

Microgram

Bulletin

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NOVEMBER 2005

- SAFETY ALERT -

BULK MARIJUANA IN HAZARDOUS PACKAGING IN CHICAGO, ILLINOIS

The Illinois State Police Forensic Science Center at Chicago recently received five large, plastic-wrapped bundles of plant material, suspected marijuana. The exhibits were randomly selected from a total of 395 such bundles that had been seized by the Chicago Police from a hidden compartment in a tractor trailer arriving in Chicago from St. Louis. The packaging appeared to be routine, and consistent with similar, previously encountered bundles (see Photo 1). However, upon opening the first bundle, a white powdery substance was found between layers of the plastic wrapping, and as the plastic was folded back to remove the plant material, a liquid substance dripped from the packaging and onto the powder, resulting in an effervescent reaction that produced a gas with a chlorine-type odor. The evidence was transferred to a ventilated area for further investigation, where careful dissection revealed



Photo 1

the following (outside to inside): Plastic wrap; white powder; plastic wrap; sticky, yellow to brown liquid; plastic wrap; white powder; plastic wrap; plant material (see Photo 2). The liquid had a pH of around 2 (not further identified). Analysis of the powder with FTIR and GC/MS indicated a chlorinated compound (not further identified). Analysis of the plant material (total gross mass (including packaging) approximately two tons) by microscopy and Duquenois-Levine confirmed marijuana. Due to the hazardous nature of the sample, it was immediately destroyed under court order. Investigative intelligence suggested that the shipment originated in Mexico. This was the laboratory's first encounter with hazardous packaging of this nature.

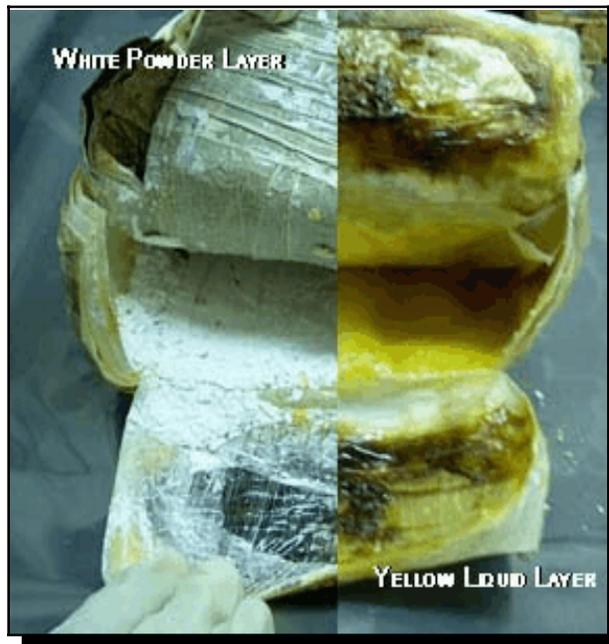


Photo 2

[Editor's Notes: The white powder was suspected to be a pool chlorinating compound. It is unknown whether this packaging was intended to harm, or rather was to eliminate odors (thereby reducing the possibility of detection by canines or trained law enforcement personnel).]

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- INTELLIGENCE ALERT -

HEROIN "FINGERS" IN MONTPELIER, VERMONT

The Vermont Forensic Laboratory (Waterbury) recently received nine hexagonally shaped objects (approximately 40 x 10 millimeters), each individually wrapped in plastic and containing on average 4.7 grams of compressed tan powder, suspected heroin (see Photo 3). The exhibits were seized in Montpelier in a joint operation by the Montpelier and Berlin Police Departments. These unusually shaped objects are occasionally referred to as "fingers". Analysis by GC/MS confirmed heroin (not quantitated, but fairly high purity based on the chromatography and lack of adulterants). Although the laboratory has previously encountered heroin "fingers", this was the first such submission in many years.



Photo 3

- INTELLIGENCE ALERT -

COCAINE CYLINDERS IN SHELBYVILLE, KENTUCKY

The Kentucky State Police Central Forensic Laboratory (Frankfort) recently received two large ziplock bags, each containing several dozen cylinders of off-white, compressed powder, suspected cocaine (see Photo 4). The exhibits were acquired in Shelbyville by the Kentucky State Police (Shelbyville is located west of Frankfort (east of Louisville)). The cylinders measured approximately 3.8 centimeters in length and 1.9 centimeters in diameter (averages), and had an average weight of approximately 10 grams (see Photo 5). Analysis of the powder (total net mass 1,500 grams) by GC-MS, GC-FID, and IR confirmed cocaine hydrochloride (not quantitated). Investigative intelligence indicated that these cylinders were originally smuggled into the U.S. from Mexico inside C-cell battery casings. This was the first submission of this type to the laboratory.



