

Microgram

Bulletin

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- APRIL 2009 -

- INTELLIGENCE ALERT -

MDMA IN TURTLE-SHAPED CHOCOLATES AND IN *PSILOCYBE* MUSHROOMS NEAR PORTLAND, OREGON

The Oregon State Police Portland Metro Forensic Laboratory (Clackamas) recently received two turtle-shaped chocolates wrapped in aluminum foil, suspected to contain MDMA (see Photo 1). The exhibit, along with marijuana, psilocin mushrooms, and LSD, was seized by the Lake Oswego Police Department in Lake Oswego, Oregon, incident to a traffic stop. The chocolates had a brown center portion and a white/green candy coating (see Photo 2). Analysis of the chocolates (total net mass 14.8 grams) by UV and GC/MS indicated MDMA (not quantitated, but a moderate loading based on the TIC) in the center portion. Analysis of the psilocin mushrooms also indicated MDMA at significant levels (based on the TIC). No visible powder was present, suggesting that the mushrooms were infused with a liquid containing MDMA. This is the first submission of chocolates containing MDMA to the state's laboratory system.

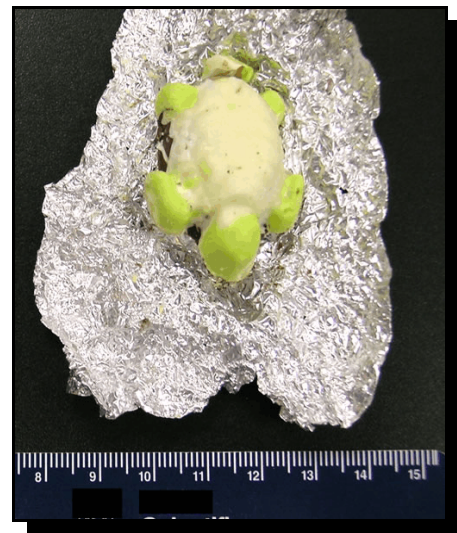


Photo 1



Photo 2

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- INTELLIGENCE ALERT -

**COCAINE SMUGGLED IN FALSE-BOTTOM BOXES
AT MIAMI INTERNATIONAL AIRPORT**

The Virginia Department of Forensic Science, Eastern Laboratory (Norfolk) recently received two partially disassembled shipping boxes with reinforced bottoms, both containing a chunky material, suspected cocaine (see Photos 3 and 4). The exhibit was seized by Immigration and Customs Enforcement personnel at the Miami International Airport. Unusually, the material was concealed between layers of cardboard with no other packaging or wrapping. The packages were being shipped from Jamaica to addresses in Chesapeake and Portsmouth, Virginia, but were intercepted and later seized following a controlled delivery. Analysis of the material (total net mass 323 grams) by GC/MS and FTIR confirmed cocaine hydrochloride, caffeine, and levamisole (not quantitated, but a high loading of cocaine based on the TIC). This was the first seizure of cocaine smuggled in this manner submitted to the laboratory.



Photo 3



Photo 4

- INTELLIGENCE ALERT -

LARGE SEIZURE OF OPIUM IN ALPHARETTA, GEORGIA

The Georgia Bureau of Investigation Headquarters Laboratory (Atlanta) recently received two large, taped packages, each containing a gummy, black substance approximately ½ inch thick, suspected opium (see Photo 5). The exhibits were being smuggled inside false-bottom boxes through commercial shipping companies from India to a location in Alpharetta (approximately 20 miles north of Atlanta). Analysis of the packages (total net mass 1950 grams) by GC/MS, TLC, and HPLC indicated morphine and codeine (not quantitated). This is the largest seizure of opium submitted to the laboratory in recent years.



Photo 5

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- INTELLIGENCE ALERT -

ECSTASY COMBINATION TABLETS (CONTAINING MDMA AND METHAMPHETAMINE) IN HALTOM CITY AND FORT WORTH, TEXAS

The Tarrant County Medical Examiner's Office Laboratory (Fort Worth, Texas) recently received 20 blue Garfield face-shaped tablets, suspected Ecstasy (see Photo 6). The tablets were acquired by the Tarrant County Narcotics Unit in Haltom City (details sensitive; Haltom City is a suburb of Fort Worth). Analysis of the tablets (total net mass 5.9 grams) by GC/MS indicated an approximate 3:1 mixture of MDMA and methamphetamine, adulterated with caffeine (MDMA and methamphetamine not quantitated, but a moderate loading based on the TIC). This was the first submission of these shaped tablets to the laboratory.

