in silicone tube extraction” approach and its evaluation in the gas chromatographic analysis of pesticides in fruits and vegetables. *J. Sep. Sci.* **29** (2006) 66-88.

K. Mastovska, S.J. Lehotay, M. Anastassiades: Combination of analyte protectants to overcome matrix effects in routine GC analysis of pesticide residues in food matrices. *Anal. Chem.* **77** (2005) 8129-8137.



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T. Cajka, K. Mastovska, S.J. Lehotay, J. Hajslova: Use of automated direct sample introduction with analyte protectants in the gas chromatographic-mass spectrometric analysis of pesticide residues. *J. Sep. Sci.* **28** (2005) 1048-1060.

S.J. Lehotay, K. Mastovska, A.R. Lightfield: Use of buffering and other means to improve results of problematic pesticides in a fast and easy method for residue analysis of fruits and vegetables. *J. AOAC Int.* **88** (2005) 615-629.

S.J. Lehotay, K. Mastovska, S.J. Yun: Evaluation of two fast and easy methods for pesticide residue analysis in fatty food matrices. *J. AOAC Int.* **88** (2005) 630-638.

K. Mastovska, J. Hajslova, S.J. Lehotay: Ruggedness and other performance characteristics of low-pressure gas chromatography-mass spectrometry for the fast analysis of multiple pesticide residues in food crops. *J. Chromatogr. A* **1054** (2004) 335-349.

K. Mastovska, S.J. Lehotay: Evaluation of common organic solvents for gas chromatographic analysis and stability of multiclass pesticide residues. *J. Chromatogr. A* **1040** (2004) 159-172.

M. Anastassiades, K. Mastovska, S.J. Lehotay: Evaluation of analyte protectants to improve gas chromatographic analysis of pesticides. *J. Chromatogr. A* **1015** (2003) 163-184.

K. Mastovska, S.J. Lehotay: Practical approaches to fast gas chromatography-mass spectrometry. *J. Chromatogr. A* **1000** (2003) 153-180 (a review in a special volume celebrating "A Century of Chromatography and Volume 1000 of the Journal of Chromatography").

D. Titera, V. Vesely, J. Hajslova, K. Mastovska: Intoxications of bees by pesticides. *Veterinarstvi (Veterinary Medicine)* **53** (2003) 152-154.

J. Zrostlikova, J. Hajslova, M. Godula, K. Mastovska: Performance of programmed temperature vaporizer, pulsed splitless and on-column injection techniques in analysis of pesticide residues in plant matrices. *J. Chromatogr. A* **937** (2001) 73-86.

K. Mastovska, S.J. Lehotay, J. Hajslova: Optimization and evaluation of low-pressure gas chromatography-mass spectrometry for the fast analysis of multiple pesticide residues in a food commodity. *J. Chromatogr. A* **926** (2001) 291-308.

M. Godula, J. Hajslova, K. Mastovska, J. Krivankova: Optimization and application of the PTV injector for the analysis of pesticide residues. *J. Sep. Sci.* **24** (2001) 355-366.

K. Mastovska, J. Hajslova, M. Godula, J. Krivankova, V. Kocourek: Fast temperature programming in routine analysis of multiple pesticide residues in food matrices. *J. Chromatogr. A* **907** (2001) 235-245.

M. Godula, J. Hajslova, K. Alterova: Pulsed splitless injection and the extent of matrix effects in the analysis of pesticides. *J. High Resolut. Chromatogr.* **22** (1999) 395-402.

J. Hajslova, P. Gregor, V. Chladkova, K. Alterova: Musk compounds in fish from Elbe River. *Organohalogen Compd.* **39** (1998) 253-256.

## CURRICULUM VITAE: KATERINA MASTOVSKA

Book Chapters and Monographs:

K. Mastovska: Pesticide Analysis Reference Guide: GC-MS/MS Pesticide residue analysis. Publication number 5991-2389EN, Agilent Technologies, 2013.

K. Mastovska: Multiresidue analysis of antibiotics in food of animal origin using liquid chromatography-mass spectrometry, In: *Mass Spectrometry in Food Safety: Methods and Protocols*. J. Zweigenbaum (editor), ISBN 978-1-61779-135-2, Humana Press, Totowa, NJ, USA, 2011, pp. 267-307.

S.C. Cunha, S.J. Lehotay, K. Mastovska, J.O. Fernandes, M.B.P.P. Oliveira: Sample preparation approaches for the analysis of pesticide residues in olives and olive oil, In: *Olives and Olive Oil in Health and Disease Prevention*. V.R. Preedy and R.R. Watson (editors), ISBN 978-0-12-374420-3 Elsevier, San Diego, CA, USA, 2010, pp. 653-666.

K. Mastovska: Recent developments in chromatographic techniques, In: *Comprehensive Analytical Chemistry*. Volume 51: Food Contaminants and Residue Analysis, Y. Pico (editor), ISBN 978-0-444-53019-6 (0-444-53019-3), Elsevier, Oxford, UK, 2008, pp. 175-200.

T. Cajka, J. Hajslova, K. Mastovska: Mass spectrometry and hyphenated instruments in food analysis. In: *Handbook of Food Analysis Instruments*. S. Otlés (editor), ISBN 978-1-4200-4566-6 (1-420-04566-0), CRC Press, 2008, pp. 197-228.

K. Mastovska: State of the art mass spectrometric and chromatographic techniques for drug analysis, In: *New Delivery Systems for Controlled Drug Release from Naturally Occurring Materials*, N. Parris, L. Liu, C. Song, and V.P. Shastri (editors), ISBN: 978-0-8412-7424-2, ACS Symposium Book Series 992, American Chemical Society, Washington, D.C., USA, 2008, pp. 283-298.

K. Mastovska: Instrumental aspects and application of (ultra)fast gas chromatography-mass spectrometry, In: *Encyclopedia of Mass Spectrometry*, Volume 8: Hyphenated Methods, W. Niessen (editor), ISBN 978-0-080-43847-4 (0-080-43847-4), Elsevier, Oxford, UK, 2006, pp. 73-83.

S.J. Lehotay, K. Mastovska, N. Thiex: Detecting veterinary drug residues in feed and cattle. In: *Raw Material Safety: Meat*. J. Sofos (editor), ISBN 978-1-85573-955-0 (1-85573-955-0), Woodhead Publishing Ltd, Cambridge, UK, 2005, pp. 102-131.

K. Mastovska: Role of pesticides in produce production, protection, quality and safety, In: *Produce Degradation: Reaction Pathways and Their Prevention*, O. Lamikanra, S.H. Imam and D.O. Ukuku (editors), ISBN 978-0-8493-1902-0 (0-8493-1902-1), CRC Press, Taylor & Francis Group, 2005, pp. 341-378.

S.J. Lehotay, K. Mastovska: Determination of pesticide residues. In: *Methods of Analysis of Food Components and Additives*. S. Otlés (editor), ISBN 978-0-849-31647-0 (0-849-31647-2), CRC Press, 2005, pp. 329-359.

K. Mastovska: Food & Nutritional Analysis: (q) Pesticide residues, In: *Encyclopedia of Analytical Science*, 2nd Edition, P. Worsfold, A. Townshend and C. Poole (editors), ISBN 978-0-12-764100-3 (0-12-764100-9), Elsevier, Oxford, UK, 2005, Vol. 3, pp. 251-260.



## CURRICULUM VITAE: KATERINA MASTOVSKA

Application Notes and Trade Journal Articles:

K. Mastovska, J. Zulkoski, E. Deal, L. Vaclavik, U. Koesukwiat, J.-F. Halbardier, J. Zweigenbaum, and T. Glauner: Improved LC-MS/MS pesticide residue analysis using triggered MRM and on-line dilution. Application Note 5991-7193EN, Agilent Technologies, 2017.

K. Mastovska, J. Zulkoski, E. Deal, L. Vaclavik, U. Koesukwiat, J.-F. Halbardier, J. Zweigenbaum, and T. Glauner: Validation results for LC-MS/MS pesticide residue analysis using triggered MRM and on-line dilution. Application Note 5991-7194EN, Agilent Technologies, 2017.

K. Mastovska, J. Zulkoski, and J. Zweigenbaum: Triggered MRM LC-MS/MS method development – Practical considerations for MRM optimizations using Agilent MassHunter Optimizer software. Application Note 5991-7195EN, Agilent Technologies, 2017.

S. Coates, K. Mastovska: Standard Method Performance Requirements (SMPRs) approved for high-priority dietary supplements: Phosphodiesterase type 5 inhibitors. *Inside Lab. Management* **19** (1-2) (2015) 19-26.

K. Mastovska: Modern analysis of chemical contaminants in food, *Food Safety Magazine*, Feb/Mar 2013.

K. Mastovska: Rugged GC-MS/MS pesticide residue analysis fulfilling the USDA Pesticide Data Program (PDP) requirements, Application Note 5990-1054EN, Agilent Technologies, 2012.

K. Mastovska: Book review of *Analyses of Hormonal Substances in Food Producing Animals* by J.F. Kay. *Inside Lab. Management* **13** (7-8) (2010) 12 (*invited book review for an AOAC Int. publication*).

K. Mastovska, A.R. Lightfield: Reversed phase and aqueous normal phase retention in multiclass LC-MS analysis of antibiotics. *Am. Lab.* (on-line edition) June/July (2008) 37-40.

K. Mastovska: Book review of *Chromatography: Concepts and Contrasts* by J.M. Miller. *Inside Lab. Management* **9** (5-6) (2005) 9 (*invited book review for an AOAC Int. publication*).

Pesticide Monographs:

K. Mastovska: Indoxacarb (a special evaluation). In: *Pesticide Residues in Food 2009*, Evaluations, Part I – Residues, FAO Plant Production and Protection Paper 198, ISBN 978-92-5-106503-7, FAO and WHO, Rome, Italy, 2010, pp. 647-674.

K. Mastovska: Azoxystrobin (a new evaluation). In: *Pesticide Residues in Food 2008*, Evaluations, Part I – Residues, FAO Plant Production and Protection Paper 194, ISBN 978-92-5-106218-0, FAO and WHO, Rome, Italy, 2009, pp. 1-202.

K. Mastovska: Flusilazole (a periodic review). In: *Pesticide Residues in Food 2007*, Evaluations, Part I – Residues, FAO Plant Production and Protection Paper 192, ISBN 978-92-5-105967-8, FAO and WHO, Rome, Italy, 2008, pp. 619-772.

K. Mastovska: Fludioxonil (a special evaluation). In: *Pesticide Residues in Food 2006*, Evaluations, Part I – Residues, Volume 2, FAO Plant Production and Protection Paper 189/2, ISBN 978-92-5-105723-0, FAO and WHO, Rome, Italy, 2007, pp. 535-546.

## MELISSA MEANEY PHILLIPS

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Silver Spring, MD 20906

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### HIGHLIGHTS OF QUALIFICATIONS

- Extensive method development for the extraction, separation, and characterization of organic molecules using many forms of chromatography, spectroscopy, and spectrometry.
- Experience developing analytical methods for the sample preparation and analysis of active ingredients in food and dietary supplement matrices.
- Coordinator of the program for food Standard Reference Materials (SRMs) and research.
- Co-lead scientist on an ongoing international interlaboratory comparison program with more than 150 participants.
- Excellent organizational and record keeping skills.
- Expert in Dionex Chromeleon and Agilent Chemstation chromatography software, as well as Microsoft Office Suite. Proficient in Pegasus, Labview, CorelDraw, Adobe Acrobat, and OriginLab.
- Member of the AOAC INTERNATIONAL Official Methods Board.
- 15 years of experience teaching and mentoring young scientists in both the classroom and laboratory.
- Strong written and oral presentation skills.

### EDUCATION

**Ph.D., Chemistry**, Michigan State University, East Lansing, MI, December 2007

**M.S., Forensic Chemistry**, Michigan State University, East Lansing, MI, October 2007

**B.S., Chemistry**, Michigan State University, East Lansing, MI, May 2002

### EXPERIENCE

2016 - 2017

**National Institute of Standards & Technology**, Gaithersburg, Maryland

*Office of Reference Materials*

Research Chemist (Detailed)

- Reviewed Certificates of Analysis for NIST Standard Reference Materials (SRMs) prior to release.
- Contributed to an effort to archive official records of NIST SRMs.
- Developed a white paper for design and administration of Quality Assurance Programs (QAPs).
- Designed a combined reference material and quality assurance program for the infant formula and adult nutritional communities.
- Assisted with update of marketing materials and attended a scientific conference to experience the sales and marketing of NIST SRMs.
- Gathered information from laboratory personnel to assist sales and program management staff with new developments.