Photo 4



Photo 5

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- INTELLIGENCE ALERT -

LSD BLOTTER ACID MIMIC CONTAINING 4-CHLORO-2,5-DIMETHOXY-PHENETHYLAMINE (2C-C) IN WASHINGTON COUNTY, OREGON

The Oregon State Police Portland Metro Laboratory (Clackamas) recently received five small, rectangular pieces of card stock with black print on both sides, apparent LSD “blotter acid” but submitted as an unspecified “controlled substance/chemical”. The exhibit was seized by the Washington County Sheriff’s Office (circumstances unknown; Washington County is in the northwest quadrant of Oregon). The pieces were about 1.6 x 2 centimeters and were further divided into four smaller areas (each about 0.9 x 1 centimeters). Each area had “2C-C” printed on one side and portions of what appeared to be organic synthesis instructions on the reverse (see Photos 6 and 7). 2C-C is an informal abbreviation for 4-chloro-2,5-dimethoxyphenethylamine,

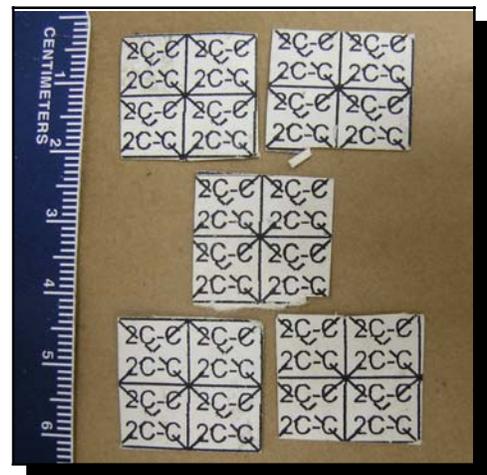


Photo 6

a hallucinogenic phenethylamine. The synthetic instructions were determined to have been taken verbatim from PIHKAL (Phenethylamines I Have Known and Loved, by Shulgin and Shulgin, pps. 509 - 510). Analysis by UV and GC/MS confirmed 4-chloro-2,5-dimethoxyphenethylamine (2C-C, also commonly named as 2,5-dimethoxy-4-chlorophenethylamine). The identification was based on comparison with the spectrum found in "Tryptamines and other Psychotropic (Mind Altering) Substances" [2004 AAFS Meeting - Workshop #5], and was not verified due to the lack of a reference standard. The sample was not quantitated; however, the concentration was judged to be much greater than typical LSD loadings, based on the chromatography. This is the first known submission of 4-chloro-2,5-dimethoxy-phenethylamine to the Oregon State Police.

