Mass Media

Mass Spectrometry News and Applications
JEOL USA, Inc. **May 2007**

In This Issue

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Analysis of Acrylamide in Food

Acrylamide has been found in a range of cooked and heat-processed foods in many

Breakthrough Testing Method for Pet Food - Fast Identification of Melamine

Teresa Vail, graduate student in University of the Pacific's chemistry department, uses open air analysis to identify the presence of melamine in a can of ALPO dog food.

countries, including the United States. In order to assess acrylamide risk to humans, food levels need to be measured accurately.

[See full applications note.]

Stilbenes the Secret Behind Blueberries

There is growing evidence that blueberries have powerful disease-fighting properties. The diminutive, dusky blue fruit recently has caught the attention of researchers and is now attributed with such human health benefits as high antioxidant activity (1), antiaging properties (2), the ability to improve eyesight (3) and brain function (4), and lipid-lowering properties (5).

Read the article in *LCGC* magazine.

Blueberries

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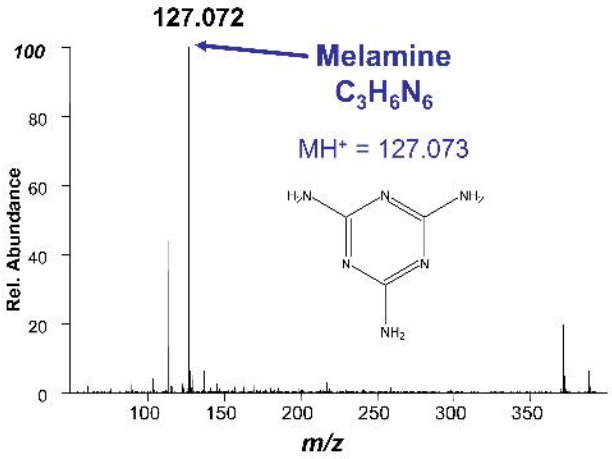

Melamine made headline news recently when it was identified as the cause of death for more than a dozen cats and dogs who ate the pet food found to contain contaminated wheat gluten. Spurred by the nationwide recall and a questionable can of dog food, University of the Pacific Professor O. David Sparkman and graduate student Teresa Vail used open air analysis to confirm the presence of melamine in the food. Sparkman uses the JEOL DART™ Direct Analysis in Real Time mass analysis technique on the AccuTOF-DART™ mass spectrometer in his research and teaching at UOP.

"The significance of the DART mass spectral technique is that results are available in minutes or seconds," Sparkman said. "Because of enhancements we have made to the DART technology, our answers are definitely unambiguous."

The traditional process of determining whether a food substance has been contaminated using conventional gas chromatography/mass spectrometry or liquid chromatography/mass spectrometry techniques can take an hour or more. The new method could save federal regulators time and money when testing food imports, Sparkman said.

The idea to use the method came after Ms. Vail received word that some of the cans of ALPO she recently purchased for her own dogs were recalled due to the possibility that they contained melamine. Under Sparkman's direction, she tested the dog food and found that only one of a dozen cans tested positive for the chemical. Vail said they were using the same testing method in other research projects in the department.

They will present their breakthrough method at an American Society of Mass Spectrometry conference in Indianapolis, Ind., in June.

Sparkman is a mass spectrometry consultant to the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) and manager of the chemistry department's mass spectrometry facility.

For more information, contact Professor O. David Sparkman at 209.483.5740 or **osparkman@pacific.edu**.

See JEOL at These Upcoming Events

ASMS
Jun 3-7, 2007
Booth #41
Indianapolis, IN

Fall ACS
Aug 19-23, 2007
Booth #919/921
Boston, MA

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Graduate student Teresa Vail, Professor O. David Sparkman, Emeritus Professor Patrick Jones, and Elfi Kraka, chair of the chemistry department, stand in front of the mass spectrometer machine which was used along with the DART interface device to detect the chemical melamine in a can of ALPO dog food in a matter of minutes.

Exact Mass - Fast!

Whether your application is pharmaceuticals, forensics, chemical synthesis, chemicals and polymers, foods-flavors-fragrances, or environmental, the JEOL AccuTOF-DART is the answer for real time analysis. You can instantly obtain exact masses, coupled with accurate isotope abundances, with little or no sample preparation. Look for our ads that show just what the DART ion source, coupled with our Time-of-Flight Mass Spectrometer, can do for your lab.

Correlogic and JEOL Enter Development Agreement

Correlogic and JEOL, Ltd. have entered into a research and development agreement focused on improving the performance of mass spectrometry in a clinical setting. "We have been working closely with JEOL for more than a year under an informal agreement, and have made great strides in our continuing validation of our various mass spectrometer-based assays. This agreement links Correlogic to one of the world's most sophisticated mass spectrometer manufacturers,"

Planar Chromatography: HPTLC Plate Coupled with DART Direct Analysis in Real Time

A new paper published in the ***Journal of Chromatography*** describes how use of DART was successfully demonstrated in the field of planar chromatography. **Available online at www.sciencedirect.com.**

"New Coupling of Planar Chromatography with Direct Analysis in Real Time Mass Spectrometry" Gertrud Morlock, Institute of Food Chemistry, University of Hohenheim, Germany; and Yoshihisa Ueda.

REALab Spotlights Researchers and Their Work

Interesting profiles of researchers and their work are the subject of a new section of JEOL USA's website. Check to see if somone you know is featured, or to learn how researchers are approaching routine or groundbreaking analysis. Look for REALab on www.jeolusa.com. Have an idea or suggestion for REALab? Contact us at jeolink@jeol.com.

said Peter Levine, President and CEO of Correlogic. Correlogic Systems, Inc. has pioneered the use of pattern recognition technologies for the development of proteomic, metabolomic and genomic based clinical prognostic and clinical diagnostic tests. www.correlogic.com. Correlogic testing includes screening for ovarian cancer by monitoring biomarkers.