2008 - present

**National Institute of Standards & Technology**, Gaithersburg, Maryland

*Organic Chemical Measurement Science Group, Chemical Sciences Division*

Research Chemist

- Develop analytical methods for the determination of active compounds in food and dietary supplements (extraction, LC, LC/MS, GC/MS, ion chromatography).
- Co-coordinate an interlaboratory comparison program for foods and dietary supplements with over 150 participants worldwide. Duties include distributing NIST SRMs for round robin studies, collecting and processing data, writing and distributing final reports, and assisting participants to improve measurement quality.
- Maintain, troubleshoot, and repair laboratory equipment and data systems.
- Keep detailed records and appropriate government-mandated paperwork for all research conducted.
- Assist numerous undergraduates, post doctoral scientists, and guest researchers to demonstrate quality research practices.
- Previously co-maintained a chemical inventory using CISPro Global for group of 30-35 scientists, including over 9,000 chemicals. Co-developed a procurement form and protocol to ensure accuracy.
- Evaluated and cataloged over 300 LC columns to establish an inventory for group users.

2002 - 2007

**Michigan State University**, East Lansing, Michigan

*Department of Chemistry*

Research Assistant

- Investigated fluorescence quenching methods for detection of nitrated explosives by screening fluorophores based on sensitivity and incorporating them into potential field-ready devices for explosives detection.
- Utilized the pH-dependent fluorescence of fluorescein for determination of acids in solution and applied this method to analysis of foods and beverages (juices, wines, and vinegars) and drugs of abuse ( $\gamma$ -hydroxybutyric acid or GHB) by HPLC.

Teaching Assistant

- 16 semesters of experience instructing physical chemistry, analytical chemistry, and quantitative analysis, both in lecture and laboratory formats.
- Helped develop undergraduate laboratory course in advanced analytical chemistry including numerous independent projects.

Undergraduate Research Mentor

- Mentored three undergraduate researchers at various stages in their undergraduate programs over a four year period.
- Instructed on proper laboratory technique, data analysis, and independent critical thinking skills.

## MEMBERSHIPS AND ASSOCIATIONS

- *Member*, General Chapters – Chemical Analysis Expert Committee, United States Pharmacopeia, 2010-2015.
- *Member*, Subdivision on Chromatography and Separations Chemistry, Analytical Chemistry Division, American Chemical Society, 2009-present.
- *Member*, AOAC INTERNATIONAL, 2008-present.
- *Stakeholder, Working Group Member, Expert Review Panelist, and Task Force Co-Chair*, AOAC INTERNATIONAL Stakeholder Panel on Infant Formula and Adult Nutritionals (SPIFAN), 2010-present.
- *Editorial Board Member*, J. AOAC Int., 2014-present.
- *Technical Division on Reference Materials Executive Committee Member*, AOAC INTERNATIONAL, 2013-present.
- *Secretary*, Washington Chromatography Discussion Group, 2009-2015.
- *Member*, Analytical and Bioanalytical Chemistry, International Advisory Board, 2017-present.
- *Member*, AOAC INTERNATIONAL, Official Methods Board, 2016-present.
- *Member*, AOAC INTERNATIONAL, Technical Programming Council, 2016-present.
- *Co-Chair*, International Vitamin Conference (IVC), 2014.

## PUBLICATIONS, ABSTRACTS, AND PRESENTATIONS

Please see attached list.

## SELECTED HONORS AND AWARDS

- *Fellow*, AOAC INTERNATIONAL, 2016.
- *Achievement in Technical and Scientific Excellence*, Stakeholder Panel on Strategic Food Analytical Methods (SPSFAM) Food Allergen Working Group, AOAC INTERNATIONAL, 2016.
- *William P. Slichter Award*, National Institute of Standards & Technology, 2015.
- *Expert Review Panel of the Year Member*, AOAC INTERNATIONAL, 2015.
- *Outstanding Graduate Student Woman*, Faculty-Professional Women's Association, Michigan State University, 2006.
- *Excellence-in-Teaching Citation*, College of Natural Science, Michigan State University, 2006.
- *Tracy Hammer Outstanding Graduate Student Award*, College of Natural Science, Michigan State University, 2005.

# MELISSA MEANEY PHILLIPS

## PUBLICATIONS, ABSTRACTS, AND PRESENTATIONS

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### INVITED PUBLICATIONS

- Melissa M. Phillips. "Choline: Properties and Determination." In: Caballero, B., Finglas, P., and Toldrá, F. (eds.) *The Encyclopedia of Food and Health* vol. 2, Oxford: Academic Press (2016) pp. 73-78.
- Catherine A. Rimmer, Melissa M. Phillips. "Solution to Certified Reference Material Recipe Challenge." *Anal. Bioanal. Chem.* 405 (2013) 6899-6900.
- Catherine A. Rimmer, Melissa M. Phillips. "Certified Reference Material Recipe Challenge." *Anal. Bioanal. Chem.* 405 (2013) 4321-4322.
- Melissa M. Phillips, Catherine A. Rimmer. "Functional Foods and Dietary Supplements." *Anal. Bioanal. Chem.* 405 (2013) 4323-4324.
- Melissa M. Phillips. "Analytical Approaches to Determination of Total Choline in Foods and Dietary Supplements." *Anal. Bioanal. Chem.* 403 (2012) 2103-2112.
- Hendrik Emons, Jane Weitzel, John Budin, Melissa Phillips, Catherine Rimmer, Donna Zink. "TDRM/TDLM Workshop on Reference Materials and Laboratory Accreditation at the AOAC Annual Meeting 2011." *Inside Laboratory Management* (Nov/Dec 2011) 6-7.
- Melissa M. Phillips. "André M. Striegel, Wallace W. Yau, Joseph J. Kirkland, and Donald D. Bly (Eds.): Modern size-exclusion liquid chromatography. Practice of gel permeation and gel filtration chromatography, 2<sup>nd</sup> ed." *Anal. Bioanal. Chem.* 399 (2011) 1571-2.
- Catherine A. Rimmer, Melissa M. Phillips. "Analytical Tools for the Dietary Supplement and Food Laboratory." *Natural Products Insider* (March 7, 2011).
- Paula Brown, Melissa Phillips, Catherine Rimmer, Laura Wood. "Quality Focus: GMPs: The Other Pieces of the Puzzle." *Nutraceuticals World.* (Jan/Feb 2011) 28-29.
- Paula Brown, Catherine Rimmer, Melissa Phillips, Laura Wood. "Quality Focus: The GMP Puzzle: What's in Your Box?" *Nutraceuticals World.* (Nov 2010) 28-29.

### PEER-REVIEWED SCIENTIFIC PUBLICATIONS

- Melissa M. Phillips, Mary Bedner, Manuela Reitz, Carolyn Q. Burdette, Michael A. Nelson, James H. Yen, Lane C. Sander, Catherine A. Rimmer. "Liquid Chromatography with Absorbance Detection and with Isotope-Dilution Mass Spectrometry for Determination of Isoflavones in Soy Standard Reference Materials." *Anal. Bioanal. Chem.* 409 (2017) 949-960.
- Janet Maxwell Roseland, Kristine Y. Patterson, Karen W. Andrews, Katherine M. Phillips, Melissa M. Phillips, Pamela R. Pehrsson, Guy L. Dufresne, Jette Jakobsen, Pavel A. Gusev, Sushma Savarala, Quynhanh V. Nguyen, Andrew J. Makowski, Chad R. Scheuerell, Guillaume P. Larouche, Stephen A. Wise, James M. Harnly, Juhi R. Williams, Joseph M. Betz, and Christine L. Taylor. "Interlaboratory Trial for Measurement of Vitamin D and 25-Hydroxyvitamin D [25(OH)D] in Foods and a Dietary Supplement Using Liquid Chromatography–Mass Spectrometry." *J. Agric. Food Chem.* 64 (2016) 3167-3175.
- Lynn X. Zhang, Carolyn Q. Burdette, Melissa M. Phillips, Catherine A. Rimmer, R. Kenneth Marcus. "Determination of Isoflavone Content in SRM 3238 Using Liquid Chromatography-Particle Beam/Electron Ionization Mass Spectrometry." *J. AOAC Int.* 98 (2015) 1483-1490.
- Melissa M. Phillips. "Liquid Chromatography with Isotope-Dilution Mass Spectrometry for Determination of Water-Soluble Vitamins in Foods." *Anal. Bioanal. Chem.* 407 (2015) 2965-2974.
- Benjamin J. Place, Mallory J. Morris, Melissa M. Phillips, Lane C. Sander, Catherine A. Rimmer. "Evaluation of the Impact of Peak Description on the Quantitative Capabilities of Comprehensive Two-Dimensional Liquid Chromatography." *J. Chromatogr. A* 1368 (2014) 107-115. Laura J. Wood, Katrice A. Lippa, Melissa M. Phillips, Catherine A. Rimmer, N. Alan Heckert, Stefan D. Leigh, Amanda J. Moors, Rebecca S. Pugh, and Lauren B. Rust. "Breakfast Cereal Sampling Study for Nutritional Elements." *Anal. Bioanal. Chem.* 405 (2013) 4569-4578.

- Mark S. Lowenthal, Melissa M. Phillips, Catherine A. Rimmer, Paul A. Rudnick, Yamil Simón-Manso, Stephen E. Stein, Dmitrii Tchekhovskoi, Karen W. Phinney. "Developing Qualitative LC-MS Methods for Characterization of Vaccinium Berry Standard Reference Materials." *Anal. Bioanal. Chem.* 405 (2013) 4451-4465.
- Lane C. Sander, Mary Bedner, David L. Duewer, Katrice A. Lippa, Melissa M. Phillips, Karen W. Phinney, Catherine A. Rimmer, Michelle M. Schantz, Katherine E. Sharpless, Susan Tai, Jeanice B. Thomas, Stephen A. Wise, Laura J. Wood. "The Development and Implementation of Quality Assurance Programs to Support Nutrient Measurements." *Anal. Bioanal. Chem.* 405 (2013) 4437-4441.
- Melissa M. Phillips, Katherine E. Sharpless, Stephen A. Wise. "Standard Reference Materials for Foods: A Program Update." *Anal. Bioanal. Chem.* 405 (2013) 4325-4335.
- Hendrik Emons, Jane Weitzel, John Budin, Melissa Phillips, Catherine Rimmer, Donna Zink. "TDRM/TDLM Workshop on Reference Materials and Laboratory Accreditation at the AOAC Annual Meeting 2011." *Accred. Qual. Assur.* 17 (2012) 101-105.
- Melissa M. Phillips, Lane C. Sander. "Microwave-Assisted Extraction and Quantitative LC/IDMS Measurement of Total Choline and Free Carnitine in Foods." *J. AOAC Int.* 95 (2012) 1479-1486.
- Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood, Katrice A. Lippa, Katherine E. Sharpless, David L. Duewer, Lane C. Sander, Joseph M. Betz. "NIST/NIH Dietary Supplement Laboratory Quality Assurance Program: The First Five Exercises." *J. AOAC Int.* 94 (2011) 803-814.
- Ryan G. Brennan, Melissa M. Phillips, Liang Y.O. Yang, Thomas P. Moffat. "Characterization and Purification of Commercial SPS and MPS by Ion Chromatography and Mass Spectrometry." *J. Electrochem. Soc.* 158 (2011) D178-86.
- Melissa M. Phillips, Ryan J. Case, Catherine A. Rimmer, Katherine E. Sharpless, Stephen A. Wise, Lane C. Sander. "Determination of Organic Acids in Vaccinium Berry Standard Reference Materials." *Anal. Bioanal. Chem.* 398 (2010) 425-434.
- Melissa S. Meaney, Victoria L. McGuffin. "Investigation of Common Fluorophores for the Detection of Nitrated Explosives by Fluorescence Quenching." *Anal. Chim. Acta* 610 (2008) 57-67.
- Melissa S. Meaney, Victoria L. McGuffin. "Luminescence-Based Methods for Sensing and Detection of Explosives." *Anal. Bioanal. Chem.* 391 (2008) 2557-2576.

## **PUBLISHED ABSTRACTS**

- Melissa M. Phillips (2011) "NIST Tools for Quality Assurance in Botanical Dietary Supplement Measurements," *Planta Med.*, 77.

