



# Microgram

## *Bulletin*

**Published by:**

The Drug Enforcement Administration  
Office of Forensic Sciences  
Washington, DC 20537

The U.S. Attorney General has determined that the publication of this periodical is necessary in the transaction of the public business required by the Department of Justice. Information, instructions, and disclaimers are published in the January issues.

- AUGUST 2006 -

**- INTELLIGENCE ALERT -**

**“POT SHOTS” (SUSPENSIONS OF MARIJUANA IN HARD LIQUOR) IN CHEROKEE COUNTY, OKLAHOMA**

The Oklahoma State Bureau of Investigation Northeast Regional Laboratory (Tahlequah) recently received a 135 exhibit submission that included 37 liquor bottles with green plant material suspended in the solutions, suspected marijuana (see Photo 1). The exhibits were seized by the Cherokee Nation Drug Task Force pursuant to a search of a residence in Cherokee County (details sensitive). There were many different varieties of liquor in the seizure. Intelligence indicated that the suspects would take the bottles to various events in the area and sell shots of the liquor; these were referred to as “Pot Shots.”\* Analysis of the plant material by microscopy confirmed marijuana, while analysis of the solutions (total net volume 29.75 liters) by GC and GC/MS confirmed  $\Delta^9$ -tetrahydrocannabinol (THC; quantitations not performed). Not surprisingly, liquors with higher alcohol concentrations also had higher THC concentrations. This was the first submission of this type to the laboratory.



**Photo 1**

[\* Editor’s Note: These solutions are also known as “Green Dragon.”]

**- INTELLIGENCE ALERT -**

**HIGH-POTENCY FENTANYL IN HOUSTON, TEXAS**

The Houston Police Department Crime Laboratory (Texas) recently received a polydrug seizure that included exhibits of a white powder and a chunky white substance, both suspected cocaine, and a brown granular powder, suspected heroin (see Photo 2). The exhibits were seized by the Houston Police from a local residence (details not provided). Analysis of the white powder (total net mass 6.7 grams) by color testing and FTIR/ATR, and of the chunky white substance (total net mass 4.3 grams) by color testing and GC/MS, confirmed cocaine in both cases



**Photo 2**

(quantitations not reported). The brown powder (total net mass 0.5 grams) was noted to have a distinct odor which was not consistent with the usual vinegar (acetic acid) odor of heroin. Analysis by color testing (Marquis), UV/Vis, and GC/MS indicated not heroin but rather 54 percent fentanyl; benzylfentanyl was also identified. This was the first submission of illicitly prepared fentanyl to the laboratory in recent memory.

[Editor's Note: 54 percent fentanyl is extremely high for a "street level" sample.]

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**- INTELLIGENCE ALERT -**

**HYDROCODONE CAPSULES IN EASTERN KENTUCKY**

The Kentucky State Police Eastern Laboratory Branch (Ashland) recently received three separate submissions of capsules, containing either pink or green powders, suspected hydrocodone (see Photo 3). The capsules were all unmarked with clear bodies and white caps, and averaged 21 millimeters in length by 7 millimeters in diameter. The first two were acquired in eastern Kentucky by the Operation UNITE (Unlawful Narcotics Investigations, Treatment and Education) Task Force (details sensitive); the first consisted of one capsule containing a pink powder, while the second consisted of four capsules containing a green powder. The third was acquired in eastern Kentucky by the Kentucky State Police - East Drug Enforcement Special Investigation Branch (East DESI, details sensitive), and consisted of 49 capsules containing a green powder. Analysis



**Photo 3**

of the various powders by GC/MS confirmed the presence of hydrocodone and acetaminophen in all cases; quantitative analysis by GC/FID (third sample only) indicated 8.3 milligrams hydrocodone per capsule. The amounts and relative percentages of hydrocodone and acetaminophen suggested that the powders were *not* diverted pharmaceuticals. These were the first such submissions to the laboratory.