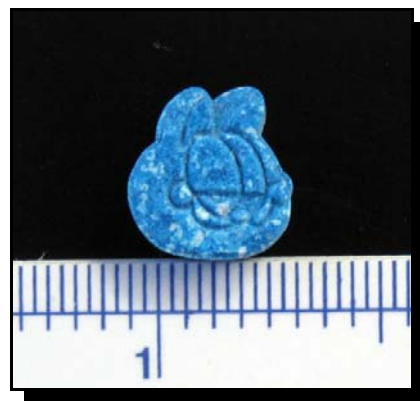


Photo 6

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- INTELLIGENCE ALERT -

ECSTASY AND ECSTASY COMBINATION TABLETS (CONTAINING MDMA, METHAMPHETAMINE, AND COCAINE) IN MEDFORD, OREGON

The Oregon State Police Central Point Forensic Laboratory recently received 15 round tablets, suspected Ecstasy (not shown). The tablets were seized in Medford by the Medford Police Department (details sensitive). The tablets consisted of one red tablet with an indistinguishable imprint (total net mass 0.2 gram), five blue tablets with a Transformers head imprint (total net

mass 1.1 grams), and nine yellow tablets with a Transformers head imprint (total net mass 2.1 grams). Analysis by color testing and GC/MS indicated MDMA, methamphetamine, and cocaine for the red tablet (not quantitated) and MDMA for the blue and yellow tablets (not quantitated). This was the first submission of these type tablets to the laboratory. In addition, this was the first time that a tablet containing MDMA, methamphetamine, and cocaine was seen in one of the Oregon State Police laboratories.

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- INTELLIGENCE ALERT -

FRESH KHAT IN NEW CENTURY, KANSAS

The Johnson County Crime Laboratory (Mission, Kansas) recently received two boxes containing 133 bundles of red/green vegetation each wrapped in leaves, as well as a small amount of dried vegetation, suspected khat (see Photo 7). The exhibit was seized by personnel from the Johnson County Sheriff's Office, incident to a traffic stop on Interstate 35. Analysis of the plant material (total gross mass 12.7 kilograms) by GC/MS indicated cathinone (not quantitated, but a moderate loading based on the TIC) and cathine (not confirmed). This was the largest submission of khat to the laboratory and the first seen in several years.



Photo 7

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- INTELLIGENCE ALERT -

BLOTTER ACID MIMIC (ACTUALLY CONTAINING 4-BROMO-2,5-DIMETHOXY-AMPHETAMINE (DOB) AND 4-CHLORO-2,5-DIMETHOXY-AMPHETAMINE (DOC)) IN PRATT COUNTY, KANSAS

The Kansas Bureau of Investigation, West Region Laboratory (Great Bend, Kansas) recently received two squares of blotter paper with a Yoda design, suspected LSD (see Photo 8). The exhibit was seized by the Pratt Police Department in Pratt County (south central region of Kansas) incident to a traffic stop. Analysis by GC/MS indicated 4-bromo-2,5-dimethoxy-amphetamine (DOB) and 4-chloro-2,5-dimethoxy-amphetamine (DOC) in a 2:1 mixture based on the area counts. Although not quantitated, there was a moderate loading of DOB/DOC based on the TIC. This was the first submission of blotter paper containing a mixture of DOB/DOC to the laboratory.



Photo 8

- INTELLIGENCE ALERT -

ECSTASY COMBINATION TABLETS (CONTAINING MDMA, CAFFEINE, PROCAINE, BZP, AND 1-(3,4-METHYLENEDIOXY-PHENYL)-2-PROPANOL) IN GRAND CAYMAN (CAYMAN ISLANDS)

The Cayman Islands Forensic Science Laboratory (Grand Cayman) recently received a polydrug submission that included two mottled orange tablets, which were marked with a raised Adidas logo on one side and unmarked on the reverse (see Photo 9). The exhibit was seized by Royal Cayman Islands Police personnel in Grand Cayman. The tablets were 8.25 millimeters in diameter and 4.39 millimeters thick. Analysis of the orange tablets (approximately 244 milligrams each) by color test, GC/MS, and FTIR/ATR indicated MDMA, caffeine, procaine, N-benzylpiperazine (BZP, not confirmed) and 1-(3,4-methylenedioxyphenyl)-2-propanol (not confirmed); not quantitated but present in an approximate 28:1:69:1:1 ratio based on the TIC. This is the first submission of this mixture of drugs to the laboratory. The submission also included a folded piece of paper that contained yellow and green powder in two distinct layers. The two powders both contained BZP, 1-(3-(trifluoromethyl)phenyl)piperazine (TFMPP), 1,4-dibenzylpiperazine (not confirmed) and caffeine. The laboratory reported one unrelated follow-up submission of the same type tablet pictured above.