## **PRESENTATIONS**

- 13th Annual Natural Supplements: An Evidence-Based Update, San Diego, CA, January 2016. "NIST Tools for Dietary Supplements Testing: Ensuring Quality in Commercial Products." (poster)
- 13th Annual Natural Supplements: An Evidence-Based Update, San Diego, CA, January 2016. "Marine Reference Materials for Dietary Supplement Analysis." (poster)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Food Reference Materials for Nutritional Assessment." (invited keynote)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Characterization of Polyphenols in Vaccinium Berry Dietary Supplement Standard Reference Materials." (poster)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Characterization of a New Total Nutrient Standard Reference Material: Protein Drink Mix." (poster)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Characterization of St. John's Wort Standard Reference Materials (SRMs)." (poster)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Soy Standard Reference Materials (SRMs) for Quality Assurance in Nutrition Measurements." (poster)
- 14th Biological and Environmental Reference Material (BERM) Symposium, Washington, DC, October 11-15, 2015. "Using Isotope Dilution with LC/MS and LC/MS/MS to Measure Water-Soluble Vitamins in NIST Unfortified and Fortified Food-Matrix SRMs." (poster)

129th AOAC INTERNATIONAL Annual Meeting and Exposition, Los Angeles, CA, September 27-30, 2015. "Interlaboratory Studies for Dietary Supplements: Fundamentals for Understanding Supplement Composition." (poster)

129th AOAC INTERNATIONAL Annual Meeting and Exposition, Los Angeles, CA, September 27-30, 2015. "Value Assignment of Curcuminoids in Turmeric Standard Reference Materials." (poster)

129th AOAC INTERNATIONAL Annual Meeting and Exposition, Los Angeles, CA, September 27-30, 2015. "Characterization of a New Total Nutrient Standard Reference Material: Protein Drink Mix." (poster)

129th AOAC INTERNATIONAL Annual Meeting and Exposition, Los Angeles, CA, September 27-30, 2015. "Characterization of St. John's Wort Standard Reference Materials (SRMs)." (poster)

12th Annual Natural Supplements: An Evidence-Based Update, San Diego, CA, January 16-18, 2015. "Interlaboratory Studies for Dietary Supplements: Fundamentals for Understanding Supplement Composition." (poster)

128th AOAC INTERNATIONAL Annual Meeting and Exposition, Boca Raton, FL, September 7-10, 2014. "The Role of Standard Reference Materials in Method Performance Verification Studies." (invited talk)

Penn State Erie, The Behrend College, Erie, PA, December 10, 2013. "Metrology 101: No Umbrella Required." (invited talk)

127th AOAC Annual Meeting and Exposition, Chicago, IL, August 25-28, 2013. "LC-MS and LC-MS/MS for Determination of Water-Soluble Vitamins in Foods." (poster)

HPLC Symposium on High Performance Liquid Phase Separations, June 16-20, 2013, Amsterdam, The Netherlands. "Comparison of Commercial Software Approaches for Quantitation in Two-Dimensional Liquid Chromatography." (poster)

HPLC Symposium on High Performance Liquid Phase Separations, June 16-20, 2013, Amsterdam, The Netherlands. "LC-MS and LC-MS-MS for Determination of Water-Soluble Vitamins in Foods." (poster)

The Pittsburgh Conference, March 17-21, 2013, Philadelphia, PA. "Eggs, Milk, Cereal, and Meat: SRMs for Breakfast." (invited talk)

126th AOAC Annual Meeting and Exposition, September 30-October 3, 2012, Las Vegas, NV. "Using LC/MS/MS to Measure Water-Soluble Vitamins in NIST Unfortified Food-Matrix SRMs." (poster)

The Second International Vitamin Conference, May 23-25, 2012, Copenhagen, Denmark. "Microwave-Assisted Extraction and LC-MS Analysis of Total Choline and Free Carnitine in Foods." (poster)

The Second International Vitamin Conference, May 23-25, 2012, Copenhagen, Denmark. "Standard Reference Materials for the Determination of Vitamins in Food, Supplement, and Clinical Samples." (poster)

The Pittsburgh Conference, March 11-13, 2012, Orlando, FL. "Challenges in the Certification of Dietary Supplement Standard Reference Materials." (invited talk)

125th AOAC Annual Meeting and Exposition, September 18-21, 2011, New Orleans, LA. "Microwave-Assisted Extraction and LC-MS Analysis of Total Choline in Foods." (poster)

HPLC Symposium on High Performance Liquid Phase Separations, June 19-23, 2011, Budapest, Hungary. "Determination of B-Vitamins, Choline, and Carnitine in NIST Food-Matrix SRMs." (poster)

SupplySide East, May 2-4, 2011, Secaucus, NJ. "NIST Tools for the Analysis of Dietary Supplements and Foods." (talk)

10<sup>th</sup> Annual International Conference on the Science of Botanicals, April 11-14, Oxford, MS. "NIST Tools for Quality Assurance in Botanical Dietary Supplement Measurements." (invited talk)

Pittsburgh Conference, March 13-17, 2011, Atlanta, GA. "Determination of Water-Soluble Vitamins in NIST Food Matrix SRMs." (talk)

Pittsburgh Conference, March 13-17, 2011, Atlanta, GA. "Analytical Characterization of Commercial SPS and MPS by Ion Chromatography and Mass Spectrometry." (poster)

124th AOAC Annual Meeting and Exposition, September 24-28, 2010, Orlando, FL. "Determination of Water-Soluble Vitamins in NIST Food-Matrix SRMs." (poster)

124th AOAC Annual Meeting and Exposition, September 24-28, 2010, Orlando, FL. "Method Development for the Determination of Yohimbine in Dietary Supplements." (poster)

Invited Speaker, June 25, 2010, College of the Holy Cross, Worcester, MA. "The Journey of a Standard Reference Material." (talk)

CASSS HPLC Symposium on High Performance Liquid Phase Separations, June 20-24, 2010, Boston, MA.  
“Characterization of *Vaccinium* Berry Standard Reference Materials (SRMs).” (poster)

The First International Vitamin Conference, May 19-21, 2010, Copenhagen, Denmark. “Determination of Water-Soluble Vitamins in NIST Food-Matrix SRMs.” (poster)

The First International Vitamin Conference, May 19-21, 2010, Copenhagen, Denmark. “Standard Reference Materials for the Determination of Vitamins in Foods and Dietary Supplements.” (poster)

Pittsburgh Conference, February 28-March 4, 2010, Orlando, FL. “Determination of Vitamins in NIST Food Matrix SRMs.” (talk)

123rd AOAC Annual Meeting and Exposition, September 13-17, 2009, Philadelphia, PA. “Development of Cranberry Juice Cocktail and Other Related Reference Materials.” (invited talk)

238<sup>th</sup> American Chemical Society National Meeting and Exposition, August 16-20, 2009, Washington, DC. “Certification of Organic Acid and Flavonol Concentrations in *Vaccinium* Berry Standard Reference Materials (SRMs).” (talk)

Pittsburgh Conference, March 8-12, 2009, Chicago, IL. “Characterization of Organic Acid and Flavonoid Profiles in *Vaccinium* Berry Dietary Supplement Standard Reference Materials (SRMs).” (poster)

Chromatography Forum of the Delaware Valley Spring Symposium, April 16, 2009, Fort Washington, PA, “Characterization of NIST Dietary Supplement SRMs.” (invited talk)

CASSS HPLC Symposium on High Performance Liquid Phase Separations, May 11-14, 2008, Baltimore, MD.  
“Characterization of *Vaccinium* Berry Standard Reference Materials (SRMs).” (poster)

Pittsburgh Conference, February 25-March 2, 2007, Chicago, IL. “Fluorescence Quenching of Fluorescein for the Detection of Acids in Forensic Samples.” (talk)

Pittsburgh Conference, March 12-17, 2006, Orlando, FL. “Fluorescence Quenching of Fluorescein for the Detection of Carboxylic Acids.” (talk)

Pittsburgh Conference, February 27-March 4, 2005, Orlando, FL. “Investigation of Common Fluorophores for the Detection of Nitrated Explosives by Fluorescence Quenching.” (talk)

Pittsburgh Conference, March 7-12, 2004, Chicago, IL. “Fluorescence Quenching Detection of Nitrated Explosives.” (poster)

## Charles Thomas (Tom) Seipelt

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### SUMMARY

Data driven problem solver with proven ability to identify and deliver creative and timely solutions to complex technical problems. Results oriented manager experienced in working with cross-functional teams and global projects with annual budgets over \$1M. Technical expert and consultant to senior management for risk management providing routine interaction with R&D, Regulatory, Quality Assurance, Public Affairs and Government Affairs.

### ACCOMPLISHMENTS

- Directed cross-functional team in development of risk-based strategy for global food safety and chemical contaminants program to assure ingredient quality and product safety. Integrated program into overall quality system to address global regulatory compliance and respond to food safety concerns in the marketplace.
- Successfully managed \$30M global packaging project to identify and implement alternative materials to eliminate the use of Bisphenol A in infant formula packaging to meet changing regulatory and marketplace requirements. Provided technical interface with US FDA and Health Canada to facilitate regulatory approval of materials.
- Led accelerated development and implementation of routine LC-MS/MS methodology for rapid testing of infant formulas and raw materials for the presence of melamine and cyanuric acid. Served on U.S. Delegation to Codex Committee on Contaminants in Food in 2010-12. Member of AOAC International Method Centric Committee on Melamine.
- Led the development and implementation of routine LC-MS/MS methodology for fortified nutrient testing generating cost savings over \$200K/year. Internal methods include carnitine, vitamin D, and simultaneous determination of seven water-soluble vitamins. Vitamin D and carnitine methods adopted by AOAC as Official First Action Methods for infant formula.
- Recognized leader and problem-solver, awarded the Abbott Chairman's Award (1994 and 2012), the Abbott Nutrition President's Award (2008, 2010, 2011 and 2012), the Abbott Quality Assurance 'Q Award' (2009), and the Engineering Excellence Award (2010).

### EMPLOYMENT HISTORY

**Abbott Laboratories – Abbott Nutrition**                      **Columbus, Ohio**                      **1999 to present**  
**Product Stewardship & Global Food Safety - Senior Manager**                      **Current Position**

Lead multi-disciplinary team in implementation of global food safety program to address chemical contaminants using a risk based approach. Program scope includes ingredients, packaging, processing chemicals and spans all phases of product life cycle from vendor qualification, material acceptance, surveillance, and finished product testing. Responsible for Division Restricted Substance Management program including REACH and RoHS compliance.



**ANSC Engineering Technical Operations - Senior Manager** **2011-2013**

Program manager responsible for \$30M project encompassing implementation of packaging changes across eight packaging forms and eleven production facilities. Coordinated multi-disciplinary effort to develop and implement a global food safety program to address chemical contaminants.

**Global Research Services - Section Manager** **2005 to 2011**

Responsible for research efforts of sixteen senior and mid-level scientists with over \$5M in capital equipment and annual discretionary budget of \$400K. Coordinated global efforts to develop, validate, and implement methods for the routine testing of fortified nutrients. Provided technical leadership for ingredient and packaging quality and purity assessment and address potential contamination issues.

**Global Research Services - Research Scientist / Sr. Research Scientist** **1999 to 2005**

Led method development efforts for advanced nutrient testing using LC-MS/MS platform. Supervised development of nutritional systems biology research program with collaborative research in proteomics (LC-MS/MS) and metabolomics (LC-MS/MS and NMR).

**Procter & Gamble Pharmaceuticals** **Mason, Ohio**  
**Structural Biology Section – Scientist** **1998 to 1999**

Characterized proteins and synthetic peptides in drug discovery research. Performed protein identification using automated LC-MS/MS and MALDI-TOF in proteomics research effort. Configured and maintained three fully automated mass spectrometers in an open access environment with over 65 active users.

**Abbott Laboratories - Ross Products Division** **Columbus, Ohio**  
**Molecular Spectroscopy Laboratory** **1984 to 1998**

Multiple promotions from Technician IV to Senior Chemist with increasing responsibility from the bench to supervisory roles. Supported Foreign Substance Surveillance Program by developing and validating methods for the analysis of organic contaminants in water and infant formula. Supported R&D strategic research by characterizing glycoproteins, phosphoproteins, lipids, carbohydrates, and vitamins using mass spectrometry, chromatography, chemical and enzymatic treatments.

**Great Lakes Forensic Laboratories, Inc.** **Hobart, Indiana**  
**Forensic Toxicologist** **1983 - 1984**

Performed investigative and routine analysis of tablets, powders, bodily fluids and tissues for the presence of controlled substances and/or their metabolites.

**EDUCATION**

1983, B.S., Forensic Chemistry, Ohio University, Athens, Ohio

1985 - 1987, Graduate Coursework, Analytical Chemistry, The Ohio State University,  
Columbus, Ohio

**PROFESSIONAL ASSOCIATIONS**

American Society for Mass Spectrometry (member since 1990)

AOAC International (member since 2008)

## **PUBLICATIONS**

- D. Gilliland, C. Black, J. Denison, C. Seipelt, S. Baugh; "Simultaneous Determination of Vitamins D<sub>2</sub> and D<sub>3</sub> by Electrospray Ionization LC/MS/MS in Infant Formula and Adult Nutritionals: First Action 2012.11"; Journal of AOAC International **96**(6), 1387-95 (2013)
- D. Starkey, J. Denison, C. Seipelt, W. Jacobs; "Free and Total Carnitine in Infant Formula and Adult/Pediatric Nutritional Formulas by Liquid Chromatography/Tandem Mass Spectrometry: First Action 2012.17"; Journal of AOAC International **96**(5), 1082-1085 (2013).
- N. Cellar, J. Denison, C. Seipelt, M. Twohig, J. Burgess; "Dramatic Improvements in Assay Reproducibility for Water-Soluble Vitamins Using ACQUITY UPLC and the Ultra-Sensitive Xevo TQ-S Mass Spectrometer", Waters Application Note, 2013 (not peer-reviewed).
- D. Gilliland, C. Black, J. Denison, C. Seipelt, D. Dowell; "Simultaneous Determination of Vitamins D<sub>2</sub> and D<sub>3</sub> by LC-MS/MS in Infant Formula and Adult Nutritionals: First Action 2011.13"; Journal of AOAC International **95**(3), 583-587 (2012).
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- J. M. Thurmond, R. G. Hards, C. T. Seipelt, A. E. Leonard, L. Hansson, M. Stromqvist, M. Bystrom, K. Enquist, B. C. Xu, J. J. Kopchick, and P. Mukerji; "Expression and Characterization of Phosphorylated Recombinant Human  $\beta$ -Casein in *Escherichia coli*"; Protein Expression and Purification; **10**, 202-208 (1997).
- J. A. Giust, C. T. Seipelt, B. K. Anderson, D. A. Deis, J. D. Hinders; "Determination of Bis(2-ethylhexyl) Phthalate in Cow's Milk and Infant Formula by High-Performance Liquid Chromatography"; Journal of Agricultural and Food Chemistry **38**(2), 415-418 (1990).