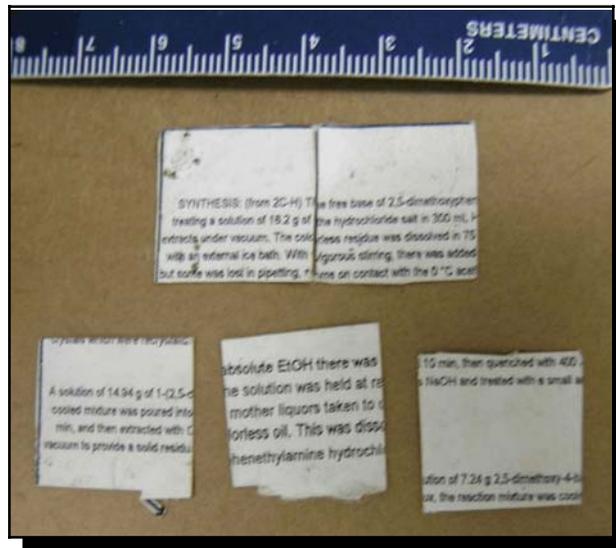


Photo 7

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- INTELLIGENCE ALERT -

**COCAINE IN WEIGHTLIFTING BENCH CUSHIONS (FROM MEXICO)
AT O'HARE INTERNATIONAL AIRPORT (CHICAGO, ILLINOIS)**

The DEA North Central Laboratory (Chicago, Illinois) recently received nine square black vinyl cushioned seats and nine rectangular black vinyl back supports (both from weightlifting benches), all containing packages of white powder, suspected cocaine (see Photo 8). The exhibits were seized by U.S. Customs and Border Protection (CBP) personnel at O'Hare International Airport from an individual who had transported them as "excess baggage" on a flight from Morelia, Mexico. The powder was packaged within multiple layers of plastic bags, covered with duct tape, and further concealed within 2 sheets of plywood. Analysis of the powder (total net mass 27.17 kilograms) by color tests, GC, GC/MS, and FTIR confirmed 86 percent cocaine hydrochloride. Further investigation determined that the same individual had transported three sets of these seats and supports to the U.S. on a previous flight.



Photo 8

- INTELLIGENCE ALERT -

**VARIOUS CONSUMER PRODUCTS CONTAINING MARIJUANA/THC
IN SAN LORENZO, CALIFORNIA**

The DEA Western Laboratory (San Francisco, California) recently received several exhibits of apparent consumer products suspected to contain marijuana or THC. The exhibits were seized by Alameda County Sheriff officers and DEA agents from a residence in San Lorenzo, California (San Lorenzo is located approximately 15 miles southeast of Oakland). Many of the exhibits were marked for “medical use”, and so were suspected to be associated with the “medical marijuana” outlets in the Bay Area. The exhibits included plant material, various “medical use” products, a marijuana sifting device, and glass cooking dishes (e.g., see Photos 9 - 12 (other items not shown)). Analysis by GC/MS confirmed the presence of THC in the plant materials, “medical use” products, and residues (quantitations not performed). The Western Laboratory has received similar products in the recent past, but not items that appeared to be commercially produced and labelled (including “nutritional” information).



**Photo 9 - Wooden Sifter/Screen
(Contained Marijuana Residue)**



Photo 10 - “Buzz Oil”



Photo 11 - “Pot Butter”



Photo 12 - “Budtella”

- INTELLIGENCE ALERT -

**HEROIN SAMPLES CONTAINING DIMETHYL SULFONE (CHICAGO, ILLINOIS)
AND DILTIAZEM (NEW BRITAIN, CONNECTICUT)**

The DEA Special Testing and Research Laboratory (Dulles, Virginia) recently received two unusual heroin exhibits from Chicago, Illinois and New Britain, Connecticut (details of seizures not provided). The first consisted of 2.4 grams of white powder; analysis by GC/FID, GC/MS, and NMR confirmed 21 percent heroin hydrochloride and 11 percent dimethyl sulfone. The second consisted of 0.56 grams of white powder; analysis (same techniques) confirmed 36 percent heroin hydrochloride and 6 percent diltiazem. Dimethyl sulfone is commonly found as an adulterant in methamphetamine, but is rarely encountered in heroin. Similarly, diltiazem has been previously reported as an adulterant in cocaine, but is also rarely encountered in heroin. Signature analysis determined that both samples were of South American origin.

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- INTELLIGENCE ALERT -

**EARLY WARNING - MDMA AND MDA PRODUCERS USING
OCOTEA CYMBARUM AS A PRECURSOR**

[From the NDIC *Narcotics Digest Weekly* 2005;4(41):1
Unclassified, Reprinted with Permission.]

Forensic chemists have reported that *Ocotea cymbarum* has been discovered at several clandestine laboratories in the Northeast. *Ocotea cymbarum* is an essential oil - distilled from the trunk bark of a tropical tree native to Brazil, Colombia, and Paraguay - that typically contains between 80 and 94 percent safrole, a precursor for MDMA (3,4-methylenedioxyamphetamine, also known as ecstasy) and MDA (3,4-methylenedioxyamphetamine). *Ocotea cymbarum* also is known as Brazilian sassafras oil but is sold under other names and spellings such as *Ocotea cymbarum* oil, *Ocotea cynbarnum*, *Ocotea cymbarium*, and "Oil of Ocotea."

