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- MARCH 2008 -

- INTELLIGENCE ALERT -

UNUSUAL "RICE KRISPIE TREAT"-LIKE BALLS CONTAINING PSILOCYBE MUSHROOM PARTS IN WARREN COUNTY, MISSOURI

The Missouri State Highway Patrol Crime Laboratory - Jefferson City recently received two paper bags, one containing loose plant material and the second containing three brightly green colored "grain balls" (two inside a plastic zip-lock bag in the bag, and the third loose in the bag), all suspected marijuana (see Photo 1 for the balls that were inside the zip-lock). The balls appeared to have been dyed green. The exhibits were seized in Warren County by the Missouri State Highway Patrol, pursuant to a consent and subsequent canine search of a vehicle (Warren County is about 60 miles west of St. Louis). Analysis of the plant material (total net mass 0.82 grams) by microscopy, TLC, and Modified Duquenois-

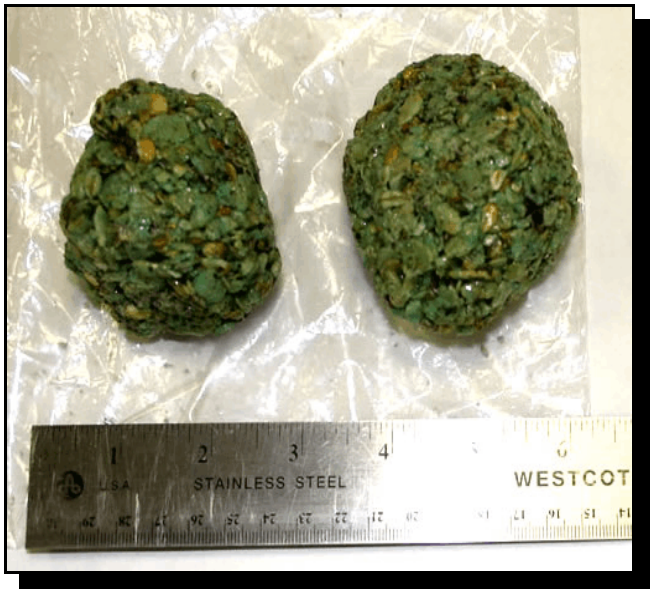

Photo 1

Levine confirmed marijuana. Analysis of the balls (total net mass 148.7 grams) by TLC and GC/MS, however, indicated not marijuana or THC but rather psilocin (not quantitated). Closer examination of the balls indicated mushroom material mixed into the grains. This is the first submission of *Psilocybe* mushrooms in this form to the laboratory.

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- INTELLIGENCE ALERT -

PACKAGE OF PRESUMED MARIJUANA SEEDS (FOR "FEMINIZED BC BUD HASH PLANTS") IN LAUREL, MARYLAND

The Maryland State Police - Forensic Sciences Division Laboratory (Pikesville) recently received two white plastic rectangular packages with pink and yellow tubes sticking out of the ends, each containing five small seeds interspaced between multiple cotton tip swaps, suspected marijuana seeds (see Photos 2 - 4). The packages were seized by the Howard County Police Department at an inactive marijuana grow operation in Laurel, Maryland (located midway between Baltimore and Washington, DC); many other marijuana exhibits were also seized. Both packages were labelled as "BCFH." Holding each package against a bright light showed five internal compartments with five dark items all together in the central compartment (see Photo 2). Opening the package revealed the seeds and multiple cotton tip swabs (see Photo 3). Because of the large number of other marijuana exhibits, the seeds (see Photo 4) were not analyzed or germinated; however, an internet search led to a marijuana grow website, which indicated that the seeds were for "Feminized BC Bud Hash" plants. The purpose of the cotton swab tips is not known, but they may have been in the packages to prevent germination. This is the first submission of this type to the laboratory.