## **PRESENTATIONS** (\* Presenting author)

- T. Seipelt; "Food Contact Materials: Considerations for Infant Formula Packaging"; Oral Presentation, Genetic Toxicology Association, Invited Talk, Newark, DE, October, 2012.
- T. Seipelt, J. Denison; "Food Safety and Ingredient Quality in the Post-Melamine Era"; Oral Presentation, Waters Users' Meeting, Invited Talk, Vancouver, BC, Canada, May, 2012.
- T. Seipelt\*, D. Gilliland, J. Denison; "The Role of Mass Spectrometry in Routine Nutrient Analysis"; Oral Presentation, Waters Users' Meeting, Invited Talk, Philadelphia, PA, May, 2009.
- D. Gilliland\*, C. Black, J. Denison, T. Seipelt; "Simultaneous Determination of Vitamins D<sub>2</sub> and D<sub>3</sub> in Infant Formula and Adult Nutritional Products by UPLC-MS/MS"; Poster Presentation, AOAC International Meeting, Dallas, TX, September, 2008.
- L. Salvati\*, J. Denison, D. Gilliland, T. Seipelt; "Determination of Total B<sub>6</sub> in Milk-Based Infant Formulas - A Comparison of HPLC and UPLC-MS/MS"; Poster Presentation, AOAC International Meeting, Dallas, TX, September, 2008.
- J. Denison\*, D. Gilliland, T. Seipelt; "Transfer of Validated Multi-Component Water Soluble Vitamin LC-MS/MS from Waters Quattro Premier XE to Waters Acquity TQD MS/MS"; Poster Presentation, AOAC International Meeting, Dallas, TX, September, 2008.
- D. Gilliland\*, J. Denison, T. Seipelt, "Determination of B Vitamins in Infant Formula and Adult Nutritional Products using HPLC-MS/MS"; Oral Presentation, AOAC International Meeting, Dallas, TX, September, 2008.

- D. Gilliland\*, J. Denison, T. Seipelt; "Determination of B Vitamins in Infant Formula and Adult Nutritional Products using HPLC-MS/MS"; Oral Presentation, AOAC Midwest Regional Meeting, Bozeman, MT, June, 2008.
- J. Denison, D. Gilliland, T. Seipelt\*; "Optimized Conditions for the Determination of Vitamin D2 and D3 by UPLC-MS/MS"; Proceedings of the 52<sup>nd</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Denver, CO, June, 2008.
- D. Gilliland\*, J. Denison, T. Seipelt; "Water Soluble Vitamin Analysis in Pediatric Products by LC-MS/MS"; Poster Presentation, AOAC International Meeting, Minneapolis, MN, September, 2006.
- D. Starkey\*, J. Denison, T. Seipelt, W. Jacobs; "Validation of an LC-MS/MS Method for the Determination of Carnitine in Liquid Nutritional Products"; Oral Presentation, AOAC Meeting, Minneapolis, MN, September, 2006.
- D. Gilliland\*, J. Denison, T. Seipelt; "Feasibility of Determining Water Soluble Vitamins in Infant Formula and Medical Nutritional Products and Vitamin Premixes by LC-MS/MS"; Oral Presentation, AOAC International Meeting, Minneapolis, MN, September, 2006.
- T. Seipelt\*, V. Pound, D. Gilliland, M. Lynch, T. Nadler; "Automated Characterization of  $\beta$ -Casein from Human Milk using Multi-Dimensional HPLC-ESI-MS/MS"; Proceedings of the 45<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, June, 1997.
- B. Caldwell, T. Seipelt\*, D. Gilliland; "Determination of Vitamin D in Infant Formula by LC-APCI-MS"; Proceedings of the 45<sup>th</sup> ASMS Conference on Mass Spectrometry and Allied Topics, Palm Springs, CA, June, 1997.
- J. Thurmond, R. Hards, T. Seipelt, A. Leonard, J. Baxter, I. Reyzer, L. Hansson, M. Stromqvist, M. Bystrom, K. Enquist, P. Mukerji\*; "Engineered Phosphorylation of Recombinant Human Milk Protein in *Escherichia coli* and Analysis of the Anti-Infective Activity"; Poster Presentation, 10<sup>th</sup> International Biotechnology Symposium, Sydney, Australia, August, 1996.
- T. Seipelt\*, B. Caldwell, V. Pound; "Detection of Glycosylated and Phosphorylated Peptides by LC-MS using API-CID and In-Source CID"; Proceedings of the 44<sup>th</sup> Annual Conference on Mass Spectrometry and Allied Topics, Portland, OR, May, 1996.
- R. Ragan, T. Seipelt, T. Lukacs, S. Behr\*; "Canola Oil: An Unsuspected Source of Vitamin K"; Poster Presentation, 83<sup>rd</sup> American Oil Chemists' Society Annual Meeting, Toronto, Canada, May, 1992.
- W. Eisenhardt\*, J. Cooper, P. Davis, T. Seipelt; "Pesticides and Food Safety"; Oral Presentation, 2<sup>nd</sup> International Conference on Agriculture and the Environment, Columbus, OH, November, 1991.
- T. Seipelt\*; "Extraction of Chlorinated Pesticides and Related Compounds from Potable Water by Solid-Phase Extraction"; Oral Presentation, 19<sup>th</sup> ACS Central Regional Meeting, Columbus, OH, June, 1987.

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Education	<p><b>Ph.D. in Organic Chemistry, 1982</b>, Indian Institute of Technology, Madras, India "Rearrangements and ortho effects in organic compounds on Electron -Impact"</p> <p><b>M. S. in Computer Science, 1997</b>, University of Pittsburgh, Pittsburgh, PA "Implementation of Query by Icon (QBI), a visual based query generation using object model"</p> <p><b>M. S. in Organic Chemistry, 1977</b>, Andhra University, Waltair, India</p> <p><b>B. S. in Chemistry, 1975</b>, Hindu College, Machilipatnam, India</p>	
Professional Experience	<p><b>Jun '05 – Present: Senior Scientist, Global research and Innovation, The Coca-Cola Company</b></p> <p><b>Aug '99 – Jun '05: Research Associate Professor &amp; Director of Mass Spectrometry Facility,</b> University of Pittsburgh</p> <p><b>Aug. '88 – Jul '99: Research Assistant Professor &amp; Director of Mass Spectrometry Facility,</b> University of Pittsburgh,</p> <ul style="list-style-type: none"> <li>• Responsible for the campus wide mass spectrometry facility serving the needs of the department graduate researchers totaling more than 150 students working on a variety of research projects; providing the technical know how, data and interpretation.</li> <li>• Hands on experience in analysis, troubleshooting and maintaining all aspects of the facility instrumentation, associated computer hardware &amp; software and vacuum systems.</li> <li>• Method development for the characterization of trace level contaminants and metabolites.</li> <li>• Trained and supervised more than 40 teaching assistants and graduate researchers in mass spectrometry.</li> <li>• Proposal writing for securing grants for research and instrumentation. Evaluate, select and decide mass spectrometry/HPLC/GC equipment for the facility.</li> <li>• Designed the new mass spectrometry facility housing 5 mass spectrometers.</li> <li>• Conduct independent research, publish and give presentations at the technical meetings.</li> </ul> <p><b>April '82 – July '88: Research Associate,</b> University of Pittsburgh: Department of Chemistry,</p> <ul style="list-style-type: none"> <li>▪ Studies in the area of desorption mass spectrometry for non volatile compounds including peptides, and polymers.</li> <li>▪ Fundamental studies in the laser induced ion-molecule reactions using LD-TOF and FT-MS mass spectrometers.</li> <li>▪ Designed Fast Atom Bombardment Source for Kratos 50 mass spectrometer and Cf-252 ionization source for FT-MS analyzer.</li> <li>▪ Supervised graduate research students in their research.</li> </ul> <p><b>Sep '77 – Mar '82: Research Fellow,</b> Indian Institute of Technology,</p> <ul style="list-style-type: none"> <li>• Mass spectral mechanistic study of ortho interaction and rearrangements in organic compounds using high resolution and meta-stable (MIKES and linked scans) methods.</li> <li>• Synthesis and characterization of sulfur organic compounds using spectroscopic techniques UV-Vis, IR, NMR, GC and Mass Spectrometry.</li> </ul>	
Instrumentation	<ul style="list-style-type: none"> <li>• Magnetic sector MS on Autospec, VG-70, Kratos 50, Varian CH-5 and Varian CH-7.</li> <li>• FTICR mass spectrometry on Nicolet FTMS using laser desorption ionization.</li> <li>• Time of Flight on Waters LC-MS with QTOF API US, equipped with ESI and APCI sources, LAMMA-1000 with laser ionization, and GC-TOF with EI and CI sources.</li> <li>• Quadrupole EI -MS on HP 5970B (GC-MS) and 5971A (GC-MS); HP1100 LC-MS with ESI and APCI.</li> </ul>	
Teaching	<p><b>Courses taught at graduate and undergraduate level at University of Pittsburgh, Pittsburgh, PA</b></p> <ul style="list-style-type: none"> <li>• Introduction and advanced techniques in mass spectrometry with emphasis on principles of ionization, analyzers and spectral interpretation for structural elucidation.</li> <li>• Training courses for graduate students in the operation of GC-MS and LC-MS instrumentation with emphasis on principles and method development.</li> <li>• Programming languages of C/C++ and Java; Introduction to Operating systems with emphasis on Unix and Windows 2000 operating systems for seniors majoring in Computer science.</li> </ul> <p><b>University of Puerto Rico, Puerto Rico, 1997</b></p> <ul style="list-style-type: none"> <li>• Training course conducted in the operation of Fast Atom Bombardment ionization mass spectrometry.</li> </ul>	
Professional activities	<ul style="list-style-type: none"> <li>• Member, Pittsburgh Conference Technical Program Committee, 1992 – 2006;</li> <li>• Chairman, Science Week Committee of Pittcon, 1999-2001</li> <li>• Chairman, Mass spectrometry discussion group Pittsburgh, 1989-94 and 97-98</li> <li>• Treasurer, Spectroscopy Society of Pittsburgh 2003-2004</li> <li>• Member of executive body of Indian Society for Mass Spectrometry 1997- 2000</li> </ul>	
Professional associations	<ul style="list-style-type: none"> <li>▪ American Society for Mass Spectrometry</li> <li>▪ American Chemical Society</li> <li>▪ Spectroscopy Society of Pittsburgh</li> <li>▪ AOAC International</li> </ul>	<ul style="list-style-type: none"> <li>▪ Indian Society for Mass Spectrometry</li> <li>▪ Society for Analytical Spectroscopy</li> <li>▪ Society for Analytical Chemists of Pittsburgh</li> </ul>
Publications	<p>1. "Gas-phase intramolecular elimination reaction studies of steviol glycosides in positive</p>	