Photo 9

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- INTELLIGENCE ALERT -

CAPSULES CONTAINING 17-METHYLTESTOSTERONE IN SEABROOK, TEXAS

The Pasadena Regional Crime Lab (Texas) recently received 21 red and white capsules with an imprint of "Swiss" (see Photo 10). The capsules (total net mass 10.3 grams) were seized in Seabrook by the Seabrook Police Department along with seven other exhibits from a possession of marijuana charge (no further details). Analysis of the capsules by GC/MS, UV, FTIR, and Sulfuric Acid test indicated 17-methyltestosterone and lactose. Although not quantitated, the capsules had a moderately heavy loading of 17-methyltestosterone based on the TIC. This is the laboratory's first encounter with a steroid in this type of dosage form.



Photo 10
(Scale is inches)

- INTELLIGENCE ALERT -

HEROIN CONCEALED AS SOLES IN SHOES NEAR EATON, OHIO

The Ohio State Highway Patrol Crime Laboratory (Columbus) recently received four wrapped packages of compressed white powder, suspected heroin (see Photo 11). The evidence was seized by the Ohio State Highway Patrol Canine Handlers (Piqua District Headquarters) incident to a traffic stop near Eaton, Ohio. The evidence was concealed in two pairs of shoes with the soles hollowed out. One pair of shoes was on the suspect's feet and the other pair, labeled with cartoon images of the Marvel character Spider Man, was found in the vehicle. The four packages were wrapped in layers of plastic, tape, carbon paper, and material with the odor of chili powder. Analysis of the white



Photo 11

powder (total net mass 2,327 grams) by Marquis, UV/VIS, FTIR, and GC/MS indicated heroin (not quantitated, but a moderate to high loading based on the TIC). This is the laboratory's first submission of heroin smuggled in this manner in recent memory.

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- INTELLIGENCE ALERT -

HEROIN BARS IN CANDY WRAPPERS AT MIAMI INTERNATIONAL AIRPORT

The DEA Southeast Laboratory (Miami, Florida) recently received 34 chocolate-covered bars of compressed tan powder disguised as Jumbo Mani Chocolates (see Photo 12; legitimate Jumbo bars are a Colombian-produced candy). The exhibit was seized by personnel from the Immigration and Customs Enforcement and the Drug Enforcement Administration from the luggage of a passenger arriving at the Miami International Airport from Colombia. The powder was compressed in square units (as typical with most chocolate bars), covered with brown plastic, and coated with a thin layer of chocolate. Analysis of the powder (total net mass 1807 grams) by FTIR, GC/FID, and GC/MS indicated heroin hydrochloride (94%, a higher purity than a typical heroin submission to the Southeast Laboratory). This is the first submission of "candy bars" with these wrappers to the laboratory.



Photo 12

- INTELLIGENCE ALERT -

ECSTASY COMBINATION TABLETS (CONTAINING MDMA, KETAMINE, AND CAFFEINE) IN AMARILLO, TEXAS

The DEA South Central Laboratory (Dallas, Texas) recently received 37,954 tablets, suspected Ecstasy (see Photo 13). The tablets were seized by Texas Department of Public Safety personnel incident to a routine traffic stop in Amarillo. The exhibit was comprised of four different types of tablets/imprints: blue tablets with an “m&m’s” imprint, yellow tablets with an alligator imprint, yellow tablets with a “Thundercat” imprint, and purple tablets with a bomb imprint. Analysis of the tablets indicated each tablet type contained 86.1 - 95.3 milligrams/tablet of 3,4-methylenedioxymethamphetamine hydrochloride (MDMA), ketamine (<5%), and caffeine (not quantitated). MDMA tablet submissions to the South Central Laboratory in recent years have primarily contained low-level amounts of MDMA with mixtures of methamphetamine and/or other controlled substances.

