



# Microgram

# Bulletin

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**- SEPTEMBER 2010 -**

## SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number.]

1. Al-Hossaini, AM, Awad T, De Ruiter J, Clark, CR. **GC-MS and GC-IRD analysis of ring and side chain regioisomers of ethoxyphenethylamines related to the controlled substances MDEA, MDMMA, and MBDB.** *Forensic Science International* 2010;200(1-3):73-86. [Editor's Notes: Presents title study. Contact: Department of Pharmacal Sciences, Harrison School of Pharmacy, Auburn University, Auburn, AL 36849, USA.]
2. Broseus J, Anglada F, Esseiva P. **The differentiation of fibre- and drug type Cannabis seedlings by gas chromatography/mass spectrometry and chemometric tools.** *Forensic Science International* 2010;200(1-3):87-92. [Editor's Notes: Cannabis cultivation in order to produce drugs is forbidden in Switzerland. Thus, law enforcement authorities regularly ask forensic laboratories to determinate cannabis plant's chemotype from seized material in order to ascertain that the plantation is legal or not. Because the EU official analytical protocol requires the measurement of the

amount of THC from the flowers at maturity, laboratories have to allow the plant to grow to maturity. This study investigated the discrimination of fiber type from drug type Cannabis seedlings by analyzing the compounds found in their leaves and using chemometrics tools. This model allows then discrimination between fiber and drug type Cannabis at an early stage of growth. 11 legal varieties allowed by the Swiss Federal Office for Agriculture and 13 illegal ones were greenhouse grown and analyzed using GC/MS. Compounds that show high discrimination capabilities in the seedlings have been identified and a support vector machines (SVMs) analysis was used to classify the cannabis samples. The overall set of samples shows a classification rate above 99% with false positive rates less than 2%. This model allows for the discrimination between fiber and drug type Cannabis at an early stage of growth. Contact: Institut de Police Scientifique, School of Criminal Sciences, Batochime, University of Lausanne, Lausanne-Dorigny 1015, Switz.]

3. David GE, Coxon A, Frew RD, Hayman AR. **Isotope fractionation during precipitation of methamphetamine HCl and discrimination of seized forensic samples.** Forensic Science International 2010;200(1-3):123-129. [Editor's Notes: Studies have focused on stable isotope analysis by isotope ratio mass spectrometry (IRMS) to link samples of methamphetamine synthesized together or from the same source of precursor. For this reason, it is important to understand potential sources of isotope fractionation that could cause variability in forensic data sets. In this study, methamphetamine free base samples were synthesized from (-)-ephedrine HCl using the HI/red phosphorus synthetic route and then precipitated as HCl salts by bubbling with HCl gas. The entire sample did not precipitate when first bubbled with gas, and multiple precipitation steps were required. Fractions of precipitate were individually analyzed for  $\delta^{13}\text{C}$ ,  $\delta^{15}\text{N}$ , and  $\delta^2\text{H}$  by IRMS. Both  $\delta^{15}\text{N}$  and  $\delta^2\text{H}$  were found to become more negative, with the heavy isotopes depleted, in successive fractions of precipitate. Homogenizing the precipitate fractions together could eliminate this fractionation. However, in a clandestine situation this fractionation could lead to greater than expected  $\delta^{15}\text{N}$  and  $\delta^2\text{H}$  variability between illicit samples of methamphetamine HCl that have been synthesized from the same sample of ephedrine. This needs to be taken into account when interpreting forensic IRMS data. We also present an analysis of four separate seized case lots of methamphetamine HCl, taking into account the possible sources of fractionation and available intelligence information. Contact: Department of Chemistry, University of Otago, PO Box 56, Dunedin, Otago 9054, N. Z.]

#### **Additional References of Possible Interest:**

1. Bugay DE, Brush RC. **Chemical identity testing by remote-based dispersive Raman spectroscopy.** Applied Spectroscopy 2010;64(5):467-475. [Editor's Notes: Presents title study. Contact: PharmAnalysis, Inc., West Lafayette, IN 47906, USA.]
2. Dumarey M, Vander Heyden Y, Rutan SC. **Evaluation of the identification power of RPLC analyses in the screening for drug compounds.** Analytical Chemistry 2010;82(14):6056-6065. [Editor's Notes: Presents title study. Contact: Department of Chemistry, Virginia Commonwealth University, Richmond, VA 23284-2006, USA.]