ASMS: Your Guide to JEOL and the Latest DART Analyses and Reviews

DART™ Presentations at ASMS 2007

1. MPA007 **Rapid In-Source Methods for DART-interface TOFMS Determination of Structural Information**
   Teresa M. Vail[1]; Robert B. Cody[2]; O. David Sparkman[1]; Patrick R. Jones[1]
   [1]University of the Pacific, Stockton, CA; [2]JEOL USA, Inc., Peabody, MA
2. MPA009 **Atmospheric Desorption Analysis of Pharmaceutical Solid Dosage Forms: Progress Over the Past Year.**
   Abigale Marcus[12]; Anthony New[12]
   [1]GlaxoSmithKline, King of Prussia, PA; [2]GlaxoSmithKline, Ware, UK
3. MPA011 **High throughput determination of proline stable isotope enrichments by Direct Analysis in Real Time (DART™) mass spectrometry**
   ZHANPIN WU[1]; Xia-Jun Zhang[2]
   [1]JEOL USA, Inc., Peabody, MA; [2]University of Texas Medical Branch at Galveston, Galveston, TX
4. MPA014 **Direct Analysis in Real Time Mass Spectrometry (DART-MS) at the Library of Congress: New Answers to Old Questions**
   Jeanette Adams[1]; Robert B. Cody[2]
   [1]Library of Congress, Washington, DC; [2]JEOL USA, Peabody, MA
5. MPA015 **DART for Bioanalysis: Where Are We Now?**
   Shaoxia Yu[1]; Cindy Xia[1]; Brian Musselman[2]; Joe Tice[2]; Elisabeth Crawford[2]; Jing-Tao Wu[1]
   [1]Millennium Pharmaceuticals, Winchester, MA; [2]Ion Sense, Inc., Saugus, MA
6. MPA017 **Rapid Formulation Assessment by using an Automated DART®-based Surface Ionization System**
   Elizabeth Crawford; Brian Musselman
   IonSense, Inc., Saugus, MA
7. MPA018 **Comparison of Electrospray Ionization and Direct Analysis in Real Time in Drug Discovery**
   Chris Petucci[1]; Jason Diffendal[1]; David Kaufman[1]; Belew Mekonnen[1]; Gene Terefenko[1]; Brian Musselman[2]
   [1]Wyeth Research, Collegeville, PA; [2]IonSense, Danvers, MAComparison
8. TOF pm 2:30 **Extending the Range of Applications for the DART Ion Source.**

Robert B. Cody JEOL USA, Inc., Peabody, MA

9. TOG pm 2:30 **Implementation of DART and DESI on a Fieldable Mass Spectrometer** *J. MITCHELL Wells; Adam Keil; Garth E. Patterson*
   Griffin Analytical Tech., LLC, West Lafayette, IN
10. WOB pm 3:50 **Comparison of DART ionization to traditional LC/MS methods for the analysis of metabolites in human urine.**
    JENNIFER L. SEYMOUR; Amy Wang; Michael Morris; Abigail Marcus; John Kratz; Eric Yang; Tom Neiss
    GlaxoSmithKline, King of Prussia, PA
11. WOF pm 2:50 **A Gas Ion Separator for Improved Collection of Ions Desorbed from Surfaces at Ambient Pressure**
    Brian Musselman; Joseph Tice; Elizabeth Crawford; Douglas Simmons
    IonSense, Inc., Saugus, MA
12. WPA009 **Rapid Spatial Mapping of Chemicals Dispersed Across Surfaces using an Autosampler /DART/TOFMS**
    ANDREW H. GRANGE; G. Wayne Sovocool
    U.S. EPA, ORD, Environmental Sciences Division, Las Vegas, NV
13. WPA018 **Analysis of Thin Layer Chromatography Plates with Direct Analysis in Real Time Mass Spectrometry**
    Julia L. Rummel; John R. Eyler; David H. Powell
    University of Florida, Gainesville, FL
14. WPA019 **New development of thin layer chromatography / time-of-flight mass spectrometry with DART**
    Akihiko Kusai[1]; Kiyotaka Konuma[1]; Mai Kobayashi[1]; David Vargas[2]
    [1]JEOL Ltd., Akishima, JAPAN; [2]JEOL USA, Inc., Peabody, MA
15. WPN217 **A Novel Rapid Automated Screening Analysis Using Solid Phase Microextraction and A Novel Ionization Source**
    Scott Harrison[1]; Elizabeth Crawford [2]
    [1]Leap Technologies, Carrboro, NC; [2]IonSense, Saugus, MA
16. WPO244 **Additive Enhancement for DART (Direct Analysis Real Time) Ionization of Analytes of Forensic Interest**
    Jeffrey N. Leibowitz; Jay A. Clark; Lisa G. Schumacher; David A. McCollam; Marc A. LeBeau FBI Laboratory, Quantico, VA
17. ThPN224 **Automation of Surface Desorption Ionization Technology for High Throughput Analysis of Chemicals and Biological Samples** *Joseph Tice; Brian D. Musselman; Douglas Simmons; Elizabeth Crawford* IonSense, Inc., Saugus, MA

Tutorials and Applications Notes

Bookmark www.jeolusa.com for complete access to useful mass spec tutorials and applications notes.

The tutorials have been updated and include useful reference tables for day-to-day DART operation.

JEOL USA Captures 7th Award for Customer Support

JEOL USA has been recognized for outstanding service and support of its customers for seven consecutive years. To learn more about our award-winning service, visit our webpages.

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