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**- INTELLIGENCE ALERT -**

***PARA*-METHOXYAMPHETAMINE (PMA) AND *PARA*-METHOXY-METHAMPHETAMINE (PMMA) IN GENOA, ITALY**

The Sezione Indagini Sulle Droghe d'Abuso of Polizia Scientifica of Rome recently received a small amount of white powder from Gabinetto Regionale di Polizia Scientifica of Genoa, suspected cocaine (no photo). The exhibit (total net mass 350 milligrams) was seized by the authorities from a user in Genoa. Preliminary screening by color testing suggested that the sample was not cocaine. Further analysis by GC/FID and GC/MS confirmed no cocaine and instead indicated a mixture of 27 percent *para*-methoxyamphetamine (PMA) and 14 percent *para*-methoxymethamphetamine (PMMA), both calculated as their bases. PMA has been scheduled in Italy since 1988, while PMMA has been scheduled since 2002; however, criminal penalties are not applicable for either substance for amounts under 450 milligrams. This was the first submission of a PMA/PMMA mixture to the laboratory.

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**- INTELLIGENCE ALERT -**

**QUALUDE MIMIC TABLETS (CONTAINING DIAZEPAM)  
IN LEXINGTON PARK, MARYLAND**

The Maryland State Police-Forensic Sciences Division (Pikesville) recently received 12 round, white tablets with a "LEMMON - 714" logo on one face and half-scored on the opposite face, apparent Qualudes (see Photo 4). The tablets were seized in Lexington Park by the St. Mary's County Bureau of Criminal Investigation Narcotics Unit, pursuant to the investigation of a home invasion. Psilocybe mushrooms, hashish, and a large number of marijuana



**Photo 4**

plants were also seized. Analysis of the tablets (net mass not determined) by UV/Vis, GC, GC/MS, and FTIR, however, indicated not methaqualone but rather diazepam, probably diluted with maltose (diazepam not quantitated). The last known submission of these diazepam-containing Qualude mimic tablets to the Forensic Sciences Division was over five years ago.



**- INTELLIGENCE ALERT -**

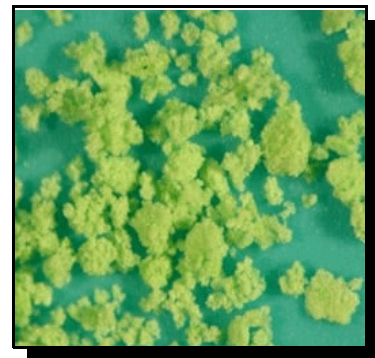
**CAPSULES CONTAINING APPARENT POWDERED MARIJUANA  
IN LINCOLN COUNTY, NEBRASKA**

The Nebraska State Patrol Satellite Crime Laboratory (North Platte) recently received 56 clear blister-packed capsules containing a light green, powdery substance, submitted as an unknown/possible narcotic (see Photo 5). The exhibits were seized by the Nebraska State Patrol pursuant to a traffic violation in Lincoln County. The capsules were sealed in a blister package that was marked only as being manufactured by MTS Medication Technologies. Analysis of the capsules by color testing, GC/MS, and FTIR indicated tetrahydrocannabinol, cannabidiol, and cannabinol, cut with sucrose (quantitation not performed). Interestingly, microscopic examination revealed no morphological characteristics of marijuana - probably because the material was so finely ground (see Photo 6). This is the first submission of these type capsules to the laboratory.



**Photo 5**

[Editor's Notes: MTS Medication Technologies is a legitimate company. According to their website, they "manufacture automated packaging machines and related consumables for prescription medications and nutritional supplements" - including blister packaging. These exhibits are the latest in a growing trend of blister-packaging of controlled substances in an (apparent) effort to make them appear to be legitimate consumer products.]