3. Tyrkkoe E, Pelander A, Ojanperae I. **Differentiation of structural isomers in a target drug database by LC/Q-TOFMS using fragmentation prediction.** *Drug Testing and Analysis* 2010;2(6):259-270. [Editor's Notes: Presents title study. Contact: Department of Forensic Medicine, University of Helsinki, Helsinki FI-00014, Finland.]

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## THE JOURNAL/TEXTBOOK COLLECTION EXCHANGE

The Journal/Textbook Collection Exchange is a service intended to facilitate the transfer of unwanted journals and textbooks to forensic libraries or other *Microgram* subscribers. The current donations are listed below. The offers are First Come/First Serve (except **libraries have preference**). There are no charges to the requestor. Please provide a full mailing address in the request. **Important!:** Do not provide an address that irradiates mail!

### *Journal of Forensic Sciences:*

1991: March (#2)  
1992: January (#1), March (#2), July (#4), September (#5), November (#6)  
1993: January (#1), March (#2), May (#3), July (#4), September (#5)  
1998: September (#5)  
2000: January (#1), March (#2), May (#3), July (#4), September (#5)  
2001: Complete set  
2002: Complete set  
2003: Complete set  
2004: Complete set  
2005: Complete set  
2006: Complete set  
2007: January (#1), March (#2), November (#6)  
2008: Complete set  
2009: Complete set

### *Forensic Science Review:*

1999: December (#2)  
2000: January (#1-2)  
2006: January (#1), July (#2)

### *Forensic Science International:*

2004: July (#2-3), August (#1), October (#2-3), November (#1), December (#2-3),  
December (Supplemental)  
2005: January (#1), January (#2-3), March (#2-3)

**All subscribers are encouraged to donate surplus or unwanted items/collections.** Reference texts and long runs of forensic/analytical journals are of particular interest; however, even single issues are worthwhile, and may fill a hole in an existing collection. If interested, please consult the *Microgram* website or contact the *Microgram* Editor for further instructions.

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## THE DEA FY 2011 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The FY 2011 schedule for the State and Local Forensic Chemists Seminar is as follows:

November 1-5, 2010  
March 7-11, 2011  
June 6-10, 2011  
September 12-16, 2011

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory (Attention: J. Head) at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, call (703) 668-3349.

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### SCIENTIFIC MEETINGS

**Title:** The 2010 NEAFS & NEDIAI Joint Meeting  
**Sponsoring Organization:** North Eastern Association of Forensic Scientist and the New England Division IAI Program  
**Inclusive Dates:** November 8 - 12, 2010  
**Location:** Equinox Golf Resort and Spa (Manchester, VT)  
**Contact Information:** [NEAFS2010@gmail.com](mailto:NEAFS2010@gmail.com)  
**Website:** [www.neafs.org](http://www.neafs.org)

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**Title:** American Academy of Forensic Sciences 2011 Annual Meeting  
**Sponsoring Organization:** American Academy of Forensic Sciences  
**Inclusive Dates:** February 21 – 26, 2011  
**Location:** Hyatt Regency (Chicago, IL)  
**Contact Information:** [See website](#)  
**Website:** [www.aafs.org](http://www.aafs.org)

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## DEA State and Local Forensic Chemist Seminar Application

Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)	Title:
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Employer:

Your Office Mailing Address (include city, state, and zip code):	Length of Service:
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Business Telephone: (     )     -	Business Fax: (     )     -	Date of Application:
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Email Address:

### Education

College or University	Degree	Major

### Please Check Which Techniques or Equipment Are Used in Your Laboratory

Color Tests	UV
Column Chromatography	IR
Microcrystal Tests	CE
Thin Layer Chromatography	GC/MS
GC	IR
HPLC	Other (please specify)

Indicate Analytical Problem(s) Nominee Would Like to Have Covered:

Choice of Seminar Dates:

1st Choice: \_\_\_\_\_ 2nd Choice: \_\_\_\_\_

Laboratory Chief/Director:

Printed Name: \_\_\_\_\_ Signature: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

Phone: \_\_\_\_\_