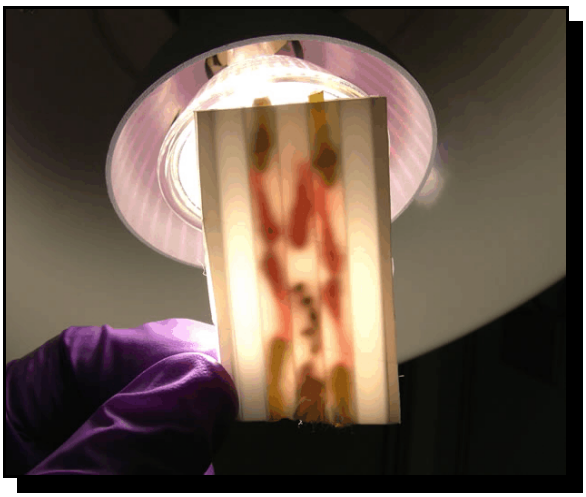

Photo 2

Photo 3

Photo 4

- INTELLIGENCE ALERT -

POLY-DRUG SEIZURE OF HALLUCINOGENS IN UPPER DARBY TOWNSHIP, PENNSYLVANIA

The Pennsylvania State Police Crime Laboratory in Lima, Pennsylvania, recently received a poly-drug submission consisting of: A) 42 round green tablets marked with the Batman logo on one face and half-scored on the reverse face, suspected MDMA (see Photo 5); B) 20 round white tablets marked with "G." on one face and a reclining woman logo on the reverse face, suspected MDA (see Photo 6); C) Four squares of white blotter paper, suspected LSD (no photo); D) Two bags of white powder, submitted as an unknown (no photo); and E) 29 clear capsules containing white or off-white solids, also submitted as an unknown. The exhibits were seized in three separate but related operations in Upper Darby Township (near Philadelphia) by the Upper Darby Township Police (no further details).

Photo 5

Photo 6

Analysis of the green tablets (total net mass 14.9 grams) by GC/MS, however, indicated not MDMA but rather a 1 : 1 mixture of caffeine and 3,4-methylenedioxymethylnitrostyrene (an intermediate in the synthesis of MDA or 3,4-methylenedioxyphenyl-2-propanone). When tested with the Marquis reagent, the samples from the green tablets turned black, but the color did not spread into the liquid. Analysis of the white tablets (total net mass 6.2 grams) by Marquis and GC/MS confirmed MDA (not quantitated). Analysis of the blotter paper by Ehrlich's and GC/MS confirmed LSD (not quantitated). Analysis of the first bag of powder (total net mass 0.53 grams) by GC/MS and IR indicated ketamine (not quantitated). However, analysis of the second bag of powder (total net mass 0.21 grams) by GC/MS and microcrystal testing indicated dextromethorphan (not quantitated). Analysis of the capsules by GC indicated four different drugs: 1) 19 capsules (total net mass 0.95 grams) contained 2,5-dimethoxy-4-ethylamine (2C-E, not quantitated, see Photo 7 (Photos 7 - 10 next page)); 2) six capsules (total net mass 0.71 grams) contained 5-methoxy-N,N-diisopropyltryptamine (5-MeO-DIPT, also known as Foxy-Methoxy, not quantitated, see Photo 8); 3) three capsules (total net mass 0.36 grams) contained 2,5-dimethoxy-4-bromophenethylamine (2C-B, also known as Nexus, not quantitated, see Photo 9); and 4) one capsule (total net mass 0.10 grams) contained 5-methoxy-N,N-dimethyltryptamine (5-MeO-DMT, not quantitated, see Photo 10).

This was the first submission of 5-MeO-DIPT, 5-MeO-DMT, 2C-B, 2C-E, and 3,4-methylene-dioxymethylnitrostyrene to the laboratory. The large variety of drugs in this case was unusual.