**Photo 6**

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**- INTELLIGENCE ALERT -**

**ECSTASY MIMIC TABLETS (CONTAINING AMPHETAMINE)  
IN PHOENIX, ARIZONA**

The Phoenix Police Department Laboratory Services Bureau (Arizona) recently received four separate submissions, each consisting of a box containing a bundle, suspected in all four cases to contain marijuana. The boxes were being individually mailed via an express mail service from Phoenix to Georgia, and were seized by the Phoenix Police. Each bundle was wrapped in numerous layers of cellophane, with layers of grease throughout the wrappings; the grease did not have a noticeable odor. Three of the bundles turned out to contain marijuana (total net mass approximately 4.1 kilograms); however, the fourth package, which was



**Photo 7**

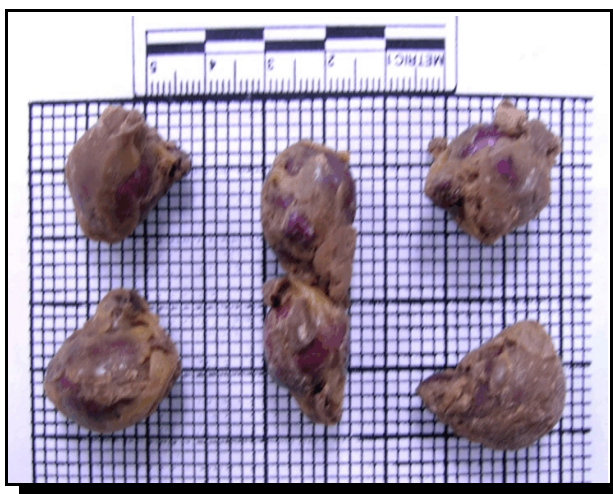
smaller than the other three but otherwise identical in appearance, contained 400 mottled tablets with a “check-off” logo on one face and half-scored on the opposite face, apparent Ecstasy (see Photo 7, previous page). Analysis of the tablets (total net mass approximately 90 grams) by color testing (Marquis) and GC/MS, however, indicated not MDMA but rather amphetamine (salt form not determined). The tablets were not formally quantitated; however, the GC/MS results suggested that the loading was quite high. Although the laboratory has previously received tablets with a similar logo, this is believed to be the first submission of amphetamine-containing Ecstasy mimic tablets.

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**- INTELLIGENCE ALERT -**

**BLACK TAR HEROIN “MILK DUDS” IN PHILADELPHIA, PENNSYLVANIA**

The DEA Northeast Laboratory (New York, New York) recently received six apparent chocolates, each of which actually consisted of a black tar-like material, suspected heroin, that was wrapped in multiple layers of different colored rubbers (probably balloons) and then covered with chocolate (see Photo 8). Because of their appearance, shape, and chocolate covering, these type of exhibits are sometimes referred to as “milk duds”. The exhibits were seized by agents from the FBI Philadelphia Division (location and details not provided). Unusually, the tar-like material could be ground into a brown powder but would return to its original black tar-like form over time. Analysis of the tar-like material (total net mass 9.6 grams) by GC/MS and GC/FID confirmed 17 percent heroin (salt form not determined, but calculated as the hydrochloride). The Northeast Laboratory rarely receives exhibits of black tar heroin, and these were the first submission of “milk duds.”



**Photo 8**

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**- INTELLIGENCE ALERT -**

**OXYCONTIN MIMIC TABLETS (CONTAINING FENTANYL)  
IN ALBUQUERQUE, NEW MEXICO**

The DEA South Central Laboratory (Dallas, Texas) recently received 44 green tablets with “OC” and “80” logos on opposite faces, apparent Oxycontin (see Photos 9 and 10, next page). The tablets were seized from an abandoned duffel bag in Albuquerque, New Mexico by agents from the DEA Albuquerque Resident Office (details not available). The tablets (total net mass 6.16 grams) were 6 millimeters in diameter by 3 millimeters width, distinctly smaller than legitimate

“OC/80” tablets; in addition, they were green all the way through (legitimate “OC/80” tablets are white inside). Analysis by GC/MS, GC/FID, and HPLC indicated not oxycodone but rather fentanyl (1.9 milligrams/tablet). This was the first submission of these type tablets to the South Central Laboratory.



**Photo 9**



**Photo 10**

[Editor’s Note: Seizures of these types of tablets were previously reported in the January and April 2006 issues of *Microgram Bulletin*.]