- electrospray and tandem mass spectrometry”, Upreti, Mani; Clos, John F.; **Somayajula, Kasi V.**; Milanowski, Dennis J.; Mocek, Ulla; DuBois, Grant E.; Prakash, Indra,, *European Journal of Mass Spectrometry* (2009), 15(1), 11-21.
2. “A Quadrupole/Time-of-Flight Mass Spectrometry Study of Trp-Cage's Conformation.”, Lin, Mingxiang; Ahmed, Zeeshan; Taormina, Christopher R.; **Somayajula, Kasi V.** *Journal of the American Society for Mass Spectrometry* (2007), 18(2), 195-200.
  3. “Two New 5-Deoxyflavonoids from *Calliandra inermis*”, M. Maheswara, Y. Koteswara Rao, V. Siddaiah, C. Venkata rao, **Kasi V. Somayajula**, and Fu Tyan Lin, *Chem. Pharm. Bull.* **52**(8) 974—975 (2004).
  4. “Interactions of perfluorocarbon liquids and silicone oil as characterized by mass spectrometry.” Friberg Thomas R; Siska Peter E; **Somayajula Kasi**; Williams John; Eller Andrew W , Graefe's archive for clinical and experimental ophthalmology (2003 Oct), 241(10), 809-15
  5. “<sup>1</sup>H NMR and electrospray mass spectrum (ESI-MS) of the mono-iodized Bis(2,2'-bis(4,5-dimethylimidazole)chloronitrosylruthinium(II), ([Ru(NO)Cl(LH<sub>2</sub>(LH))]<sup>+</sup>), complex, LH<sub>2</sub>= 2,2'-bis(4,5-dimethylimidazole), T. W. Stringfield, **Kasi V. Somayajula**, D. C. Muddiman, J. W. Flora, and R. E. Shepherd, *Inorg. Chim. Acta*, 343 (2003), 317-328.
  6. “Electrospray Mass Spectrometry of [Ru(NO)(Cl)(bpy)<sub>2</sub>]<sup>2+</sup>, (bpy= 2, 2' - bipyridine) : fragmentation from desolvated [[Ru(NO)(Cl)(H<sub>2</sub>O)<sub>2</sub>], Cl<sup>-</sup>]: ion pairs by electron transfer and internal Lewis base pathways”, J. M. Slocik, **Kasi V. Somayajula** and R. E. Shepherd, *Inorganica Chimica Acta* (2004), 357(4), 965-979
  7. “Coordination of RuCl<sub>3</sub>(NO)(H<sub>2</sub>O)<sub>2</sub> by imidazole, histidine, and iminodoacetate ligands: a study of complexation of “caged NO” by a simple bio-cellular donors”, J. M. Slocik, M. S. Ward, **Kasi V. Somayajula** and R. E. Shepherd, *Transition Met. Chem. (London)*, 26, 351-364, (2001).
  8. “Electrospray mass spectrometry of trans-[Ru(NO)Cl(dpaH)<sub>2</sub>]<sup>2+</sup> (dpaH=2,2'-dipyridylamine) and 'caged NO', [RuCl<sub>3</sub>(NO)(H<sub>2</sub>O)<sub>2</sub>]: loss of HCl and NO from positive ions versus NO and Cl from negative ion”, Slocik, J. M.; **Somayajula, Kasi V.**; Shepherd, R. E., *Inorganica Chimica Acta* (2001), 320(1,2), 148-158.
  9. “Tris (Perfluoroalkylethyl)silyl Alkyl Amines as Calibration Standards for Electron Ionization Mass Spectrometry in the Mass Range of 100-3000 Da”, Vyacheslav N. Fishman, Bruno Linclau, Dennis P. Curran, and **Kasi V. Somayajula**, *Journal of the American Society for Mass Spectrometry* (2001), 12(9), 1050-1054.
  10. “Intramolecular hydrogen transfer reactions of o- (Bromophenyl) dialkylsilyl ethers. Preparation of Rapamycin-d<sub>1</sub>” Dennis P. Curran, **Kasi V. Somayajula** and Hosung Yu, *Tetrahedron Lett.* 33,2295, 1992.
  11. “A novel method for matrix assisted laser mass spectrometry of proteins”, Zhao Shankai, **Kasi V. Somayajula**, A. G. Sharkey, and D. M. Hercules, *Anal. Chem.*, 1991, 63, 450.
  12. “ Use of nitrocellulose matrix in laser mass spectrometry,” Zhao Shankai, **Kasi V. Somayajula**, A. G. Sharkey and D. M. Hercules, *Fresenius J. Anal. Chem.*, 1990, 338, 588.
  13. “Effect of 3-phenyl substituent on the acidity of bicyclo [3.2.1] octa-2,6-diene,” G. Trimitsis, J. Rimoldi, M. Trimitsis, J. Balog, F. T. Lin, A. Marcus, **Kasi V. Somayajula**, S. Jones, T. Hendrickson, and S. Kincaid, *Chem. Comm.* 190, 237,3.
  14. “In situ analysis of compounds separated by thin layer chromatography”, A. J. Kubis, **Kasi V. Somayajula**, A. G. Sharkey, D. M. Hercules, *Microbeam Anal.*, 1989, 24, 364.
  15. “Observation of carbon clusters from polycyclic aromatic hydrocarbons,” D.N. Lineman, **Kasi V. Somayajula**, A. G. Sharkey and D. M. Hercules, *Microbeam Anal.*, 1989 24, 297.
  16. “Solid state chemical ionization for characterization of organic compounds by laser mass spectrometry”, K. Balasanmugam, **Kasi V. Somayajula**, D. M. Hercules, *Talanta*, 1989, 36, 117.
  17. “High Mass Carbon clusters from aromatic hydrocarbons observed by laser mass spectrometry”, D. N. Lineman, **Kasi V. Somayajula**, A. G. Sharkey and D. M. Hercules, *J. Phys. Chem*, 1989, 93, 5025.
  18. “Laser mass spectrometry of compounds separated by thin layer chromatography”, A. J. Kubis, **Kasi V. Somayajula**, A. G. Sharkey and D. M. Hercules, *Anal. Chem.* 1989, 61, 2516.
  19. “Determination of water loss mechanism in amine terminus amino acids using laser mass spectrometry,” K. J. Rosnack, **Kasi V. Somayajula**, A. G. Sharkey, N. J. Jensen and D. M. Hercules, *Appl. Spectroscopy*, 1989, 43, 1087.

Note: The name of **Kasi V. Somayajula** appears as **S. K. Viswanadham** in the following publications.

20. “Ion molecule reactions in the negative ion laser mass spectrometry of nitro aromatic

- compounds," **S. K. Viswanadham** and D. M. Hercules, Anal. Chem., 1988,60,2346.
21. "Two parallel ortho effects on 5-(o-tolylidene) barbituric acid and related compounds on electron impact", D. V. Ramana and S. K. Viswanadham, Indian J. Chem., 1988, 27B, 613.
  22. "Comparison of laser (LMS), <sup>252</sup>Cf-PDMS, FAB, SIMS and Field Desorption mass spectra of a series of internal salts", K. Balasanmugam, **S. K. Viswanadham**, D. M. Hercules, Appl. Spec. 1987,41,821.
  23. "Application of laser microprobe mass spectrometry in Organic analysis", D. M. Hercules, F. P. Novak, **S. K. Viswanadham** and Z. A. Wilk, Anal. Chim. Acta, 1987, 195, 61.
  24. "Laser mass spectrometry of organo phosphorous pesticides and related compounds", J. J. Morelli, **S. K. Viswanadham**, A. G. Sharkey and D. M. Hercules, Int. J. Environ. Anal. Chem, 1987, 31, 195.
  25. "Californium-252 plasma desorption ion cyclotron resonance mass spectrometry", **S. K. Viswanadham**, D. M. Hercules, R. R. Weller and C. S. Giam, Biomed. Env. Mass Spectrom., 1987, 14, 43.
  26. "Characterization of polycyclic aromatic compounds by laser mass spectrometry", K. Balasanmugam, **S. K. Viswanadham** and D. M. Hercules, Anal. Chem, 1986, 58, 1102.
  27. "Negative ion laser mass spectrometry of aromatic nitro compounds and their use as solid state chemical ionization reagents", K. Balasanmugam, **S. K. Viswanadham** and D. M. Hercules, Anal. Chem., 1983, 55, 2424.
  28. "Laser induced mass spectrometry: Ion formation processes and developments", F. P. Novak, K. Balasanmugam, **S. K. Viswanadham**, C. D. Parker, Z. A. Wilk, D. E. Matter and D. M. Hercules, Int. J. Mass Spectrom. and Ion Phys., 1983, 53, 135.
  29. "Laser mass spectrometry of organic compounds", D. M. Hercules, C. D. Parker, K. Balasanmugam and **S. K. Viswanadham** in "ion formation from organic solids", Springer Verlag series in chemical physics, 1983, 25, 222.
  30. "Interesting ortho effects of the methoxy group in o-Methoxy aromatic thioamides", D. V. Ramana and **S. K. Viswanadham**, Org. Mass Spectrom. 1983, 18, 418.
  31. "Competing oxygen migrations in ortho nitro aromatic thioamides on electron impact", D. V. Ramana and **S. K. Viswanadham**, Org. Mass Spectrom. 1983, 18, 162.
  32. "Unexpected mass spectral skeletal rearrangements in aromatic thioamides", D. V. Ramana and **S. K. Viswanadham**, Org. Mass Spectrom. 1982, 17, 409.
  33. "Intramolecular aromatic substitution in (arylidene) barbituric acids on electron impact", D. V. Ramana and **S. K. Viswanadham**, Bull. Chem. Soc. Jpn., 198, 53, 3004.

CURRICULUM VITAE: DARRYL M. SULLIVAN

CURRENT POSITION

Title: Associate Scientific Director  
Department: Food and Drug Analysis  
Covance Laboratories Inc.  
Madison, Wisconsin

EDUCATION

BS Biological Conservation with a minor in Biochemistry, University of Wisconsin-Madison, Madison, Wisconsin, 1975

Additional Training

Six Sigma Green Belt Training. Covance Laboratories, Madison Wisconsin, 2003  
GMP Compliance and Regulatory Update, Covance Laboratories, Madison, Wisconsin, 2001  
Good Laboratory Practices (GLP) Covance Laboratories, Madison, WI, 2000, 2001, 2002, 2003, 2004  
Building Loyalty Through Customer Service, Covance Laboratories, Madison, Wisconsin, 2000  
Violence in the Workplace, Covance Laboratories Inc., Madison, Wisconsin, 2000  
Total Quality Management System, sponsored by Covance Laboratories Inc., Madison, Wisconsin 1988, 1989, 1990, 1991  
Supervisory Management Certificate Program, Management Institute, University of Wisconsin Extension, Madison, Wisconsin, 1985-1986  
High Performance Liquid Chromatography Training School, Waters Associates, St. Louis, Missouri, 1979

Additional Course Work

Graduate studies in biochemistry and limnology, University of Wisconsin-Madison, Madison, Wisconsin, 1976

PROFESSIONAL EXPERIENCE

2008 - Present: Associate Scientific Director, Food and Drug Analysis

As the associate scientific director in the Food and Drug Analysis Department, Mr Sullivan is responsible for the overall scientific rigor of all testing programs. Mr. Sullivan brings new test methods, new technologies, and new innovations into the laboratory. He is then responsible for implementing and validating these methods and technologies.

Mr. Sullivan is the primary Covance liaison to AOAC International, and other scientific associations.

2000 – 2008: Manager of Business Development, Food and Drug Analysis

As a senior manager in the Food and Dietary Supplement Groups, Mr. Sullivan is responsible for the department's major food and nutraceutical testing programs. His responsibilities include design and

implementation of the testing programs, assuring the quality of the data, and communicating directly with the clients. Mr. Sullivan manages laboratory supervisors, scientists, technicians, and administrative personnel in carrying out these duties.

Mr. Sullivan is held accountable for the total performance of these testing programs. He is responsible for the quality of the data, the timeliness of the testing and the financial performance of the teams. Mr. Sullivan is expected to direct method development programs, problem solving projects, and new testing ventures.

In addition, Ms. Sorenson continues to assist scientific leaders with AOAC Single Laboratory Validation and Collaborative Studies and has led AOAC projects in the past.

#### CURRICULUM VITAE: DARRYL M. SULLIVAN

##### PROFESSIONAL EXPERIENCE (Continued)

###### 1990 - 2000: Senior Client Manager, Food Chemistry

As a senior client manager in the Food Sciences Group, Mr. Sullivan provided a wide variety of services to both clients and the laboratory staff as an expert in nutritional, inorganic, and lipid chemistry. He consulted with and advised clients on regulatory issues, proper selection of assays, and understanding analytical results. He utilized his extensive experience in designing programs for a variety of projects, including major nutritional surveys, nutrition labeling programs, stability studies, and major research and development projects, and he assisted clients and laboratory staff with all aspects of these studies. Mr. Sullivan acted as a liaison between the laboratory and the client by providing technical direction and advice; he discussed results and methodology with the scientists and helped clients in their interpretation and understanding of the data. He also assisted the client service representatives by providing technical direction to individuals working directly with accounts.

Mr. Sullivan is very active in AOAC International; he served as a member of the Official Methods Board and chair of one of the Food Methods committees.

###### 1987 - 1990: Technical Manager, Inorganic Analysis

Mr. Sullivan had the same supervisory duties as described under the Staff Scientist/Supervisor position. He also had the additional responsibilities of budget preparation, department cost analysis, and productivity analysis. Mr. Sullivan researched new analytical technologies and often published or presented his findings.

###### 1981 - 1987: Staff Scientist/Supervisor, Inorganic Analysis

Mr. Sullivan managed the Inorganic Department, including supervision of the ICAP and Nonmetals, Atomic Absorption, and Proximate/Lipid Chemistry sections. This involved organizing and evaluating data, and performing or advising others on research of new methods or modifications of existing methods. These sections conducted a wide range of food and feed analyses for trace elements, heavy metals, organic and inorganic salts, proximate composition, and lipids. Much of the work was done as part of quality control or nutritional labeling compliance testing. Mr. Sullivan also supervised the Formulation Quality Control section which performed analytical testing for the Toxicology Department. Mr. Sullivan was instrumental in managing the startup of ion chromatography techniques at Hazleton, as well as in developing applications of ion chromatography to food analyses. He also managed other method development projects including gravimetric methods for total dietary fiber and a heavy metals screen by inductively coupled argon plasma atomic emission spectrophotometry.