MDMA and MDA producers are using *Ocotea cymbarum* because the importation and distribution of other precursors and sources of precursors - such as safrole and other essential oils containing safrole, including sassafras oil and camphor oil - have been monitored heavily by law enforcement. In the United States, safrole and essential oils rich in safrole are List I chemicals under the Controlled Substances Act. All distributors must be registered with the Drug Enforcement Administration (DEA). Additionally, it is unlawful for any person to possess or distribute a listed chemical knowing, or having reasonable cause to believe, that the listed chemical will be used to manufacture a controlled substance. Law enforcement advisories regarding safrole and essential oils rich in safrole typically have not yet specified *Ocotea cymbarum*.

Ocotea cymbarum is available via the Internet, including at online auction sites, and through mail order from chemical, aromatherapy, and perfume companies. Some criminal groups and

independent manufacturers have illegally diverted *Ocotea cymbarum* from domestic businesses that import large quantities of the oil for legitimate industrial uses, which include the manufacture of fragrances, flavoring agents, and insecticides. A clandestine MDMA laboratory seized recently in New Jersey contained a 5-gallon drum of *Ocotea cymbarum* that apparently was obtained from an aromatherapy company in the United States. Using a precursor of this quantity could have yielded an estimated 49,000 to 108,000 tablets containing 120 milligrams of MDMA, depending on the method of manufacture.

Ocotea cymbarum is most commonly sold via the Internet in 100-milliliter and 500-milliliter quantities; a 500-milliliter bottle of *Ocotea cymbarum* sells for \$20 to more than \$100. An MDMA producer with access to the proper chemicals can use a 500-milliliter quantity of *Ocotea cymbarum* to produce an estimated 1,300 to 2,800 tablets containing 120 milligrams of MDMA.

Law enforcement agencies encountering suspicious sales of *Ocotea cymbarum* should access DEA's advisory on safrole and essential oils rich in safrole at www.deadiversion.usdoj.gov/chem_prog/advisories/safrole.htm.

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- INTELLIGENCE ALERT -

LARGEST MDMA LABORATORY SEIZURE IN INDIANA HISTORY

[From the NDIC *Narcotics Digest Weekly* 2005;4(41):2
Unclassified, Reprinted with Permission.]

On June 22, 2005, the St. Joseph County Metro Special Operations Unit and members of the DEA Merrillville Resident Office Task Force seized a fully functioning MDMA laboratory and 80 grams of the drug in South Bend. Three Caucasian males were arrested and charged with conspiracy to manufacture and distribute the drug. The laboratory operators leased office space in a former factory building and were operating the laboratory in a 700-square-foot room that was equipped with water, electricity, heat, air conditioning, and drive-in access. One of the suspects, who is cooperating with law enforcement, reported that the three men had manufactured three batches of tablets - in quantities of 6,000, 10,000, and 13,000 - immediately before the seizure. The men had produced 15,000 to 25,000 tablets every 7 to 10 days, the majority of which were sent to Georgia and Texas for distribution; however, a small quantity was sold in the South Bend area. The men began producing blue gelatin capsules containing MDMA in 2004; in March 2005 they acquired a tablet press and manufactured 6,000 to 7,200 gray tablets per hour. Three undercover purchases of MDMA were made prior to the laboratory seizure - 20 capsules in October 2004, 100 capsules in February 2005, and 500 tablets in March 2005. During the last undercover purchase on the day of the laboratory seizure, undercover officers bought 5,000 MDMA tablets for \$6 each. Investigators determined that many of the chemicals used at the laboratory had been obtained via the Internet; the men had purchased safrole from suppliers in Canada and other chemicals from suppliers in China.

(Continued Next Page)

NDIC Comment: This MDMA laboratory, with a production capacity of 2 to 9 pounds, is the largest laboratory seized in Indiana as of the date of this publication. According to the EPIC National Clandestine Laboratory Seizure System (NCLSS), four MDMA laboratories were seized in Indiana between 2000 and 2005. NDIC National Drug Threat Survey (NDTS) 2003 and 2004 respondents in South Bend reported that MDMA availability was low to moderate. NDTS results also reveal that demand for the drug in northern Indiana, specifically in South Bend, has decreased; however, much of the MDMA produced in the aforementioned laboratory reportedly was transported to areas of higher demand.