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**- INTELLIGENCE ALERT -**

**HEROIN-LACED BATTING IN FURNITURE (FROM VENEZUELA)  
IN MIAMI, FLORIDA**

The DEA Southeast Laboratory (Miami, Florida) recently received 23 bags of grey colored batting that had been removed from two pieces of upholstered furniture, suspected to be laced with heroin (see Photo 11). The furniture (a chair and sofa) had been shipped from Venezuela, and was seized at the Miami Airport by Immigration and Customs Enforcement personnel. Analysis of extracts from the batting (total net mass 62.16 kilograms) by GC/MS and FTIR confirmed 14 percent heroin hydrochloride, equivalent to approximately 8.7 kilograms total net mass. This was the first submission of this type to the Southeast Laboratory.



**Photo 11**

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**- INTELLIGENCE BRIEF -**

**UNUSUALLY CO-PACKAGED “ICE” METHAMPHETAMINE AND COCAINE  
AT THE SAN YSIDRO (CALIFORNIA) POINT OF ENTRY**

The DEA Southwest Laboratory (Vista, California) recently received three packages, each wrapped with cellophane, carbon paper, and cellophane/grease, and each containing two sub-packages. In two of the packages, the first subpackage was a wooden box wrapped in black tape and foil containing an off-white crystalline material (see Photo 12, next page), while the second was a kilogram brick wrapped in black tape, cellophane, and grease and containing a compressed white powder with an impression of a dumbbell-like object (see Photo 13, next page), all suspected methamphetamine. The third package contained two of the wooden box subpackages.



The exhibits were seized by Immigrations and Customs Enforcement agents from a vehicle at the San Ysidro Point of Entry. Analysis of the off-white crystalline material in the wooden boxes (total net mass 1.766 kilograms) by GC, FTIR/ATR, and CE confirmed 98 percent d-methamphetamine hydrochloride. Analysis of the white powder in the kilogram bricks (total net mass 1.935 kilograms) by GC, FTIR/ATR, and GC/MS, however, indicated not methamphetamine but rather 48 percent cocaine hydrochloride, adulterated with benzocaine (not quantitated, but at approximately the same concentration as the cocaine, based on the gas chromatogram). The Southwest Laboratory routinely receives mixed loads of methamphetamine and cocaine, but this was the first submission where both were co-packaged.



**Photo 12**



**Photo 13**

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**Correction:** In the Solicitation for Information on Fentanyl in the May, 2006 issue of *Microgram Bulletin*, the CAS Number for 4-Anilino-*N*-phenethylpiperidone (also known as ANPP or Despropionylfentanyl) was incorrectly reported as: 39742-60-4; this is actually the CAS Number for 1-(*beta*-Phenethyl)-4-piperidone. The correct CAS Number for 4-Anilino-*N*-phenethylpiperidone is: 021409-26-7.