Photo 7

Photo 8

Photo 9

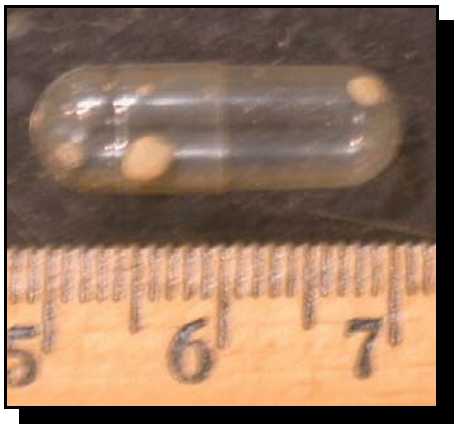

Photo 10

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- INTELLIGENCE ALERT -

LSD BLOTTER ACID MIMIC (ACTUALLY CONTAINING A MIXTURE OF 4-CHLORO-2,5-DIMETHOXYAMPHETAMINE (DOC) AND 4-IODO-2,5-DIMETHOXYAMPHETAMINE (DOI)) IN PADUCAH, KENTUCKY

The Kentucky State Police Western Laboratory Branch (Madisonville) recently received a single white square of blotter paper, wrapped in foil, suspected LSD (photo not taken). The exhibit was acquired by the Paducah Police from a cooperating source. The square was approximately ¼-inch by ¼-inch, and was unmarked. Analysis of a methanolic extract by GC/MS, however, indicated not LSD but rather a mixture of 4-chloro-2,5-dimethoxyamphetamine (DOC) and 4-iodo-2,5-dimethoxyamphetamine (DOI). The DOC and DOI were not formally quantitated, but were present in a moderate loading in a 2.2 : 1 ratio, based on a secondary GC/FID analysis. This was the first submission of either DOC or DOI to the laboratory.

- INTELLIGENCE ALERT -

PSILOCYBE MUSHROOMS IN NILES, OHIO

Photo 11

The Ohio Bureau of Criminal Identification and Investigation - Richfield Laboratory recently received a shipping box containing two large plastic bags, each containing "vegetation" (total net mass 2288 grams), suspected *Psilocybe* mushrooms (see Photo 11). The box had been mailed from the U.S. west coast and was seized by the Niles Police at a local mail-handling facility (Niles is a northern suburb of Youngstown). Following basic workup, analysis of an ether extract of the material (reconstituted in chloroform) by GC/FID and GC/MS confirmed psilocin. The laboratory has previously received *Psilocybe* mushrooms, but this was an unusually large submission.

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- INTELLIGENCE ALERT -

HEROIN IN A LAPTOP COMPUTER AND POWER SUPPLY (FROM COLOMBIA) AT MIAMI INTERNATIONAL AIRPORT

Photo 12

The DEA Northeast Laboratory (New York, New York) recently received a non-operational laptop computer and power supply containing a total of six packages of beige powder, suspected heroin (see Photo 12). The exhibits were seized by Immigration and Customs Enforcement personnel from a passenger who arrived at Miami's International Airport from a flight originating in Colombia. Five of the packages were concealed in the computer, while the sixth was in the power supply. Analysis of the powder (total net mass 746.6 grams) by GC/FID, GC/MS, NMR, and FTIR/ATR confirmed 56.5 percent heroin hydrochloride, adulterated with diltiazem (not quantitated). This was the second submission of heroin in a laptop computer to the Northeast Laboratory; however, the first submission was in a partially operational laptop (which was highly unusual; see: Heroin Smuggled from Bogota to Miami in an Operational Laptop Computer. Microgram Bulletin 2008;41(1):3). The laboratory has previously encountered heroin adulterated with diltiazem.

- INTELLIGENCE BRIEF -

DIMETHYLAMPHETAMINE IN "ICE"-LIKE FORM IN UDORN, THAILAND

The DEA Special Testing and Research Laboratory (Dulles, Virginia) recently received an exhibit of clear, colorless crystals, suspected "Ice" methamphetamine (see Photo 13). The exhibit was sampled from a 2 kilogram seizure made by the Narcotics Suppression Board/Korat in Udorn, Thailand. Analysis of the material (total net mass 0.28 grams) by GC/FID, GC/MS, FT/NMR, and FTIR/ATR, however, indicated not methamphetamine but rather 98.5 percent N,N-dimethyl-amphetamine hydrochloride. This was the first submission of dimethylamphetamine in "Ice"-like form to the Special Testing and Research Laboratory.