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- INTELLIGENCE BRIEF -

**VERY LARGE SEIZURE OF MDMA TABLETS
IN CANADIAN COUNTY, OKLAHOMA**



Photo 13

The Oklahoma State Bureau of Investigation's Central Drug Lab (Oklahoma City) recently received a submission of over 200,000 tablets (total net mass 136 pounds), suspected Ecstasy (see Photo 13). The exhibits were seized pursuant to a vehicle stop on Interstate 40 in Canadian County (surrounding Oklahoma City) by Oklahoma Bureau of Narcotics personnel (details not provided in accordance with *Microgram* policy). The vehicle was allegedly travelling from California to Louisiana. The tablets were packaged in 40 plastic bags, which were further contained inside a rolling suitcase and a duffel bag. Each bag contained approximately 5,042 tablets. The tablets had typical Ecstasy tablet weights and dimensions, were in three colors, and had various logos: There were blue tablets with either a "star", "Superman", or "Motorola" logo; green tablets with either a "Mercedes", "Playboy bunny", or "Motorola" logo; and light purple tablets with a "smiley face" logo (closeup photos not available). Analysis of selected tablets by GC and GC/MS confirmed 3,4-methylenedioxymethamphetamine (not quantitated). Caffeine and procaine were also identified in some of the tablets. This was the laboratory's largest submission of Ecstasy tablets in at least 10 years, and may be the largest in laboratory and state history.

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- INTELLIGENCE BRIEF -

RECORD SUBMISSION OF HEROIN TO THE DEA MID-ATLANTIC LABORATORY

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received a two-exhibit submission, the first consisting of 29 duct-tape wrapped packages each containing one kilogram of a fine tan powder, suspected heroin (see Photo 14), and the second consisting of 25 duct-tape wrapped packages each containing one kilogram of a white powder, suspected cocaine. The exhibits were originally seized in Quito, Ecuador and were submitted for analysis after a controlled delivery in northern Virginia (further details not available). Analysis of the tan powder by GC, GC/MS, and ATR-FTIR confirmed 72 percent heroin hydrochloride. Analysis of the white powder (same techniques) confirmed 72 percent cocaine hydrochloride. This was the largest ever heroin submission to the Mid-Atlantic Laboratory. The exhibits in this case were traced back to the Revolutionary Armed Forces of Colombia (FARC).



Photo 14

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SELECTED REFERENCES

[Selected references are a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Listed mailing address information (which is sometimes cryptic or incomplete) exactly duplicates that provided by the abstracting services. Patents are reported only by their *Chemical Abstracts* citation number.]

1. Ebejer KA, Brereton RG, Carter JF, Ollerton SL, Sleeman R. **Rapid comparison of diacetylmorphine on banknotes by tandem mass spectrometry.** Rapid Communications in Mass Spectrometry 2005;19(15):2137. [Editor's Notes: Presents the title study. Contact: Mass Spec Analytical Ltd., Bristol, UK BS99 7AR.]
2. Caldicott DGE. **Clandestine drug laboratories in Australia and the potential for harm.** Australian and New Zealand Journal of Public Health 2005;29(2):155. [Editor's Notes: No abstract or contact information was provided.]
3. Khasanov U, Rasulev U, Usmanov D, Iskhakova S, Nabiev U. **Application of surface ionization methods for highly sensitive and selective analysis of benzodiazepine derivatives.** Journal of Pharmaceutical and Biomedical Analysis 2005;37(5),Sp. Iss. S1:1125. [Editor's Notes: The title technique was applied to medazepam, diazepam, and chlordiazepoxide. Contact: Arifov Inst. Elect., Tashkent 700125, Uzbekistan.]