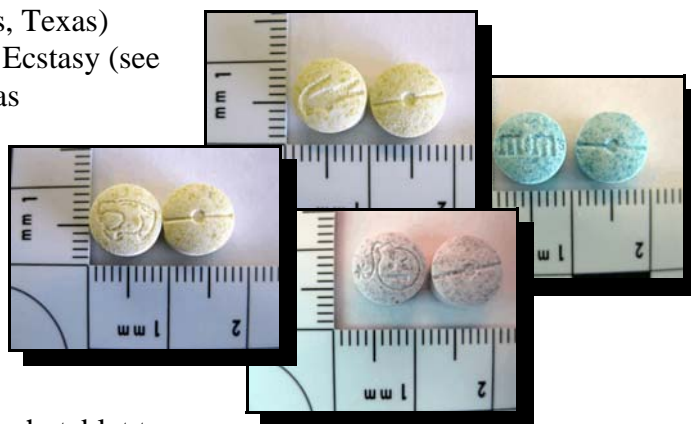


Photo 13

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- INTELLIGENCE ALERT -

ECSTASY MIMIC TABLETS (ACTUALLY CONTAINING METHAMPHETAMINE AND DIMETHYLSULFONE) IN NEW JERSEY

The DEA Northeast Laboratory (New York, New York) recently received 1,000 off-white, yellowish colored tablets with a light "G" imprint on one side, suspected 3,4-methylenedioxymethamphetamine (see Photos 14 and 15). The tablets were seized by the Federal Bureau of Investigation, New Jersey Field Office (no further details). Analysis of the tablets (total net mass 829 grams) by color test, GC/FID, GC/MS, FTIR/ATR, and capillary electrophoresis indicated 20.6 milligrams/tablet of methamphetamine, adulterated with dimethylsulfone, caffeine, and procaine hydrochloride (not quantitated). The laboratory routinely analyzes tablets and powders containing methamphetamine. This was an unusual submission due to the high concentration of dimethylsulfone (not quantitated) compared to that of methamphetamine (2.7 %).

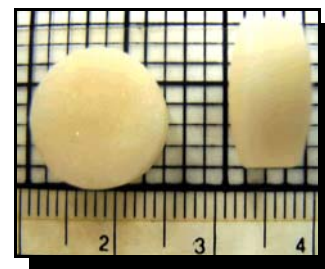


Photo 14

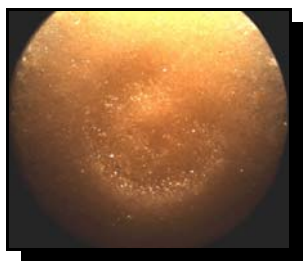


Photo 15
(Close-up of imprint)

- INTELLIGENCE ALERT -

**HEROIN BRICKS INCLUDED IN A SHIPMENT OF COCAINE BRICKS
AT THE CALEXICO PORT OF ENTRY, CALIFORNIA**

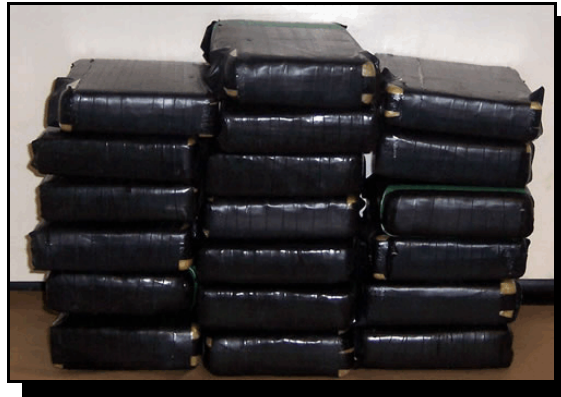


Photo 16

The DEA Southwest Laboratory (Vista, California) received 19 kilo bricks of off-white, compressed powder, suspected cocaine (see Photo 16). The exhibit was seized by personnel from Immigration and Customs Enforcement at the Calexico Port of Entry from a Toyota Camry attempting to enter the US. All of the packages had a similar appearance, initially: rectangular-shaped packages with an outer wrapping of black electrical tape. The packages were further wrapped in clear plastic, wax, yellow grease, tan tape, and a plastic bag. Four bricks also had a piece of green tape on one side of the package. The contents of these four bricks were less compact and were darker than the rest (see Photos 17 and 18). Analysis by Marquis, non-acidified cobalt thiocyanate, IR, HPLC, and GC indicated that the four packages with green tape (total net mass 3,994 grams) were not cocaine, but rather 93.1% heroin hydrochloride. The remaining fifteen packages (total net mass 14.87 kilograms) contained 62.8 % cocaine hydrochloride adulterated with levamisole and mannitol. Heroin bricks are not commonly encountered at the Southwest Laboratory.