Photo 13

[Editor's Notes: Similar exhibits have been submitted domestically to the DEA Western and DEA South Central Laboratories; see: (A) Dimethylamphetamine in Apparent "Ice"-Form Near Medford, Oregon. Microgram Bulletin 2004;37(11):195; and (B) Dimethylamphetamine in "Ice"-Like Form in Florence, Alabama. Microgram Bulletin 2005;38(2):33.]

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- INTELLIGENCE ALERT -

VIALS OF FREEZE-DRIED HUMAN GROWTH HORMONE (HGH) IN EAST MEADOW, NEW YORK

The DEA Mid-Atlantic Laboratory (Largo, Maryland) recently received 2 boxes, both labelled "S.I.U.G.," and each containing 10 clear glass vials of a white powder, alleged to be freeze-dried human growth hormone (HGH, see Photo 14). The vials were seized in East Meadow, New York, by the Nassau County Police, and were submitted to the laboratory after a controlled delivery in Virginia by Special Agents from the DEA Washington, DC District Office. Analysis of the powder (total net mass 0.80 grams in the 20 vials) by MS, FTIR, LC, and LC/MS indicated HGH (not confirmed). This is the first submission of alleged freeze-dried HGH to the Mid-Atlantic Laboratory.

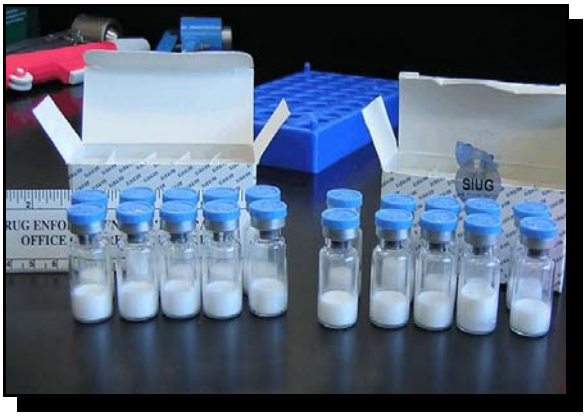

Photo 14

[Editor's Note: An Internet search indicates that S.I.U.G. is an underground laboratory operating in the New York area, specializing in anabolic steroids, HGH, and similar products.]

- INTELLIGENCE ALERT -

QUETIAPINE IN HEROIN IN DETROIT, MICHIGAN

The DEA North Central Laboratory (Chicago, Illinois) recently received an exhibit of suspected heroin, purchased during an ongoing DEA investigation (details sensitive). Analysis of the sample (total net mass 1.2 grams, photo not taken) by GC/MS, IR, and GC/FID confirmed 11.3 percent heroin hydrochloride, caffeine, lidocaine (salt undetermined), diphenhydramine (salt undetermined), benzocaine, quinine (salt undetermined), and an unknown that eluted approximately 2 minutes after quinine. A mass spectral library search indicated that the unknown was quetiapine (subsequently confirmed via GC/MS comparison with a standard). Quetiapine (trade name Seroquel) is a prescription medication used in the treatment of schizophrenia. The quetiapine was not formally quantitated; however, it was between 1 and 5 percent based on the TIC. While this is not the first instance of quetiapine in a submission to the North Central Laboratory, it is not commonly seen as an adulterant in heroin.

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- INTELLIGENCE ALERT -

N-ISOPROPYLBENZYLAMINE HYDROCHLORIDE (AS "ICE" METHAMPHETAMINE MIMICS) ON THE WEST COAST

The DEA Western Laboratory (San Francisco, California) recently received exhibits from three unrelated seizures, each containing apparent "Ice" methamphetamine (e.g., see Photo 15), that was subsequently identified as pure N-isopropylbenzylamine hydrochloride.

Photo 15

The first exhibit was submitted by the DEA Fresno Resident Office (California), and was seized from a vehicle in Bakersfield (no further information). The exhibit consisted of 15 plastic snap-top containers wrapped in black 10 mil PVC tape, all containing large white crystals. Analysis of the crystals (total net mass 6723 grams) by Raman, FTIR-ATR, GC/FID, and GC/MS identified N-isopropylbenzylamine hydrochloride.