4. Lee DYW, Ma ZZ, LiuChen LY, Wang YL, Chen Y, Carlezon WA, Cohen B. **New neoclerodane diterpenoids isolated from the leaves of *Salvia divinorum* and their binding affinities for human kappa opioid receptors.** *Bioorganic & Medicinal Chemistry* 2005;13(19):5635. [Editor's Notes: 10 known and 3 previously unknown terpenoids were isolated by bioactivity-guided fractionation. Contact: Harvard Univ., Sch. Med., McLean Hosp., Mol. Pharmacol. Lab, 115 Mill St., Belmont, MA 02478.]
5. Mile B. **Chemistry in court.** *Chromatographia* 2005;62(1/2):3. [Editor's Notes: A review. Includes a review of the analysis of drugs of abuse by GC, GC/MS, GC/FTIR, HPLC, chiral chromatography, CE, CEC, and SPME. Contact: School of Chemistry, University of Bristol, Bristol, UK BS8 1TS.]
6. Mohana M. **Principal opium alkaloids as possible biochemical markers for the source identification of Indian opium.** *Journal of Separation Science* 2005;28(13):1558. [Editor's Notes: 124 licit opium samples were analyzed for thebaine, codeine, morphine, papaverine, and narcotine, using CZE without derivatization or purification. Contact: Department of Biochemistry, University College of Science, Osmania University, Hyderabad, India.]
7. Phinney KW, Ihara T, Sander LC. **Determination of ephedrine alkaloid stereoisomers in dietary supplements by capillary electrophoresis.** *Journal of Chromatography A* 2005;1077(1):90. [Editor's Notes: Three different CE methods were used to analyze five reference standards of ephedra. Contact: NIST, Chem. Sci. & Technol. Lab., Analyt. Chem., 100 Bur. Dr., Stop 8392, Gaithersburg, MD 20899.]
8. Rodionova OY, Houmoller LP, Pomerantsev AL, Geladi P, Burger J, Dorofeyev VL, Arzamastsev AP. **NIR spectrometry for counterfeit drug detection.** *Analytica Chimica Acta* 2005;549(1-2):151. [Editor's Notes: Includes multivariate hyperspectral image analysis to differentiate counterfeit preparations. Contact: Semenov Institute of Chemical Physics, Kosygin 4, Moscow 119991, Russia.]
9. Rothchild R. **Proton and carbon-13 NMR studies of some tryptamines, precursors, and derivatives: Ab initio calculations for optimized structures.** *Spectroscopy Letters* 2005;38(4-5):521. [Editor's Notes: Presents the title study on 3 tryptamines and 1 precursor. Contact: John Jay College of Criminal Justice, Science Department, The City University of New York, New York, NY (zip code not provided).]
10. Wang S-M. **Enantiomeric determination of amphetamines: Exploring a novel one-step solid-phase microextraction-based approach.** *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences* 2005;825(1):79. [Editor's Notes: (S)-(-)-N-Trifluoroacetylpropyl chloride was added directly to the sample matrix (containing amphetamine or methamphetamine), and the resulting derivatives were isolated via SPME and analyzed via SIM mass spectrometry. The matrices were not specified (may be biological). Contact: Dept. of Forensic Science, Kuei-Shan, Central Police University, Taoyuan, Taichung 33304.]
11. Wang S-M, Lewis RJ, Canfield D, Li T-L, Chen C-Y, Liu RH. **Enantiomeric determination of ephedrines and norephedrines by chiral derivatization gas chromatography - mass spectrometry approaches.** *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences* 2005;825(1):88. [Editor's Notes: The title technique was applied to 8 phenethylamines, including (+) and (-)-cathinone. Derivatization was accomplished with (-)- α -methoxy- α -trifluoromethylphenylacetic acid (MTPA). Contact: Central Police University, Taoyuan, Taiwan.]

Additional References of Possible Interest:

1. Smyth WF. **Recent studies on the electrospray ionisation mass spectrometric behaviour of selected nitrogen-containing drug molecules and its application to drug analysis using liquid chromatography-electrospray ionisation mass spectrometry.** *Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences* 2005;824(1-2):1. [Editor's Notes: A review. Focus appears to be on biological matrices. The nitrogen-containing drugs were not specified in the abstract. Contact: Univ. Ulster, Sch. Biomed. Sci., Coleraine BT52 1SA, Londonderry, North Ireland.]
2. Song Y, Zhang Q, Hu Y-q, Deng C. **Quantitative determination of ethyl-p-hydroxybenzoate in resins extracted from *Dracaena cochinchinensis* with two technologies.** *Zhongguo Zhongyao Zazhi* 2004;29(4):323. [Editor's Notes: *Dracaena cochinchinensis* is a source for "Dragon's Blood". The title compound was isolated with TLC and analyzed by HPLC. This article is written in Chinese. Contact: Medical College of Chinese People's Armed Police Forces, Tianjin 300162, Peop. Rep. China.]