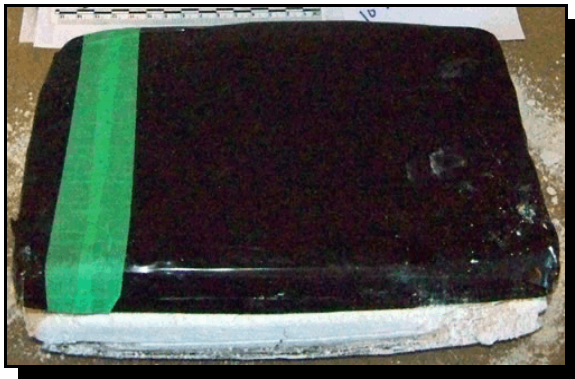


Photo 17
Heroin "brick"



Photo 18
Cocaine
(More compact, lighter)

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 provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number.]

1. Archer RP. **Fluoromethcathinone, a new substance of abuse.** *Forensic Science International* 2009;185(1-3):10-20. [Editor's Note: 3'-fluoromethcathinone has been identified in capsules marketed as plant feeders available from internet suppliers. It is apparent from internet forums that these so-called plant feeders are being used as recreational drugs. Contact: Kingston University, Penrhyn Road, Kingston Upon Thames, Surrey KT1 2EE, UK.]
2. Awad T, Belal T, Clark CR, De Ruiter J, Kramer K. **Comparison of GC-MS and GC-IRD methods for the differentiation of methamphetamine and regioisomeric substances.** *Forensic Science International* 2009;185(1-3):67-77. [Editor's Notes: A review of the title technique. Contact: Department of Pharmacal Sciences, Harrison School of Pharmacy, Auburn University, Auburn, AL 36849.]
3. Awad T, DeRuiter J, Clark CR. **GC-MS analysis of acylated derivatives of a series of side chain regioisomers of 2-methoxy-4-methylphenethylamines.** *Journal of Chromatographic Science* 2008;46(5):375-380. [Editor's Notes: A review of the title technique. Contact: Department of Pharmacal Sciences, School of Pharmacy, Auburn University, Auburn, AL 36849.]
4. Azimova ID, Arzamastsev AP, Dolbnev DV, Dorofeev VL, Stepanova EV, Vakhtel AV. **Use of near-infrared spectrophotometry (NIR) for identification of pharmaceutical drugs.** *Voprosy Biologicheskoi, Meditsinskoi I Farmatsevticheskoi Khimii* 2008;(6):27-30. [Editor's Notes: The study of generic drugs based on Omeprazol was conducted in three groups called "the name," "the manufacturer," and "the counterfeit product" using the IR-Furie Bruker multipurpose analyzer. This method has a strong potential for drug identification and brings the new possibilities into drug quality control system. Contact: Mosk. Med. Akad. im. I. M. Sechenova, Moscow, Russia.]
5. Borges F, Cordeiro M, Mosquera RA, Natalia DS, Rincon DA. **Theoretical study of cocaine and ecgonine methyl ester in gas phase and in aqueous solution.** *Chemical Physics Letters* 2009;467(4-6):249-254. [Editor's Notes: Explains why ecgonine methyl ester is the principal metabolite of cocaine in a human environment. Contact: REQUIMTE, Departamento de Quimica, Universidade do Porto, Oporto, Port. 4169-007.]
6. Cooks RG, Ifa DR, Jackson AU, Paglia G. **Forensic applications of ambient ionization mass spectrometry.** *Analytical and Bioanalytical Chemistry* 2009, (no pages given). [Editor's Notes: Several ambient ionization methods utilize different mechanisms to create ions for mass-spectrometric analysis. Forensic applications of these techniques for the analysis of toxic industrial compounds, chemical warfare agents, illicit drugs and formulations, explosives, foodstuff, inks, fingerprints, and skin are reviewed. Contact: Department of Chemistry, Purdue University, West Lafayette, IN.]
7. Hancock WS, Jiang H, Karger BL, Wu SL. **Mass spectrometric analysis of innovator, counterfeit, and follow-on recombinant human growth hormone.** *Biotechnology Progress*