1980 - 1981: Scientist II/Section Leader, Nutritional Adjuncts

As a section leader in the proximate and lipid chemistry area, Mr. Sullivan supervised scientists and technicians in the analysis of protein, moisture, ash, fat, fiber, carbohydrates, and calories in foods and feeds. Mr. Sullivan also worked on the analysis of fatty acids, cholesterol, plant sterols, and antioxidants.

CURRICULUM VITAE: DARRYL M. SULLIVAN

PROFESSIONAL EXPERIENCE (Continued)

1979 - 1980: Scientist, Nutritional Adjuncts

Mr. Sullivan worked in the Micro vitamin section where he regularly identified and quantified vitamins and amino acids in proteins, foods, and animal feeds using wet chemical techniques, high performance liquid chromatography, and an amino acid autoanalyzer.

1977 - 1978: Scientist, Pesticide Evaluation

Mr. Sullivan's primary responsibilities were the management and operation of the Drosophila mutagenesis laboratory. This involved leading long-term projects as well as method development and data analysis.

1975 - 1977: Development Engineer, Research Projects Corporation, Madison, Wisconsin

Mr. Sullivan researched and developed air movement and filtration systems for integration with a solar heating program.

PUBLICATIONS

Paske, N., Berry, B., Schmitz, J., Sullivan, D., "Determination of Low-Level Agricultural Residues in Soft Drinks and Sports Drinks by Liquid Chromatography/Tandem Mass Spectrometry: Single-Laboratory Validation" Journal of the AOAC INTERNATIONAL, 90 (2):521-533 (2007)

Paske, N., Berry, B., Schmitz, J., Sullivan, D., "Determination of Low-Level Agricultural Residues in Soft Drinks and Sports Drinks by Gas Chromatography with Mass-Selective Detection: Single-Laboratory Validation" Journal of the AOAC INTERNATIONAL, 90 (2):534-543 (2007)

Sullivan, D. M., Wehrmann, J., Schmitz, J., Crowley, R., and Eberhard, J., "Determination of Ephedra Alkaloids by Liquid Chromatography/Tandem Mass Spectrometry," Journal of the AOAC INTERNATIONAL, 86(3):471-475 (2003).

Lee S.C., Prosky L., Sullivan D.M. and Vincent R., "Evaluating an Analytical Method for Complex Carbohydrate Determinations," *American Association for Cereal Chemists, Inc.*, 41:64-70 (1996).

Sullivan, D.M., "Cholesterol" *Analyzing Food for Nutrition Labeling and Hazardous*

*Contaminants*, (eds.) I. Jeon, W. Ikins, Ch. 4, pp. 77-86, Marcel Dekker Inc., New York, Basel, Hong Kong (1995).

DeVries J.W., Sullivan D.M. and Sungsoo L.C., "Carbohydrate/Dietary Fiber Analysis," *Methods of Analysis for Nutrition Labeling*, (eds.) D. Sullivan and D. Carpenter, Ch. 4, pp. 69-83 (1993).

#### CURRICULUM VITAE: DARRYL M. SULLIVAN

#### PUBLICATIONS (Continued)

Sullivan D.M., "Proximate and Mineral Analysis," *Methods of Analysis for Nutrition Labeling*, (eds.) D. Sullivan and D. Carpenter, Ch. 6, pp.105-109 (1993).

Sullivan, D. M., and Walton J.C., "The Needs of the Contract Laboratory in Regard to Reference Material," *Fresenius' Journal of Analytical Chemistry* 338: 580-581 (1990).

Kehoe, D. F. and Sullivan, D. M., "Determination of Gold in Tissue by Graphite Furnace Atomic Absorption Spectrophotometry," *Journal of the Association of Official Analytical Chemists*, 70(6):1, 153-1, 155 (1988).

Sullivan, D. M., Kehoe, D. F., and Smith, R. L., "Measurement of Trace Levels of Total Aluminum in Foods by Atomic Absorption Spectrophotometry," *Journal of the Association of Official Analytical Chemists*, 70(1):118-120 (1987).

Smith, R. L. and Sullivan, D. M., "Quantitation of Vegetable Sterols in Dairy Products Using Capillary Gas Chromatography," *Journal of the Association of Official Analytical Chemists*, 70(5):912-915 (1987).

Adams, M. L., Sullivan, D. M., Smith, R. L., and Richter, E. F., "Evaluation of Direct Saponification Method for Determination of Cholesterol in Meats," *Journal of the Association of Official Analytical Chemists*, 69(5):844-846 (1986).

Sullivan, D.M., "Methods for Low Level Sodium Analysis: An Overview," *Arkansas Processing Crops Review*, Vol. XXII (Issue 2), University of Arkansas (April 1985).

Sullivan, D. M. and Smith R. L., "Determination of Sulfites in Foods by Ion Chromatography," *Food Technology*, 39(7):45-48 (July 1985).

Greger, J. L., Sullivan, D. M., Goetz, W., and Daun, R. J., "Aluminum Levels in Foods Cooked and Stored in Aluminum Pans, Trays, and Foil," *Journal of Food Protection*, 48(9):772-777 (September 1985).

Sullivan, D. M., "Sulfate by Ion Chromatography," in *Sulfur and Sulfur Amino Acids*, O. Griffith and W. Jakoby (eds.), *Methods in Enzymology*, Academic Press, Orlando, Florida (in press).

## PRESENTATIONS

Sullivan, D.M., "GLP Compositional Analysis of Biotech-Derived Foods/Crops," IFT Annual Meeting and Food Exposition, Chicago, Illinois, July 2003.

Randall Smith, Darryl M. Sullivan and James Wehrmann, "Implementing LC-MS/MS Analytical Applications in the Contract Laboratory," AOAC International Annual Meeting and Exposition, Atlanta, Georgia, September 2003.

## CURRICULUM VITAE: DARRYL M. SULLIVAN

### PRESENTATIONS (Continued)

Sullivan, D.M., "Compositional Analysis of Biotech-Derived Foods and Crops," AOAC International Annual Meeting and Exposition, Atlanta, Georgia, September 2003.

John Schmitz, Darryl M. Sullivan and James Wehrmann, "Validation of an LC-MS/MS Method for Quantitation of Ephedrine Alkaloids in Dietary Supplements," AOAC International Annual Meeting and Exposition, Los Angeles, California, September 2002.

Chad Scheuerell, Donald L. Hughes, Darryl M. Sullivan and James Wehrmann, "The Analysis of Acrylamide in Foods Using LC-MS/MS," AOAC International Annual Meeting and Exposition, Los Angeles, California, September 2002.

Sullivan, D.M., AOAC International Official Methods(sm) Program, "Actions of the AOAC Task Force to Develop/Validate Official Methods for Diet Supplement Analysis," IFT Annual Meeting and Food Exposition, Anaheim, California, June 2002.

Sullivan, D.M., "Problems and Pitfalls in Analysis of Foods, Feeds, and Crop Materials for Amino Acids," Pittsburgh Conference, New Orleans, Louisiana, March 2002.

Sullivan, D.M., "AOAC International Proactive Program of Work for Validating Analytical Methods for Dietary Supplements," SupplySide East International Trade Show & Conference, Secaucus, New Jersey, 2001.

Sullivan, D.M., "Low-Level Lactose Determination" Association of Official Analytical Chemists Meeting and Exposition, San Diego, California, 1997.

Sullivan, D.M., "Interlaboratory Collaboration Review, & Acceptance," Standardization and Validation of Methods for Characterizing and Analyzing Dietary Supplements Topical Conference, Baltimore, Maryland, 1996.

Sullivan, D.M., "Use of Reference Materials for Dietary Fiber Analysis in the Q.C. Laboratory," American Association of Cereal Chemists Meeting, Seattle Washington, 1992.

Sullivan, D. M., "Determination of Total Fat in Foods in Compliance with NLEA," American Association of Cereal Chemists Meeting, 1991.

Sullivan, D. M., "Comparison of Methods to Determine Total Fat in Food," American Association of Cereal Chemists Meeting, Minneapolis, Minnesota, 1990.

Polywacz, J. P. and Sullivan, D. M., "Determination of Total Dietary Fiber in Food," Midwest Association of Official Analytical Chemists Meeting, Fargo, North Dakota, June 1987.

Sullivan, D. M., "Determination of Omega-3 Polyunsaturated Fatty Acids," Fall Association of Official Analytical Chemists Meeting, San Francisco, California, September 1987.

Sullivan, D. M. and Giegerich, J. R., "Determination of Iodine in Foods Using Ion Chromatography," Pittsburgh Conference, Atlantic City, New Jersey, March 1986.

CURRICULUM VITAE: DARRYL M. SULLIVAN

PRESENTATIONS (Continued)

Sullivan, D. M., "Ion Chromatographic Analysis of Foods," Spring Association of Official Analytical Chemists Workshop, Seattle, Washington, April 1986.

Giegerich, J. R. and Sullivan, D. M., "New Methods for Food Analysis Using Ion Chromatography," Midwest Association of Official Analytical Chemists Meeting, Lincoln, Nebraska, June 1986.

Kehoe, D. F. and Sullivan, D. M., "Quantitation of Selenium in Infant Formula Using Hydride Generation Atomic Absorption Spectrophotometry," Fall Association of Official Analytical Chemists Meeting, Scottsdale, Arizona, September 1986.

Sullivan, D. M., "Determination of Iodine in Food Using Ion Chromatography," Fall Association of Official Analytical Chemists Meeting, Scottsdale, Arizona, September 1986.

Sullivan, D. M. and Smith, R. L., "Total Dietary Fiber in Food and Food Ingredients," presented at the Annual Meeting of the American Association of Cereal Chemists, Toronto, Canada, October 1986.

Sullivan, D. M. and Giegerich, J. R., "Analysis of Sulfites and Other Anions in Food by Ion Chromatography," Pittsburgh Conference, New Orleans, Louisiana, February 1985.

Sullivan, D. M. and Smith, R. L., "Comparison of Atomic Absorption and Inductively Coupled Argon Plasma Atomic Emission Spectrometry for the Analysis of Infant Formula," 1st Association of Official Analytical Chemists Conference on Infant Formula, Virginia Beach, Virginia, May 1985.

Smith, R. L. and Sullivan, D. M., "Comparison of Chromatographic and Microbiological Procedures for the Determination of Tryptophan Content in Infant Formula," 1st Association of Official Analytical Chemists Conference on Infant Formula, Virginia Beach, Virginia, May 1985.

Sullivan, D. M., "Ion Chromatographic Determination of Sulfites," Fall Association of Official Analytical Chemists Meeting, Washington, DC, October 1985.

Burkhart, M. O. and Sullivan, D. M., "Determination of Total Dietary Fiber in a Wide Variety of Food Products," Midwest Association of Official Analytical Chemists Meeting, Chicago, Illinois, June 1985.

Sullivan, D. M., "Ion Chromatographic Method for the Determination of Sulfites," Association of Official Analytical Chemists Sulfite Task Force Meeting, Washington, DC, August 1985.

Sullivan, D. M., "Quantitation of Sulfite in Foods Using Ion Chromatography," LabCon Central Meeting, Chicago, Illinois, October 1985.

Sullivan, D. M., "Ion Chromatographic Determination of Sulfites," Fall Association of Official Analytical Chemists Meeting, Washington, DC, October 1985.

Burkhart, M. O. and Sullivan, D. M., "Measurement of Total Dietary Fiber in a Wide Variety of Food Products," Fall Association of Official Analytical Chemists Meeting, Washington, DC, October 1985.

#### CURRICULUM VITAE: DARRYL M. SULLIVAN

##### PRESENTATIONS (Continued)

Sullivan, D. M., Giegerich, J. R., and Addison, T. A., "Ion Chromatography: A New Approach to Anion Analysis in Food," Midwest Association of Official Analytical Chemists Meeting, Minneapolis, Minnesota, June 1984.

Sullivan, D. M., Smith, R. L., and Richter, E. F., "Quantitation of Vegetable Sterols in Dairy Products Using Capillary Column Chromatography," Fall Association of Official Analytical Chemists Meeting, Washington, DC, October 1984.

Sullivan, D. M., "Aluminum in Food," Conference on Aluminum Analysis in Biological Materials, University of Virginia, Charlottesville, Virginia, June 1983.

Sullivan, D. M., "Determination of Selenium Levels in Feed After Dry Ashing," Midwest Association of Official Analytical Chemists Meeting, Ames, Iowa, June 1983.

Adams, M. L., Sullivan, D. M., Smith, R. L., and Richter, E. F., "Evaluation of a Direct Saponification Method for the Determination of Cholesterol in Meats," Fall Association of Official Analytical Chemists Meeting, Washington, DC, 1983.