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NEW EMAIL ADDRESSES NEEDED

The email addresses for the following organizations returned rejection notices to the *Microgram* Editor for at least the past three issues of *Microgram Bulletin*, and therefore the respective organizations have been dropped from the subscription list. Note that the errors include "mailbox full", "over quota", "user not found", or "user unknown" messages, and also a variety of anti-spam/filtering messages (the latter resulting from failure to "whitelist" the microgram_editor@mailsnare.net address). The *Microgram* Editor requests your assistance in contacting these organizations, determining if they wish to remain on the *Microgram* subscription e-net, and if so asking them to forward a valid email address to the microgram_editor@mailsnare.net address.

Domestic Subscribers:

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Albany University, Division for Research (New York)

Argyle Police Department (Texas)

Boyd Police Department (Minnesota)

California Department of Justice, South Coast Laboratories (Watsonville)

Chandler Police Department Crime Laboratory (Arizona)

Drug Help (Vernon Hills, Illinois)

Evansville Police Department, Narcotics Unit (Indiana)

Huntington Beach Police Department Crime Laboratory (California)

Indianapolis/Marion County Forensic Science Agency (Indiana)

Kansas Bureau of Investigation, Great Bend Laboratory

Kentucky State Police, Southeastern Regional Laboratory (London)

Maine State Police Crime Laboratory (Augusta)

Memphis Police Department, Vice/Narcotics Unit (Tennessee)

Mobile Police Department, Narcotics Unit (Alabama)

National Forensic Science Technology Center (Largo, Florida)

Naval Criminal Investigative Service Headquarters (Washington, DC)

New Jersey State Police, Central Laboratory (West Trenton)

New Mexico Department of Health, Scientific Laboratory Division (Albuquerque)

New Mexico Department of Public Safety, Sante Fe Laboratory

North Central Texas Narcotics Task Force (Denton)

Northwest Toxicology, Inc. (Salt Lake City, Utah)

Oregon State Police, Bend Forensic Laboratory

Santa Barbara County Sheriff (California)

Springfield Regional Crime Laboratory (Ohio)

Texas Department of Public Safety (Austin)

Union County Prosecutor's Office Crime Laboratory (Westfield, New Jersey)

University of Arkansas, Criminal Justice Institute (Little Rock)

University of Mississippi, Forensic Chemistry Department

U.S. Air Force, 18th Security Force Squadron, Office of Investigations

U.S. Air Force, AFIERA/SDT - Drug Testing Laboratory (Brooks City Base)

U.S. Bureau of Alcohol, Tobacco, and Firearms, Atlanta Laboratory

U.S. Bureau of Alcohol, Tobacco, and Firearms, Guam Field Office

U.S. Coast Guard, Office of Law Enforcement (Washington, DC)

U.S. Food and Drug Administration, Pacific Regional Laboratory (Los Angeles, California)

U.S. Food and Drug Administration, Philadelphia District Laboratory

West Chester University, Department of Chemistry, Forensic Science Program (Pennsylvania)

Non-Domestic Subscribers:

Australian Crime Commission (Canberra)

Australian Federal Police, Computer Forensics Program (Location Unknown)

Maxxam Analytics (Canada)

New South Wales Police Service, Forensic Services (Australia)

Osaka Prefectural Police Headquarters (Japan)

Servizio Polizia Scientifica (Rome)

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**THE DEA FY - 2006 STATE AND LOCAL
FORENSIC CHEMISTS SEMINAR SCHEDULE**

The remaining FY - 2006 schedule for the DEA's State and Local Forensic Chemists Seminar is as follows:

- February 6 - 10, 2006
- May 8 - 12, 2006
- July 10 - 14, 2006
- September 11 - 15, 2006

Note that the school is open only to forensic chemists working for law enforcement agencies, and 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 for this course. The course is held at the AmeriSuites 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*. Completed applications should be mailed to the Special Testing and Research Laboratory (Attention: Pam Smith or Jennifer Kerlavage) at: 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, call 703/668-3337.