The second exhibit was submitted by the DEA Salem Resident Office (Oregon), and was seized in Salem by the Oregon State Police, along with 21 kilogram bricks of cocaine hydrochloride (no further information). The exhibit consisted of two rectangular, plastic snap-top containers, both containing large, white crystals. Analyses of the crystals (total net mass 891.0 grams) by Marquis color test (slight orange to brown color transition), FTIR-ATR, and GC/MS again identified N-isopropylbenzylamine hydrochloride.

The third submission was submitted by the DEA Sacramento District Office (California), and was seized near Redding as a result of a domestic highway enforcement program by the Tehama County Sheriff's Department (no further information). The exhibit consisted of five plastic snap-top containers, each wrapped in white plastic shopping bags and clear plastic, with automotive grease and coffee grounds layered on the inner layers, all containing large, white crystals. Analyses of the crystals (total net mass 2230 grams) by Marquis color test, FTIR-ATR, and GC/MS again identified N-isopropylbenzylamine hydrochloride.

[Editor's Notes: In addition to the anomalous Marquis results, it was noted by the analysts that the N-isopropylbenzylamine hydrochloride crystals grind much easier than similar sized "Ice" methamphetamine crystals. N-Isopropylbenzylamine hydrochloride is not controlled, and does not have CNS stimulant effects at typical methamphetamine dosage levels. N-Methylbenzylamine and N-ethylbenzylamine have also been used as "Ice" methamphetamine mimics; see: Microgram Bulletin 2007;40(8):79.]

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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. Bladek J, Polak P, Jarzyna E, Jakubowska I. **Analysis of opiates and cannabinols by TLC.** Biuletyn Wojskowej Akademii Technicznej 2007;56(3):257-267. [Editor's Notes: Presents the title study. This article is written in Polish. Contact: Inst. Chem., Wydz. Nowych Technol. i Chem., Wojskowa Akad. Tech., 00-908 Warsaw, Pol.]

2. Byrska B, Zuba D. **Profiling of 3,4-methylenedioxymethamphetamine by means of high-performance liquid chromatography.** Analytical and Bioanalytical Chemistry 2008;390(2):715-722. [Editor's Notes: Presents an impurity profiling method; the targeted impurities were isolated via solid-phase extraction. Contact: Institute of Forensic Research, Westerplatte 9, Krakow 31 033, Pol.]

3. Cai X-l, Wu G-p. **Preliminary study on identification of heroin from different routes with clustering analysis by Fourier transform infrared spectroscopy.** Guangpuxue Yu Guangpu Fenxi 2007;27(12):2441-2444. [Editor's Notes: Presents the title study. This article is written in Chinese. Contact: Department of Science Technology, Jiangsu Police Institution, Nanjing 210012, Peop. Rep. China.]

4. Di Donati E, Martin CCS, Spinosa De Martinis B. **Determination of cocaine in Brazilian paper currency by capillary gas chromatography/mass spectrometry.** Quimica Nova 2007;30(8):1966-1967. [Editor's Notes: Cocaine was found in 93% of the bills in a range of 2.38 - 275.10 micrograms/bill. Contact: Departamento de Patologia, Centro de Medicina Legal, Faculdade de Medicina de Ribeirao Preto, Universidade de Sao Paulo, 14051 Ribeirao, Brazil.]

5. Madej K, Marczyk A, Wozniakiewicz M. **Screening analysis of fourteen classic psychotropic drugs by the non-aqueous capillary electrophoresis method.** Z Zagadnien Nauk Sadowych 2005;63:241-246. [Editor's Notes: 16 psychotropic drugs (not specified in the abstract) from the phenothiazine and tricyclic antidepressants families were analyzed by CE in a non-aqueous medium (Note: Although the title stated 14 drugs, the abstract stated 16 drugs). Contact: Faculty of Chemistry, Jagiellonian University, Krakow, Pol.]