##### PROFESSIONAL MEMBERSHIPS

Society for Applied Spectroscopy

AOAC INTERNATIONAL

Association of Official Analytical Chemists Sulfite Task Force, 1985-1986

Association of Official Analytical Chemists NLEA Task Force, 1993-1996

AOAC INTERNATIONAL Dietary Supplement Task Force, 2000-

AOAC INTERNATIONAL Dietary Supplement Task Force Chair, 2000-2003

AOAC INTERNATIONAL Official Methods Board Member, 1998-2001

AOAC INTERNATIONAL Official Methods Board Chair, 2001-2004

AOAC INTERNATIONAL Board of Directors, 2004-

Institute of Food Technologists

**Dr. TAN Jing**

**Senior Scientist, Analytical Research**

Abbott Nutrition Research & Development, Asia-Pacific

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- 
- \* 13 years of academic and industrial experiences in analytical chemistry, specialized in food contaminants, nutrients, drugs, cosmetics and tobacco analysis.
  - \* Breadth of experience with modern analytical instrumentations including GC, GC-MS, LC-MS/MS, high resolution mass spectrometers (QToF, Orbitrap), ICP-MS, UV.
  - \* Well-versed in method development, optimization and validation.
  - \* Other research interests include chemometrics and multivariate data analysis.

## PROFESSIONAL EXPERIENCES

- **Dec. 2011 - Now, Senior Scientist**

Abbott Nutrition Research & Development, Asia-Pacific

- **Apr. 2009 - Dec. 2011, Scientist cum Technical Manager**

Cosmetics and Cigarette Testing Laboratory, Pharmaceutical Division

Health Sciences Authority, Singapore

- **Sep. 2008- Mar. 2009, Research Assistant**

Tropical Marine Science Institute, National University of Singapore

## EDUCATION

- **Ph.D. in Analytical Chemistry (August 2004- August of 2008)**

Department of Chemical and Biomolecular Engineering

National University of Singapore, Singapore

- **B.Eng. in Environmental Engineering (September 1999- July 2003)**

Department of Environmental Science and Engineering

Wuhan University, China

## PUBLICATIONS & PRESENTATIONS

1. J. Tan, J. Neo, T. Setiawati and C. Zhang. (2017). Determination of carotenoids in human serum and breast milk using high performance liquid chromatography coupled with a diode array detector (HPLC-DAD). *Separations* 4(2), 19.
2. J. Tan. (2017). "A special preparation to improve phosphocholine determination in liquid chromatography-tandem mass spectrometry (LC-MS/MS)". Poster presentation on 65th ASMS Conference on Mass Spectrometry and Allied Topics.
3. J.Tan. (2015) Determination of Human Milk Oligosaccharides in Human Breast Milk by HPAE-PAD with On-Line Sample Cleanup. ThermoFisher Scientific Customer Application Note 119.
4. J. Tan. (2013). Simultaneous determination of multi-mycotoxins in bovine milk derived matrices by liquid chromatography with tandem mass spectrometry (LC-MS/MS). Oral presentation on Conference Mycological Aspects of Food and Feed Safety (IC-MAFFS).
5. N. P. Cheah, N. Chong, J. Tan, et al. (2014) Electronic nicotine delivery systems: regulatory and safety challenges: Singapore perspective. *Tobacco Control* 23: 1119-125.
6. B. J. Venhuis, J. Tan, et al. (2012) Capsule shells adulterated with tadalafil. *Forensic Science International*. 214: 1-3.
7. J. Tan, M. Y. Low, et al. (2011) Characterization of Traditional Chinese Medicine by 2D GC-TOFMS. *Separation Science*. Volume 3 Issue 2.
8. Tan, J., J. P. Obbard. (2011). "Singapore: Exposure to Persistent Organic Pollutants and Human Health Risks. *Encyclopedia of Environmental Health* (Editor: J. Nriagu). Elsevier Publisher, USA.
9. J. Tan, A. Loganath, et al. (2008) "Exposure to Persistent Organic Pollutants in utero and Related Maternal Characteristics on Birth Outcomes: A Multivariate Data Analysis Approach." *Chemosphere*. 74: 428-433.
10. J. Tan, Q. Q. Li, et al. (2008). "Multivariate Data Analyses of Persistent Organic Pollutants in Maternal Adipose Tissue in Singapore." *Environmental Science & Technology* 42(7): 2681-2687.
11. J. Tan, A. Loganath, et al. (2008). "Persistent organic pollutants in human blood: A review of global data with a comparison to the Singapore population." *Toxicological & Environmental Chemistry* 90(5): 1 - 22.
12. Obbard, J. P., J. Tan, et al. (2007). "Persistent Organic Pollutants and Adverse Health Effects in Humans in Singapore." *Persistent Organic Pollutants in Asia – Sources, Distributions, Transport, and Fate* (Editor: A. Li). Elsevier Publisher, USA.
13. J. Tan, S. M. Cheng, et al. (2007). "Polybrominated diphenyl ethers in house dust in Singapore." *Chemosphere* 66(6): 985-92.
14. J. Tan, S. M. Cheng, et al. (2007). "Selected organochlorine pesticide and polychlorinated biphenyl residues in house dust in Singapore." *Chemosphere* 68(9): 1675-82.
15. Li, Q. Q., J. Tan, et al. (2006). "Levels of persistent organic pollutant residues in human adipose and muscle tissues in Singapore." *J Toxicology Environmental Health A* 69(21): 1927-37.

16. Li, Q. Q., J. Tan, et al. (2006). "Persistent organic pollutants and adverse health effects in humans." J Toxicology Environmental Health A 69(21): 1987-2005.



**Dr. Tomasz Tuzimski (Ph.D., Assoc. Prof.)**  
**Faculty of Pharmacy with Medical Analytics Division**  
**Medical University in Lublin**  
**4A, Chodźki Street**  
**20-093 Lublin, Poland**  
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**About Dr. Tomasz Tuzimski:**

Tomasz Tuzimski is adjunct professor in Department of Physical Chemistry at Faculty of Pharmacy with Medical Analytics Division, Medical University of Lublin (Lublin, Poland). His scientific interest include the theory and application of liquid chromatography, taking into considerations optimisation of chromatographic systems for separation and quantitative analysis of analytes in multicomponent mixtures. Dr. Tuzimski was rewarded for his achievements in field of study by chromatographic methods in analytical chemistry of pesticides (series of five publications and monograph T. Tuzimski, E. Soczewiński, *Retention and Selectivity of Liquid-Solid Chromatographic Systems for the Analysis of Pesticides (Retention Database)* in Problems of Science, Teaching and Therapy. Medical University of Lublin, Poland, No 12, Lublin, October 2002, Medical University of Lublin: Lublin, pp. 1-219) by the Ministry of Health of Poland (individual prize). Dr. Tuzimski was also rewarded as co-author of a handbook for students "Analytical Chemistry" (ed., by R. Kocjan, PZWL, 2000 and 2002, in Polish) by Ministry of Health of the Polish Republic (team prize). Dr. Tuzimski was invited by Professor Szabolcs Nyiredy to three-month practice in the Research Institute for Medicinal Plants in Budakalász (Hungary). The investigations were financially supported by the Educational Exchange Programme between Hungary and Poland – Hungarian Scholarship Board (No. MÖB 2-13-1-44-3554/2005). He actively participated in numerous scientific symposia, where he presented his research results as oral presentations and poster presentations on 25 international meetings and 20 national scientific symposia. Dr. Tuzimski so far published 75 research papers (including 25 individual papers) in journals of high level of impact factors (total IF = 92). He is the author of articles written at the special invitations of editors of Journal Chromatography A, Journal of Liquid Chromatography and Related Technologies and Journal of Planar Chromatography – Modern TLC. Besides above-mentioned monograph, Dr. Tuzimski is the author of chapters: *Use of planar chromatography in pesticide residue analysis* in: *Handbook of pesticides: methods of pesticide residues analysis*. Edited by Leo M.L. Nollet and Hamir Singh Rathore, Boca Raton 2010, CRC Press Taylor & Francis Group, pp. 187-264; *Basic principles of planar chromatography and its potential for hyphenated techniques* in: *High-Performance thin-layer chromatography (HPTLC)*. [Ed.] ManMohan Srivastava. Springer, Heidelberg 2011, pp. 247-310; *Multidimensional chromatography in pesticides analysis* in: *Pesticides – strategies for pesticides analysis*. [Ed.] Margarita Stoytcheva. InTech, Rijeka 2011, pp. 155-196; *Determination of pesticides in complex samples by one dimensional (1D-), two-dimensional (2D-) and multidimensional chromatography* in: *Pesticides in the modern world – trends in pesticide analysis*. [Ed.] Margarita Stoytcheva. InTech, Rijeka 2011, pp. 281-318; *Pesticide residues in the*

environment in: *Pesticides: evaluation of environmental pollution*. [Eds.] Leo M.L. Nollet and Hamir Singh Rathore. CRC Press Taylor & Francis Group, Boca Raton 2012, pp. 149-204, *Advanced spectroscopic detectors for identification and quantification: UV-Visible, fluorescence, and infrared spectroscopy* in: *Instrumental thin-layer chromatography*. [Ed.] Colin F. Poole. Elsevier 2015, Amsterdam, Netherlands, pp. 239-248. He is also co-author with Prof. dr. T. Dzido of chapter: *Chambers, sample application and chromatogram development* in: *Thin-Layer Chromatography in Phytochemistry* edited by M. Waksmundzka-Hajnos, J. Sherma, T. Kowalska, Boca Raton 2008, CRC Press Taylor & Francis Group, pp. 119-174. Dr. Tuzimski is recipient of two grants from Polish Ministry of Science and Higher Education (2005-2008 and 2009-2011) for the study and procedure implementation of new methods of analysis of pesticides in original samples (e.g., water, medicinal herbs, wines, food), with application of modern extraction (QuEChERS) and analytical methods combined with diode array scanning densitometry (and mass (MS) or tandem mass spectrometry (MS/MS)). Dr. Tuzimski reviewed 250 submitted research manuscripts (*Journal of Chromatography A, Journal of Chromatography B, Food Chemistry, Food Analytical Methods, Journal of Separation Science, Journal of Chromatographic Science, Journal of AOAC Int., Journal of Planar Chromatography – Modern TLC*). He taught analytical and physical chemistry exercises with second-year students of the Faculty of Pharmacy. He also was instructor in post graduate chromatographic courses for scientific research staff from Polish universities and workers from industry. He was promoter of research work of 6 masters of pharmacy and supervised the research work of 10 masters of pharmacy. He is member of Polish Pharmaceutical Society. Dr. Tomasz Tuzimski is a member of the editorial board of *Acta Chromatographica, The Scientific World Journal/Analytical Chemistry, Advances in Analytical Chemistry, American Journal of Environmental Protection, International Journal of Biotechnology and Food Science (IJBFS), Advancement in Scientific and Engineering Research (ASER)*. Dr. Tuzimski edited six Special Sections on pesticide residue analysis of *Journal of AOAC International* (2010, 2012, 2014, 2015, 2016, 2017 (in press)). For CRC/Taylor & Francis Group, Dr. Tuzimski coauthored and coedited with Professor Joseph Sherma the book titled '*High Performance Liquid Chromatography in Pesticide Residue Analysis*' (was published in 2015) and the book '*Determination of Target Xenobiotics and Unknown Compounds Residue in Food, Environmental and Biological Samples*' (will be published 6/15/2018).

### **Research Interest (short data for period time: 2013-2017)**

Tomasz Tuzimski is adjunct professor in Department of Physical Chemistry at Faculty of Pharmacy with Medical Analytics Division, Medical University of Lublin (Lublin, Poland). My scientific interest include the theory and application of liquid chromatography, taking into considerations optimisation of chromatographic systems for separation and quantitative analysis of analytes in multicomponent mixtures of xenobiotics and unknown compounds residue in food, environmental and biological samples.

The main of research interest during last four years (2013-2017) was to develop analytical methods for xenobiotics analysis in food products of plant and animal origin by high performance liquid chromatography (HPLC-DAD, HPLC-MS and/or HPLC-MS/MS). In order to accomplish this goal, optimization experiments were conducted for,

both, the chromatographic conditions of separation and quantitative analysis, as well as sample preparation approach for efficient isolation of the analytes (eg., pesticides, 5-nitroimidazoles (NDZs), sulfonated azo dyes, drugs, bisphenol A and its metabolites) from different food samples and subsequent extract clean-up. Sample preparation procedures for the analysis of various commodities, including sunflower seeds, edible oils, milk, soya milk, wines, different beverages, candies and caviar/fish roe, were developed by the optimization of the conditions of analytes isolation from complex matrices and extracts clean-up. For that purpose, different extraction and clean-up techniques were used, mainly QuEChERS (quick, easy, cheap, effective, rugged and safe), ultrasound assisted extraction (UAE), solid-phase extraction (SPE), dispersive-SPE (d-SPE) and matrix solid-phase dispersion (MSPD).