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One of the most important infrastructure development tasks of all forensic laboratory management personnel is the selection of new forensic scientists. Digital evidence laboratories have some unique candidate assessment issues because the applicants' educational backgrounds and work experiences can significantly vary. DEA has either directly or indirectly (outsourced through a computer support contractor) hired a number of computer examiners to keep up with the growing demand for digital evidence support. Here is a list of leading interview questions that have been used by DEA to identify qualified candidates:

1. *“Tell me about your college computer technology coursework.”*

Evaluation of a college degree in “computer technology” can be difficult. There are many relevant degrees, including computer science, information science, computer technology, information systems, information assurance, electrical engineering, computer engineering, and more. It is recommended that the actual course curriculum be discussed. In general, the broader and more technical the courses are, the better prepared the candidate will be to confront both digital evidence hardware and software problems. At a minimum, the candidate should have had coursework involving databases, telecommunications, networking, operating systems, and at least one mainstream programming language.

2. *“Tell me about any law enforcement or forensic course related studies you have taken.”*

A comprehensive assessment of a college degree (either at the Bachelor or Master's level) should include a review of related majors that may be complementary to computer technology coursework or prior work experience. In particular, a major (or minor) in law enforcement studies or forensic science is desirable. Specific topics of relevance can be, e.g.: Search and seizure law, rules of evidence, expert witness testimony (moot court), or basic forensic science principles (scientific method, Daubert, etc.).

3. *“What technical certifications have you achieved during the past three years?”*

There are a large number and variety of technical certifications that information technology professionals can earn. Digital evidence software vendors may also provide certification(s) in the use of their product(s). Certifications in themselves are an indicator of professionalism. It is best to inquire during the interview how many of the candidate's certifications were granted (or renewed) during the past three years. It is also good to ask what level of effort it took to qualify for certification. Outdated certifications mean very little in the fast world of digital technology.

4. *“Tell me about your recent IT work experiences. What has been the most complex problem that you have solved over the past year?”*

Evaluation of prior IT work experience is always a complex task. Many IT jobs (such as system administration, computer help desk support, and computer staging) are highly structured and narrowly focused. Similarly, programming jobs may be highly detailed but lack broad exposure

to computer hardware. Each individual's prior work experience should be critically considered to determine if the candidate can successfully handle non-routine software and hardware issues.

5. *“What experience do you have working as a Team member or Team Leader?”*

Can the candidate effectively work in a group environment? It is the nature of the IT field that many of its practitioners are somewhat introverted, and it is important that each individual understand that they are part of a team that provides forensic support both in the laboratory and possibly on-site in field settings. How well an individual will function as a team member or team leader can be determined by asking if they have ever worked in a small group environment. Have the candidate discuss what was accomplished by this group. What were the group's strengths and weaknesses? Lastly, what was the candidate's role in the group?

6. *“Why are you interested in working at this laboratory?”*

Often, the most motivated employees are the best employees. Hiring interviews should include questions regarding motivation for seeking employment at the laboratory. A candidate should be able to articulate a well organized statement on why he/she wants the position. Displaying some knowledge regarding your organization's mission (or at least the broader discipline of digital evidence) should be viewed in a positive light.

7. *“What kind of digital evidence examinations are you familiar with? How many cases did you complete (as the principal examiner) in the last three years? How many exhibits did you examine in that period? Have you ever testified as an “expert witness” in a digital evidence matter?”*

Candidates that claim to have prior subject matter training and work experience should be asked to provide a summary of both, along with a list of their recent accomplishments. There is no substitute for recent substantive digital evidence examination work experience. This information is also useful in determining if the candidate's prior work experience involved criminal or civil law enforcement, or administrative or corporate security. Some work backgrounds may be more suitable than others because of the emphasis on chain of custody, and potential public scrutiny of the work product.

8. *Please define the following digital evidence examination terms: “Digital evidence”, “computer forensics”, “image file”, “meta data”, “partition slack”, “logical level data”, “erased file”, “unallocated cluster”, “steganography”, “encryption”, “privileged information”, “Daubert”, “Rule 6(e)”, and “discovery”.*

The interview should also attempt to document the breadth of knowledge of a current or recent digital evidence examiner practitioner. Asking for short definitions on a number of topics often can identify candidates that are the best trained or most experienced.

Successful recruitment of qualified and motivated candidates is essential to the long term success of all forensic programs. Asking the right questions, and soliciting enough details to make an informed hiring decision, are critical in identifying the most qualified candidates. Evaluation of applicant for a digital evidence examiner position is challenging since there is no single college degree major or certification that uniquely qualifies an individual. This situation can only be addressed by skilled interviewing.

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