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

1. Anastos N, Lewis SW, Barnett NW, Sims DN. **The determination of psilocin and psilocybin in hallucinogenic mushrooms by HPLC utilizing a dual reagent acidic potassium permanganate and tris(2,2'-bipyridyl)ruthenium(II) chemiluminescence detection system.** *Journal of Forensic Sciences* 2006;51(1):45. [Editor's Notes: Presents the title study. (This article appears to be closely related to: Anastos N, Barnett NW, Lewis SW, Gathergood N, Scammells PJ, Sims DN. Determination of psilocin and psilocybin using flow injection analysis with acidic potassium permanganate and tris(2,2'-bipyridyl)ruthenium(II) chemiluminescence detection, respectively. *Talanta* 2005;67(2):354.) Contact: School of Biological and Chemical Sciences, Deakin University, Geelong, Victoria 3217, Australia.]
2. Armellin S, Brenna E, Frigoli S, Fronza G, Fuganti C, Mussida D. **Determination of the synthetic origin of methamphetamine samples by <sup>2</sup>H NMR spectroscopy.** *Analytical Chemistry* 2006;78(9):3113. [Editor's Notes: Presents the title study. The results suggest that site specific deuterium NMR can assist in classifying methamphetamine as to precursors and synthetic routes. Contact: Dipartimento di Chimica, Materiali, Ingegneria Chimica, Politecnico di Milano, I-20131 Milan, Italy.]
3. Bell SC, Oldfield LS, Shakleya DM, Petersen JL, Mercer JW. **Chemical composition and structure of the microcrystals formed between silver (I) and gamma-hydroxybutyric acid and gamma-hydroxyvaleric acid.** *Journal of Forensic Sciences* 2006;51(4):808. [Editor's Notes: The crystals from GHB and GHV were distinctly different, and this test can be used to analyze spiked beverages. Contact: Bennett Department of Chemistry, West Virginia University, 217 Clark Hall, Morgantown, WV 25606.]
4. Blackledge RD. **The identification of 1-dehydromethandrostenolone.** *Microgram Journal* 2005;3(3-4):186. [Editor's Notes: A recent steroid seizure was identified by GC/MS as 1-dehydromethandrostenolone, a positional isomer of methyltestosterone. Contact: Naval Criminal Investigative Service, Regional Forensic Laboratory, 3405 Welles St., Ste. 3, San Diego, CA 92136.]
5. Casale JF. **Assessment of the volatility (smokeability) of cocaine base containing 50 percent mannitol: Is it a smokeable form of "crack" cocaine?** *Microgram Journal* 2005;3(3-4):130. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166.]
6. Casale J, Casale E, Collins M, Morello D, Cathapermal S, Panicker S. **Stable isotope analyses of heroin seized from the merchant vessel Pong Su.** *Forensic Sciences* 2006;51(3):603. [Editor's Notes: See # 7 (below) for the associated lead article on this seizure. The title exhibits were determined to be unique with respect to their origin. Contact: U.S. Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166.]



7. Collins M, Casale E, Hibbert DB, Panicker S, Robertson J, Vujic S. **Chemical profiling of heroin recovered from the North Korean merchant vessel Pong Su.** *Journal of Forensic Sciences* 2006;51(3):597. [Editor's Notes: The heroin was classified as "unknown" in origin (that is, having a profile that did not resemble any known heroin types). Contact: Australian Forensic Drug Laboratory, National Measurement Institute, 1 Suakin St., Pymble 2067, Sydney, Australia.]
8. Datwyler SL, Weiblen GD. **Genetic variation in hemp and marijuana (*Cannabis sativa* L.) according to amplified fragment length polymorphisms.** *Journal of Forensic Sciences* 2006;51(2):371. [Editor's Notes: The results are useful in linking seizures, for source determination, and for differentiating licit and illicit cultivars of cannabis. Contact: Department of Plant Biology, University of Minnesota, 1445 Gortner Avenue, Saint Paul, MN 55108.]
9. Hanson AJ. **Specificity of the Duquenois-Levine and cobalt thiocyanate tests substituting methylene chloride or butyl chloride for chloroform.** *Microgram Journal* 2005;3(3-4):183. [Editor's Notes: Performs the named tests using methylene chloride or butyl chloride as the organic solvent. Contact: Wisconsin State Crime Laboratory - Madison, 4626 University Avenue, Madison, WI 53705.]
10. Kitlinski LM, Harman AL, Brousseau MM, Skinner HF. **Reduction of phenylephrine with hydriodic acid/red phosphorus or iodine/red phosphorus: 3-Hydroxy-N-methylphenethylamine.** *Microgram Journal* 2005;3(3-4):142. [Editor's Notes: Presents the title study (phenylephrine-containing products are replacing pseudoephedrine-containing products across the United States). Contact: U.S. Department of Justice, Drug Enforcement Administration, Southwest Laboratory, 2815 Scott Street, Vista, CA 92081.]
11. Knops LA, Northrop DM, Person EC. **Capillary electrophoretic analysis of phosphorus species in clandestine methamphetamine laboratory samples.** *Journal of Forensic Sciences* 2006;51(1):82. [Editor's Notes: Presents a CE technique that can separate a wide variety of anions (18 listed), including various phosphorus species, in illicitly prepared methamphetamine samples. Contact: Washington State Patrol, Marysville Crime Laboratory, 2700 116 Street NE, Suite P, Marysville, WA 98271.]
12. Koper C, Ali-Tolppa E, Bozenko Jr. JS, Dufey V, Puetz M, Weyermann C, Zrcek F. **Identification of a new amphetamine type stimulant: 3,4-methylenedioxy(2-hydroxyethyl)-amphetamine (MDHOET).** *Microgram Journal* 2005;3(3-4):166. [Editor's Notes: Presents the title study. Contact: Netherlands Forensic Institute, P. O. Box 24044, 2490 AA The Hague, The Netherlands.]
13. Li N, Shen J, Sun J, Liang L, Xu X, Lu M, Yan J. **Study on the THz spectrum of methamphetamine.** *Optics Express* 2005;13(18):6750. [Editor's Notes: Presents the title study. The results suggest that method can be an effective means for detecting methamphetamine. Contact: Department of Physics, Capital Normal University, Beijing, Peop. Rep. China 100037.]
14. Licata M, Verri P, Beduschi G. **delta-9-THC content in illicit cannabis products over the period 1997-2004 (first four months).** *Annali Istituto Superiore de Sanita* 2005;41(4):483. [Editor's Notes: 5227 seizures made in Modena, Italy were analyzed and classified. Contact: Servizio di Medicina Legale, Universita degli Studi, Policlinico, Modena e Reggio Emilia, Via del Pozzo 71, 41100 Modena, Italy.]