- 2009;25(1):207-218. [Editor's Notes: A detailed characterization of recombinant human growth hormone using various analytical instruments (e.g., LC-MS, MS/MS) The extent of oxidation, deamidation, and chain cleavages were measured. The subtle but distinct differences were found in the recombinant human growth hormone from the three manufacturers (the follow-on, counterfeit, and the original innovator products). These differences are likely because of nonidentical manufacturing, formulation procedures, and storage conditions. Contact: Barnett Institute and Dept. of Chemistry and Chemical Biology, Northeastern University, Boston, MA 02115.]
8. Janowska E. **Peruvian foodstuffs with cocaine.** *Z Zagadnien Nauk Sadowych* 2008;75: 276-281. [Editor's Notes: Various foodstuffs seized from an individual entering a polish airport from Peru were analyzed by HPLC and found to contain cocaine and benzoylecgonine; quantitative results were given. Contact: Institute of Forensic Research, Krakow, Poland.]
 9. Liao Y, Liu H, Liu K, Yan B, Zhang Z. **CE-MS analysis of heroin and its basic impurities using a charged polymer-protected gold nanoparticle-coated capillary electrophoresis.** *2009;30(2):379-387.* [Editor's Notes: The CE-MS method presented provides an alternative to LC-MS and GC-MS for illicit drug analysis. Contact: Beijing National Laboratory for Molecular Sciences, Key Laboratory of Bioorganic Chemistry and Molecular Engineering of Ministry of Education, Institute of Analytical Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing, Peoples Republic of China.]

Additional References of Possible Interest:

1. Allison J. **Mass spectrometry theatre: A model for big-screen instrumental analysis.** *Journal of Chemical Education* 2008;85(11):1582-1583. [Editor's Notes: Discussion of an approach taken using the Mass Spectrometry Theater for conducting GC-MS training. Rather than a small group of students around a computer screen, a large group can work together with a large-screen version of the data system. The entire class can participate in the use of a single instrument. Contact: Department of Chemistry, College of New Jersey, Ewing, NJ 08628.]
2. Amisar S. **A reagent, a kit, and a method for detecting and identifying a wide range of illicit drugs.** (Patent, Mistral Detection Ltd., Israel). [Editor's Notes: A color reagent, two product testing kits, and a method for detecting and identifying controlled substances are discussed.]
3. Baker PE, Ferguson K, Jacobs R, Palmer PT, Webber S. **Use of field-portable XRF analyzers for rapid screening of toxic elements in FDA-regulated products.** *Journal of Agricultural and Food Chemistry* 2009;57(7):2605-2613. [Editor's Notes: A review of the title technique. Contact: Department of Chemistry and Biochemistry, San Francisco State University, San Francisco, CA 94132.]
4. Holden C. **Forensic Science Needs a Major Overhaul, Panel Says.** *Science* 2009;323(5918):1155.
5. Jiang G, Stenzel JR. **Identification of psychotropic substances in mushrooms by UHPLC/MS.** *LCGC North America* 2009;(Suppl.)13. [Contact: Crime Laboratory Division, Washington State Patrol, USA]
6. Nagashima M, Seto T, Suzuki J, Takahashi M, Yasuda I, Yoshida T. **Creation and application**

of psychoactive designer drugs data library using liquid chromatography with photodiode array spectrophotometry detector and gas chromatography-mass spectrometry. *Talanta* 2009;77(4):1245-1272. [Contact: Tokyo Metropolitan Institute of Public Health, 3-24-1 Hyakunin-cho, Shinjyuku-ku, Tokyo, Japan 169-0073.]

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- 2005: January (#1), May (# 3), July (# 4), September (# 5), and November (# 6)
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The next offering of journals and textbooks will be in the July 2009 issue of *Microgram Bulletin*.

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THE DEA FY 2009 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The remaining FY 2009 schedule for the State and Local Forensic Chemists Seminar is as follows:

September 14-18, 2009

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 the August 2004 issue of *Microgram Bulletin* (see: <http://www.dea.gov/programs/forensicsci/microgram/mg0804/aug04.pdf>). 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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