6. Matsushita T, Takatsu M, Yoshida Y, Moriyasu M. **Development of new on-column chiral derivatization reagent for gas chromatographic separation of optical isomeric amphetamine and methamphetamine.** Bunseki Kagaku 2007;56(12):1089-1095. [Editor's Notes: A new derivatization reagent ((+)-alpha-methoxy-alpha-(trifluoromethyl)phenylacetyl pyrazole) was used for on-column chiral separation and analysis of amphetamine and methamphetamine by GC/MS. The focus is toxicological. This article is written in Japanese. Contact: Forensic Science Laboratory of Hyogo Prefectural Police HQ, Kobe 650-8510, Japan.]

7. Parr MK, Koehler K, Geyer H, Guddat S, Schanzer W. **Clenbuterol marketed as dietary supplement.** Biomedical Chromatography 2008;22(3):298-300. [Editor's Notes: Presents the title study (analysis by LC-MS/MS and GC/MS). Contact: Centre for Preventive Doping Research, German Sport University Cologne, Carl-Diem-Weg 6, 50933 Cologne, Germany.]

8. Ranieri TL, Ciolino LA. **Rapid selective screening and determination of ephedrine alkaloids using GC-MS.** Phytochemical Analysis 2007;19(2):127. [Editor's Notes: Presents a GC/MS method for analysis of the ephedrine alkaloids in Ma Huang. Ammoniacal chloroform is used as the extraction solvent, with a two-stage derivatisation scheme. This method produces the O-trimethylsilyl, N-trifluoracetyl derivatives for the primary and secondary amines, and the O-trimethylsilyl derivatives for the tertiary amines. Relatively clean extracts are obtained from complex matrices, and the six ephedrine alkaloids are effectively separated and identified. This approach was also evaluated for quantitative analysis, and was shown to provide quantitative results for ephedrine and pseudoephedrine, and good estimates for the four minor alkaloids. The method can be applied to supplements containing ephedra extracts. Contact: Forensic Chemistry Center, U.S. Food and Drug Administration, 6751 Steger Dr., Cincinnati, OH 45231.]

9. Ratle F, Gagne C, Terrettaz-Zufferey A-L, Kanevski M, Esseiva P, Ribaux O. **Advanced clustering methods for mining chemical databases in forensic science.** Chemometrics and Intelligent Laboratory Systems 2008;90(2):123-131. [Editor's Notes: Heroin and cocaine GC data are analyzed using several clustering techniques. The results are compared to standard methods in the field of chemical drug profiling, and show that conventional approaches miss the inherent structure in the data. Contact: Institute of Geomatics and Risk Analysis-Faculty of Earth and Environmental Sciences-University of Lausanne, Amphipole CH-1015, Switz.]

10. Tsujikawa K, Kuwayama K, Miyaguchi H, Kanamori T, Iwata YT, Yoshida T, Inoue H. **Development of an on-site screening system for amphetamine-type stimulant tablets with a portable attenuated total reflection Fourier transform infrared spectrometer.** Analytica Chimica Acta 2008;608(1):95-103. [Editor's Notes: A library search system was developed for a portable ATR-FTIR spectrometer for on-site identification of MDMA and MDA tablets. Contact: National Research Institute of Police Science, 6-3-1, Kashiwanoha, Kashiwa, Chiba 277-0882, Japan.]

11. Wu G-p, Xiang B-r. **Nondestructive determination of MDMA and MA in ecstasy by near infrared spectroscopy.** Fenxi Ceshi Xuebao 2007;26(5):698. [Editor's Notes: Presents the title study. Note that (based on the abstract) "MA" in the title should actually be MDA. GC/MS was used as the reference method, and the results were in good agreement. This article is written in

Chinese. Contact: Department of Public Security Technology, Jiangsu Police Institution, Nanjing 210012, Peop. Rep. China.]

Additional References of Possible Interest:

1. Chapman TB. **Carrier matrix with pharmaceutical active component and recognition part against drug counterfeiting and fraud.** (Patent) Chemical Abstracts 2007:1324700.