15. Lurie IS, Cox KA. **Rapid chiral separation of dextro- and levo- methorphan using capillary electrophoresis with dynamically coated capillaries.** *Microgram Journal* 2005;3(3-4):138. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166.]
16. Lurie I, Hays P, Valentino A. **Analysis of carbohydrates in seized heroin using capillary electrophoresis.** *Journal of Forensic Sciences* 2006;51(1):39. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Special Testing and Research Laboratory, 22624 Dulles Summit Court, Dulles, VA 20166.]
17. Narechania K. **Optical properties of active pharmaceutical ingredients and illicit drugs.** *Microscope* 2005;53(2):55. [Editor's Notes: Focus is on new pharmaceuticals and new illicit drugs, and towards the development of a database of same. Contact: McCrone Research Institute, Chicago, IL 60616.]
18. Rodriguez WR, Allred RA. **Synthesis of trans-4-methylaminorex from norephedrine and potassium cyanate.** *Microgram Journal* 2005;3(3-4):154. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Southeast Laboratory, 5205 NW 84th Avenue, Miami, FL 33166.]
19. Rodriguez-Cruz SE. **Analysis and characterization of designer tryptamines using electrospray ionization mass spectrometry (ESI-MS).** *Microgram Journal* 2005;3(3-4):107. [Editor's Notes: Presents the title study on 12 "designer" tryptamines. Contact: U.S. Department of Justice, Drug Enforcement Administration, Southwest Laboratory, 2815 Scott Street, Vista, CA 92081.]
20. Rodriguez-Cruz SE. **Analysis and characterization of psilocybin and psilocin using liquid chromatography - electrospray ionization mass spectrometry (LC-ESI-MS) with collision-induced-dissociation (CID) and source-induced-dissociation (SID).** *Microgram Journal* 2005;3(3-4):175. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Southwest Laboratory, 2815 Scott Street, Vista, CA 92081.]
21. Staples EJ, Viswanathan S. **Detection of cocaine in a cargo container using a fast SAW/GC vapor analyzer.** (Proceedings) *Chemical Abstracts* 2006:462179q.
22. Valentino AMM, Fuentecilla K. **Levamisole: An analytical profile.** *Microgram Journal* 2005;3(3-4):134. [Editor's Notes: Presents the title study. Contact: U.S. Department of Justice, Drug Enforcement Administration, Northeast Laboratory, 99 10th Avenue, Suite 721, New York, NY 10011.]
23. Wang Y, Liu L, Jia J, Liao L, Wang Y. **Determination of ketamine by use of TLC and GC-MS.** *Zhongguo Yiyuan Yaoxue Zazhi* 2005;25(6):497. [Editor's Notes: Included analysis of morphine and heroin. Focus appears to be toxicological (not clear in abstract). This article is written in Chinese. Contact: School of Forensic Medicine, Shanxi Medical University, Taiyuan, Shanxi Province 030001, Peop. Rep. China.]
24. Xu Y, Gao Y, Wei H, Du Y, Wang E. **Field-amplified sample stacking capillary electrophoresis with electrochemiluminescence applied to the determination of illicit drugs**