Additional of research (2017, in cooperation) were:

- application of mobile phases containing ionic liquid for the separation of a mixtures of selected isoquinoline alkaloids by 2D-TLC and identification of analytes in *Coptidis Rhizoma* (Huang Lian) extract and *Thalictrum foetidum* root extract by TLC and HPLC–DAD;

- identification and quantitative analysis of new cancer prodrug in the serum samples: the determination of ethyl [4-oxo-8-(3-chlorophenyl)-4,6,7,8-tetrahydroimidazo[2,1-c][1,2,4]triazin-3-yl]acetate (ETTA), a new anticancer prodrug, using adsorptive stripping voltammetry (AdSV) - was published for the first time.

# SUDHAKAR YADLAPALLI

**Address:-** Flat No- 214, Manasa Nest, M. J. Colony, Moula Ali, Secunderabad, AP, India

**Mobile**-+91-7569160006, +91-040-27136211 (R) **E-mail:-[yadlapallii@hotmail.com](mailto:yadlapallii@hotmail.com)**;

Date of Birth:- 31.May.1968,

Updated on: 16.01.2017

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Professional in the area of laboratory management and analytical testing activities in the fields of Food and Agricultural, Drugs and Pharmaceuticals, Environmental, Minerals and Bio analytical with more than 20 years experience.

## **Areas of expertise:**

- ✓ Laboratory management (Resource planning, Budgetary compliance, Forecasting and optimum utilization of Human Resource and Equipment to achieve Operational and Service Excellence).
- ✓ Exposure to wide spectrum of analytical testing activities in the fields of Food and Agricultural, Drugs and Pharmaceuticals, Environmental, Minerals and Bio Analytical,
- ✓ Sample preparatory techniques: Solid Phase Extraction, Solid phase micro extraction, Gel permeation Chromatography etc.
- ✓ Hands on experience on Analytical Instrumentation :Mass Spectrometry various technologies like GCMSD, GCMS (Ion trap), GCMSMS, LCMSMS, GC TOF MS, LCMS Q-TRAP, ICP MS, HRGC –HRMS (Auto Spec Waters).
- ✓ Method development and validation as per standard methodologies specified by European Commission, USFDA, USEPA and other International guidelines.

## **PUBLICATIONS**

- i. Contributed in collaborative study toward method to detect agricultural residues at sub –parts–per–billion levels in **Soft drinks published as AOAC Official method 2007.08, First Action.**
- ii. Contributed in Multi lab study for Determination of metals in infant formula [AOAC 2011.19] published as AOAC official method. **AOAC 2011.19 ISO/DIS 20649 | IDF 235 (2015)**

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- iii. Contributed in Multi lab study for Estimation of iodine in infant formula [AOAC 2012.15 published as AOAC official method). AOAC 2012.15  
ISO/DIS 20647 | IDF 234 (2015)
- iv. Contributed in Multi lab study for Estimation of vitamins in infant formula [AOAC 2011.11]
- v. AOAC SMPR(®) 2016.001.J AOAC Int. 2016 Jul ;99(4):1120-1.  
AOAC SMPR 2016.001 Standard Method Performance Requirements (SMPRs®) for Determination of Ethanol in Kombucha
- vi. AOAC SMPR(®) 2016.002.J AOAC Int 2016 Jul;99(4):1122-4  
AOAC SMPR 2016.002 Standard Method Performance Requirements (SMPRs®) for Detection and Quantization of Selected Food Allergens

**Current Assignment: From Sep 2011 to till date**

**From September 2011 to till date associated as Vice President with FirstSource Laboratory Solutions LLP (Analytical Services)**

**Job responsibilities at FSL (AS):**

- Establishment and strategic growth of analytical testing laboratory to meet the requirements of export and domestic market for various commodities and products.
- Authorized to act as Top management independently and to take all the policy and financial decisions related to establishment and operation of Laboratory.
- Authorized to take the organizational decision related to strategy, operational and Regulatory aspects.

**Previous Work Experience:**

**From Dec 2008, to Sep 2011 : Associated as Head- Multi Labs (India) with SGS India Pvt. Ltd.**

**Job responsibility at SGS India:**

**(Reporting to Managing Director and member of affiliate operational council at SGS India)**

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Leading the strategic growth of group of Multi laboratories (with more than 200 direct and indirect reportees and multiple expertise in the area of ultra trace analysis, residue analysis, metal and mineral analysis, Food and agricultural analysis, water analysis and environment monitoring) to achieve operational excellence and service excellence.

During two and half year tenure, laboratories have achieved:

Operational, Technical and Service excellence:-

- ✓ Lead the validated projects for more than 100 methods for expansion of analytical scope
- ✓ Achieved all major national and international accreditations, recognitions and approvals
- ✓ Achieved all major corporate approvals at all the locations.
- ✓ Focused approaches to improve Health and Safety practices in the labs.
- ✓ Laboratories have achieved more than 95% success rate in various PT program of international repute.
- ✓ Improvement of on-time delivery from 40% to more than 95% by developing a daily delay monitoring and follow-up system in all the labs.
- ✓ Optimized manpower utilization from less than 135 test/per week/FTE to more than 650 test / per week/ FTE.
- ✓ Developed the data extraction mechanism in order to get the harmonized data for set of same type of laboratories for core key performance indicator and weekly report MIS system in the labs of SGS India.

Projects:-

- ✓ Lead relocation projects for four laboratories, with developing a world class facility at Ambattur Chennai.
- ✓ Lead more than 5 work place projects for MPP course trainees.
- ✓ Lead the migration of labs from STAR LIMS (Paper based data management system) to C-Clas LIMS (Paper less data and information system).

(From November 1, 2007 to November 2008)

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**Associate Vice President** – Residue Lab with additional charge of Food and Agricultural, Drugs and Pharma Dept. at Vimta Labs Ltd, Hyderabad.

(From September 2005 to November 2007)

**Manager – Analytical, Vimta Labs Limited, Hyderabad**

**Job Responsibilities**

- ✓ Lead a team of 3 Group Leaders and 25 scientists for Round-the-clock lab operations trouble shooting and Analytical Method Development and validation
- ✓ Assigning the projects to Group Leaders
- ✓ Scheduling the projects to meet the sponsor and regulatory requirements
- ✓ Conducting trainings, maintaining training records of all Scientists
- ✓ Interacting with the sponsors and explaining about the bio-analytical and Analytical facility and systems.
- ✓ Involving in regulatory audits Co-ordination with Quality Assurance Department for implementation of GXPs, GLP and GMP

(From September 2003 to Sep 2005)

**Group Leader – Analytical, Vimta Labs Limited, Hyderabad**

**Job Responsibilities**

- ✓ Guidance to Scientist for Method development and Validation
- ✓ Development of Novel methods for Trace analysis
- ✓ To ensure in time delivery of test reports
- ✓ Review of division operation on day to day basis Contract review and Job allocation.
- ✓ Identify SOP needs: Preparation, Implementation and updation
- ✓ To provide better working environment and orientation towards goals for the team members

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- ✓ Responsible for departmental inventory items procurement and their effective utilization.

### **July 2001 to September 2003**

#### **Scientist- Analytical, Vimta Labs Limited, Hyderabad**

##### **Job Responsibilities**

- ✓ Method development and validation as per standard methodologies
- ✓ Analysis of different products Food and Agricultural, Drugs and Water.

### **June 1998 to July 2001**

#### **Junior executive in Quality control Aurobindo Pharma Ltd, Unit V Pashamylaram**

##### **Job Responsibilities :**

- ✓ Quality Control
- ✓ Bulk Drugs Analysis as per IP, BP, USP
- ✓ Analytical Development in deploying chemical & Instrumental Methods

##### **Bulk Drug**

- ✓ In- Process Control Methodologies for Intermediates & Finished Products
- ✓ Implementation of All QA norms applicable to API Industry- Deviations, Change controls, IQA, Customer Complaints, and Validations etc. Total Process Control (Analytical) on HPLC for 7-ACCA Production in Plant
- ✓ Standardization of HPLC Methods for Intermediates and Finished Products Viz. 6-APA, 7-ADCA, MAEM, TAC, ACACY and Cephalosporin: Cefalexin, Cefadroxil, Cefradine, Cefixime trihydrate, Cefuroxime Axetil, Cefuroxime Acid, Cefotaxime acid, Ceftriaxone Disodium, Cefazolin Sodium Cephalothin Acid, Cefoperozone Acid, Ceftiofur Acid.
- ✓ Semi-synthetic penicillin : Ampicillin Trihydrate, Ampicillin Anhydrous etc

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- ✓ Standardization of GC Methods for analyzing Various Solvent Residues / Recovery Streams Viz. MDC/HMDO, Toluene / HMDO, Ethylacetoacetate, Methylacetoacetate, Ethyl acetate / THF, DMF, Acetone etc.

**May 1995 to June 1998**

**Scientist – Analytical, Vimta Labs Ltd., Hyderabad, India**

- ✓ Significant Contributions to development of Laboratory
- ✓ Environmental Monitoring: Water & Wastewaters, Soils & Industrial Sludges & Analysis (About 200 Physico - Chemical Parameters and organic parameters as per USEPA and WHO).
- ✓ Water Quality Monitoring (Surface, Ground, Estuarine, Sea-Waters)

**Achievements at Vimta:**

- ✓ Actively engaged for the Growth of Trace analysis laboratory in Vimta for its Global Reputation
- ✓ Solely responsible for setting up of full-fledged Mass spectrometry Lab in Vimta (range of mass spectrometers from Single Quadruple to High resolution mass spectrometer)
- ✓ Completed around 100 Method developments and Validation in various fields like Bulk drugs, Trace analysis, Ultra trace analysis and Bio analytical fields
- ✓ Ultra-trace level analysis by using High resolution mass spectrometer WATERS AUTOSPEC.

**Bio-Analytical:**

- ✓ Engaged in the area of Bio-analytical method development/validation as per US-FDA guidelines
- ✓ Successfully completed a critical project for simultaneous determination of two anti-hypertensive drugs (Isosorbide dinitrates and its metabolites and Hydralazine) in blood plasma involving derivatization and detection with different instrumental techniques

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- ✓ Pivotal in the development and validation of over 10 assays using plasma and serum as the bio-matrices using GC-MS/MS instruments
- ✓ Leachable and Extractable:
- ✓ Developed the capability for testing Leachables and Extractables
- ✓ Supported the Pharma majors in Leachable and Extractable projects

### **Academic Qualifications**

- ✓ M. Sc Chemistry, Andhra University, 1994, First Class
- ✓ B.Sc., Nagarjuna University, 1991, First Class

### **Membership**

- Worked as member of the expert Group committee to review method of analysis of pesticide residues in carbonated water as per International standards by Ministry of Health, Govt. India
- Working as a member of **AOAC SPSFAM Allergens ERP.**
- One of the members in the committee to study pesticide residues and contaminants in organic products in India.
- Worked as external expert for review and finalization of DGHS manual under FSSAI. India
- Member in AOAC Stakeholder Panel on Infant Formula and Adult Nutritionals (SPIFAN) and participating multi lab collaborative study testing for vitamins and minerals in Infant formula.
- Member in AOAC Stakeholder Panel on Strategic Food Analytical Methods (SPSFAM)

### **Training**

- ✓ Good Laboratory Practices (GLP) by an expert of Technical Assessment Systems, USA, Sponsored by Vimta Labs Ltd.,Hyderabad,Aug.21-25,1995.
- ✓ In - House Training on ISO 9002 Quality Systems, Sponsored by Vimta Labs Ltd., Hyderabad, April 1995.

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- ✓ Undergone basic training on GC MS TOF (2004-08-25 to 2004-09-01)
- ✓ Undergone on LCMSMS SCIEX API 2000 and 3000 Instruments (2004-04-12 to 2004-04-16 )
- ✓ Under gone advanced training course on GCMSTOF ( 2005-04-11 to 2005-04-15)
- ✓ 2005-12-06 to 2005-12-07 successfully attended a Training course Good Laboratory practice.
- ✓ Quattro Micro GCMSMS operators Training course.( 2006-07 -17 to 2006-07-21)
- ✓ HRGC-HRMS operators training course (2006-07 -10 to 2006-07-20)

### **Honors / Awards**

- ✓ Technical Excellence award from CMD, M/s. Vimta Labs Ltd during Vimta Bidecinal celebrations in the year 2004
- ✓ Customer delight award from CMD M/s. Vimta Labs Ltd., during 23rd foundation day Aug 2007.
- ✓ Appreciation received from CMD for achievement of EU accreditation for analysis of Pentachlorophenol in Guar gum samples.
- ✓ Technical and Scientific Excellence award for year 2015-2016 from AOAC, International.

### **Foreign Visits**

- ✓ Visited South Africa for Advanced Training on GC TOF MS and 3 D systems in the period of 2005-04-08 to 2005-04-17
- ✓ Visited Europe for identifying the root cause for positive detection of pesticide residues in Indian Grape consignments exported from India to Europe.
- ✓ Visited United States of America to attend Annual meet of AOAC and also to receive the award from AOAC International.
- ✓ Visited Germany to Participate in Fruit Logistic 2017.

SUDHAKAR YADLAPALLI

Place: Hyderabad

Date : 16-01-2017

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