2. Fayazpour F, Lucas B, Huyghebaert N, Braeckmans K, Derveaux S, Stubbe BG, Remon J-P, Demeester J, Vervaet C, De Smedt SC. **Digitally encoded drug tablets to combat counterfeiting.** Advanced Materials 2007;19(22):3854. [Editor's Notes: Presents the use of non-toxic, digitally encoded microparticles in drug matrices as a means for combatting counterfeiting (as opposed to package labelling). Contact: Laboratory of General Biochemistry and Physical Pharmacy, Department of Pharmaceutics, Ghent University, Ghent 9000, Belg.]

3. Goyal RN, Oyama M, Singh SP. **Fast determination of salbutamol, abused by athletes for doping, in pharmaceuticals and human biological fluids by square wave voltammetry.** Journal of Electroanalytical Chemistry 2007;611(1-2):140. [Editor's Notes: Presents the title study. The focus is toxicological, but unspecified "pharmaceutical formulations" were also analyzed. The results were compared against GC/MS analyses. Contact: Department of Chemistry, Indian Institute of Technology Roorkee, Roorkee 247 667, India.]

4. Henderson JP. **A method for the presumptive detection of substances.** (Patent) Chemical Abstracts 2008:12192.

5. Jasper JP, Weaner LE, Hayes JM. **Process patent protection: Characterizing synthetic pathways by stable-isotopic measurements.** Pharmaceutical Technology 2007;31(3):68-78. [Editor's Notes: The methods by which precise analyses of stable-isotopic abundances can be used in security and forensic applications for pharmaceutical materials are described. These methods can be used to investigate and mitigate patent infringement ("drug substances" and "forensic applications" were listed but not specified in the abstract). Contact: Nature's Fingerprint Authentication, Molecular Isotope Technologies LLC, Niantic, CT 06357.]

6. Loane CJ. **Chemical spot test for the detection of drugs of abuse in a beverage.** (Patent) Chemical Abstracts 2007;147:501291d.

7. Petrenko ES, Petrenko AE, Petrenko DE. **Mode and an arrangement for prevention of carrying in a luggage through an inspection zone of liquid explosive and narcotic substances in a household package for beverage and perfumery.** (Patent) Chemical Abstracts 2007:1405564.

8. Roggo Y, Gendrin C, Spiegel C. **Near infrared chemical imaging for the pharmaceutical industry.** Spectra Analyse 2007;36(258):26-30. [Editor's Notes: Presents the use of near IR spectroscopy for the quality control (counterfeit detection and process optimization) of pharmaceutical products. This article is written in French. Contact: F. Hoffmann-La Roche AG, Basel CH-4070, Switz.]

9. de Veij M, Deneckere A, Vandenabeele P, de Kaste D, Moens L. **Detection of counterfeit Viagra with Raman spectroscopy.** Journal of Pharmaceutical and Biomedical Analysis 2008;46(2):303-309. [Editor's Notes: Presents the title study. Contact: Ghent University, Laboratory of Analytical Chemistry, Proeftuinstraat 86, Ghent B-9000, Belg. Aside - Viagra

counterfeit tablets and also Viagra mimic tablets (usually containing amphetamine or methamphetamine) have occasionally been submitted as suspected controlled substances to forensic laboratories.]

10. Vredenbregt MJ, Mooibroek D, Hoogerbrugge R. **Your Viagras - Genuine, imitation, or counterfeit?** Practical Spectroscopy 2007;35:631. [Editor's Notes: A quick screening method to distinguish counterfeit or imitation Viagra using NIR spectroscopy was presented. (This article appears to be similar to: Vredenbregt MJ, Blok-Tip L, Hoogerbrugge R, Barenda 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.) Contact: National Institute for Public Health and the Environment (RIVM), P.O. Box 1, Bilthoven 3720 BA, Neth. Aside - see additional Note concerning Viagra in the previous citation (#9).]

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SCIENTIFIC MEETINGS

Title: 30th Annual SWAFS Meeting (First Bimonthly Posting)
Sponsoring Organization: Southwestern Association of Forensic Scientists
Inclusive Dates: September 22-26, 2008
Location: The Peabody, Little Rock (Little Rock, Arkansas)
Contact Information: Nick Dawson (501/683-6189 or nick.dawson -at- crimelab.arkansas.gov)
Website: www.swafs.us

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