**on banknotes.** Journal of Chromatography A 2006;1115:260. [Editor's Notes: Presents the title study; focus is cocaine and heroin. Baseline resolution was achieved within 6 minutes. Contact: State Key Laboratory of Electroanalytical Chemistry, Changchun Institute of Applied Chemistry, Chinese Academy of Sciences, Graduate School of the Chinese Academy of Sciences, Changchun, Jilin 130022, China.]

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

1. Fang H-F, Zeng Z-R, Liu L, Pang D-W. **A novel method for capillary electrophoresis directly analyzing trace amount analytes in the water-immiscible solution samples.** Xuexiao Huaxue Xuebao 2006;27(5):856. [Editor's Notes: Abstract specifies cocaine and thebaine. Focus may be toxicological (not clear in abstract). This article is written in Chinese. Contact: College of Chemistry and Molecular Science, Wuhan University, Wuhan, Peop. Rep. China 430072.]
2. Simonov EA, Salomatin VE. **Preliminary analysis of substances of unknown origin and complex medicinal formulations.** Mikroelementy y Meditsine 2005;6(3):35. [Editor's Notes: Abstract is unclear as to what technique is used. "Narcotic materials and psychotropic substances" are mentioned. This article is written in Russian. Contact: Tsentr Sudebno-Med. Kriminal Eksp., Minist. Oborony Ross. Fed., Russia.]
3. Vredenburg MJ, Blok-Tip L, Hoogerbrugge R, Barends DM, de Kaste D. **Screening suspected counterfeit Viagra and imitations of Viagra with near-infrared spectroscopy.** Journal of Pharmaceutical and Biomedical Analysis 2006;40(4):840. [Editor's Notes: 103 samples (widely varied) were tested, and the method was found to be 98 percent accurate. Contact: National Institute for Public Health and the Environment (RIVM), P.O. Box 1, Bilthoven 3720 BA, Neth. Editor's Aside - This article was included in this month's reference list because Viagra counterfeit tablets and also Viagra mimic tablets (usually containing amphetamine or methamphetamine) have occasionally been submitted to forensic laboratories.]
4. Xu W. **Portable type explosive/drugs detector having compact structure, light weight, and convenient application.** (Patent) Chemical Abstracts 2006:509864.
5. Yuan X, Forman BM. **Detection of designer steroids.** Nuclear Receptor Signaling 2005;3:(No Page Numbers Listed). [Editor's Notes: Presents an analytical strategy that detects use of unknown designer steroids "without prior knowledge of their existence". Focus is toxicological (testing of athletes). Contact: Gene Regulation and Drug Discovery Department, Gonda Diabetes Research Center, The Beckman Research Institute, The City of Hope National Medical Center, Duarte, CA 91010.]

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### **SCIENTIFIC MEETINGS**

1. Title: 16th Annual CLIC Technical Training Seminar (Fourth and Final Posting)  
**Sponsoring Organization:** Clandestine Laboratory Investigating Chemists Association  
**Inclusive Dates:** September 6 - 9, 2006  
**Location:** Hong Omni Mont-Royal Hotel (Montreal, Quebec, Canada)  
**Contact Information:** See O.C. Anderson (620 / 792-4353 or carl.anderson -at- kbi.state.ks.us)  
**Website:** None Provided

In order for a Digital Evidence Laboratory to be American Society of Crime Laboratory/Laboratory Accreditation Board-*International* (ASCLD/LAB-*International*) accredited, it must have a Quality Assurance Program that is administered by a Quality Assurance Manager (QAM) and/or a Quality Assurance Program Manager (QAPM). Last month, the responsibilities and duties of the QAM and QAPM were introduced. This edition will cover some of the pro-active duties of the QAPM, including re-analysis, validation, reference collection, and controls.

### Re-Analysis

Re-analysis is an internal proficiency test, and specifically checks that two independent examiners get essentially the same results from the same evidence. The QAPM will select, at a minimum, three exhibits annually for re-analysis. Each exhibit selected for re-analysis is chosen prior to the case being completed (that is, before the report of examination is signed).

Once an exhibit has been selected for re-analysis, the QAPM will select a group supervisor to assign the case. In larger laboratories, the re-analysis is assigned to an examiner working in a different group than the examiner who conducted the original analysis. In addition, to ensure comparable results, the re-analysis is conducted at the same Tier level as the original analysis, and all original case supporting documents (i.e., search warrant, case notes, etc.) and any other information that was provided to the original examiner is also given to the examiner conducting the re-analysis. The group supervisor will notify the QAPM of the examiner he/she has selected to conduct the re-analysis.

Once the re-analysis is complete the examiner gives everything (i.e., exhibit, case notes, case folder, etc.) directly to the QAPM. The QAPM then notifies the group supervisor that their examiner has completed the re-analysis.

The QAPM reviews the findings of the re-analysis, and compares them with the original analysis. If there are any significant differences, the results (and any recommendations) are discussed with the appropriate group supervisors and the laboratory director. The results are also documented in the re-analysis file by the QAPM.

The appropriate group supervisor will review the re-analysis with their examiner. The appropriate group supervisor will forward a memo to the re-analysis file through the QAPM indicating he/she has spoken with their examiner. If any corrective action is necessary, that is also documented.

### Validation

Only validated software and hardware may be used at an accredited laboratory. Validating software and hardware involves testing them on known exhibits to demonstrate that they will perform as designed. All software tools and specialized hardware devices authorized for use in the Digital Evidence Laboratory must be validated by three different examiners, each using a



different work bench equipped with different computers and operating systems (unless not feasible). The QAPM approves all validation tests and methods prior to their use. Any deviation from the standard validation procedures requires the QAPM's approval.

Once a validation process has been completed, the validation and summary sheet will be provided to the QAPM. The QAPM reviews the test results and (if the tool performed properly) approves the tool's use. The QAPM also maintains a list of approved software and hardware devices.

Laboratory management may authorize the one-time use of a tool prior to it being validated; however, the tool must be validated prior to any further use.

### **Reference Collection**

Digital evidence reference collections consist of files or databases that are used to: 1) Identify or eliminate files that have no potential probative value (e.g., standard software programs); or 2) Identify files that are already known, and of potential probative interest (e.g., child pornography images). Reference collections are not in the public domain, but rather are issued by organizations that have authenticated the content and quality of the data.

The QAPM is responsible for maintaining the laboratory's official/licensed copy of all reference collections used in the examination of evidence, and for maintaining all supporting documentation from the collection's originator or distributor. The official/licensed copy of each reference collection is secured by the QAPM. Paper documentation is kept in a reference collection file. Where appropriate, the "hash" value of the official/licensed copies in the reference collection (consisting of only the pertinent data file(s) or database(s)) is determined by the Validation Committee and reported to the QAPM. The official/licensed standard is made available to each examiner, who will copy the needed data files into the appropriate directory of the base examination software.

### **Controls and Blanks**

Controls are yet another form of proficiency test and validation check. The QAPM is responsible for creating positive and a negative control disks. A positive control disk consists of media containing three sample files, each of which includes three different file types commonly encountered in drug investigations. A negative control (also known as a blank) consists of media that is formatted but does not contain any files. Both types of controls allow quick, standardized checks on whether software and hardware tools are performing properly. The original media is retained in the lock box of the QAPM, along with the hash value documentations.

Physical copies of the positive and negative control disks are labeled, uniquely numbered, dated, and initialed by the QAPM. These copies are provided to each examiner in "read only" format.

### **Summary**

A pro-active QAPM is critical to a Quality Assurance Program, and a Quality Assurance Program is the foundation of reliable and defensible analyses and reports.

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