

MICROGRAM

Laboratory Operations Division
Office Of Science And Drug Abuse Prevention

BUREAU OF NARCOTICS & DANGEROUS DRUGS / U.S. DEPARTMENT OF JUSTICE / WASHINGTON, D.C. 20537

Vol. IV, No. 5

June, 1971

Chief Chemist for the new BNDD Miami Regional Laboratory will be Mr. Anthony Romano, Jr. Mr. Romano has been serving as the Chief Chemist of the New York Regional Laboratory. He will report to Miami in July to organize the new facility. The proposed opening date will be reported in a future Microgram.

BNDD Forensic Chemists' Seminars for the coming federal fiscal year are tentatively planned as follows:

September 13 - 17, 1971

April 3 - 7, 1972

November 15 - 19, 1971

June 12 - 16, 1972

January 31 - February 4, 1972

All sessions will be held at the BNDD National Training Institute, Washington, D. C. For more information and application forms, write to:

Assistant Director for Training
National Training Institute
Special Training Division
Bureau of Narcotics and Dangerous Drugs
1405 I Street, N. W.
Washington, D. C. 20537

"Raggedy Andy" and "Raggedy Ann" LSD paper have been encountered in the BNDD Chicago Regional Laboratory. The paper, about 1 inch by 1 1/2 inches, was dark green, about the same weight as construction paper. On one side, there was a black ink drawing of a rag doll. Above it, the name "Raggedy Andy." Below the drawing, there appeared to be a portion of the name "Raggedy Ann," but too much was torn away to be certain. On the reverse side, there was a printed "125" and a stain was visible around the number. The paper contained 81.6 micrograms of LSD.

Candy containing LSD was analyzed by the BNDD Washington Regional Laboratory. It contained 39.4 micrograms of LSD per gram of sample.

Analytical methods in **Microgram** do not have official status. Use of funds for printing this publication approved by the Bureau of the Budget, April 8, 1969. **CAUTION:** Use of this publication is restricted to forensic scientists serving law enforcement agencies.

LSD tablets containing arrowroot starch as an excipient was seen for the first time by the BNDD Special Testing and Research Laboratory. The granules of arrowroot are similar to, but smaller than those of potato starch, averaging 27 to 54 microns.

Heroin in plastic containers has been reported by a number of sources. They have been embossed with "Luxe"; a symbol resembling a "5", with a hook at the base; a "1" and with a "No. 5". The heroin in the containers resembles soap powder, and is of high potency.

Phenylpropanolamine has been seen by the New Jersey State Police Laboratory as a white powder in brown bottles, in No. 4 clear gelatin capsules and in glassine bags.

Heroin with phenylpropanolamine has been encountered by the North Carolina Bureau of Investigation Laboratory.

Cocaine adulterated with boric acid has been encountered by the U. S. Customs Laboratory, San Antonio, the BNDD regional laboratories in New York and Chicago and by the Special Testing and Research Laboratory. Several exhibits have also been cut with dextrose or lactose, with some also containing magnesium sulfate or procaine. BNDD laboratories have also found cocaine with procaine, with benzocaine and with tetracaine.

Weight loss in cocaine exhibits containing magnesium sulfate as a diluent can occur resulting in unexplained shortages. The most common commercial form of magnesium sulfate is Epsom salts. Epsom salts contain seven waters of hydration, four of which are readily given off, depending on temperature and humidity. The percentage represented by loss of from one to four waters of hydration would account for a substantial weight loss. A weight loss of several milligrams was noted in one exhibit during the time the chemist was working it.

Indian "Bidi" tobacco has been submitted to the BNDD Special Testing and Research Laboratory. A product of India, it is also called "beedi" or "biri."

Imported teas have also been identified by the Special Testing and Research Laboratory. One was identified as "Eyebright Tea," containing mostly Euphrasia officinalis L., a member of the Scrophulariaceae (Figwort) family. Plantago purshi (Woolly plantain) was also present, as was Crepis capillaris (Smooth hawksbeard) and grass seeds.

One other submission was "Catnip Tea," Nepeta cataria, L., a mint frequently sold as marihuana.

The third tea, "Mistletoe Tea" contained the common European mistletoe, Viscum album L., family Loranthaceae. This is not the same as the American mistletoe, Phoradendron flavescens, which reportedly acts as a powerful stimulant to smooth muscle, producing a rise in blood pressure

and increasing the contractions of the intestine and uterus. The tea also contained Viscum album L.

Both the American and European mistletoes contain beta-phenylethylamine and tyramine. Tyramine is closely related to epinephrine in structure and produces almost identical, but less powerful and more persistent, sympathomimetic stimulation. It also occurs in ergot.

Long-haired youths have begun visiting the Royal Botanic Gardens, Melbourne, Australia, according to an American press item. Allegedly, the "hippies" have been picking samples of a Peruvian plant which provides a substitute for marihuana.

According to our official source in Australia, the "hippies" are quiet, well behaved and have caused no complaints. Only one flower has been taken, and there is no evidence of theft of plants.

The garden does contain species of Datura, all of which contain atropine derivatives. Datura stramonium is one of the plants in the garden. This, with Atropa belladonna is contained in American preparations intended for use in asthmatic attacks. A few years ago, these preparations were widely abused by young people, many of whom were admitted to hospitals suffering the symptoms of atropine overdose.

Imitation marihuana bricks have been seen in the BNDD San Francisco Regional Laboratory. They were the same size, shape and weight, and were wrapped with red cellophane like many marihuana bricks. The bricks contained paraffin, which apparently had been softened, then alfalfa was pressed into the surface to cover the paraffin.

Heroin containing quinidine has been reported by the BNDD Chicago Regional Laboratory. This is the second instance in which our laboratories have encountered quinidine with heroin. Quinidine has a much more pronounced effect on the heart than quinine, and could be implicated in addict deaths attributed to heroin overdose.

Methamphetamine in combination with methenamine has been reported by a journalist. If any laboratory has analyzed the combination, we would appreciate a report.

"Synthetic cocaine" was identified as dibucaine hydrochloride by the BNDD New York Regional Laboratory. Dibucaine is marketed as a local anesthetic under the names of "Nupercaine Hydrochloride," "Percaine," "Cincaine" and others. It is considered to be one of the most potent, most toxic and longest acting topical anesthetics. Dibucaine is used (with or without epinephrine) for local anesthesia in 0.1 to 0.2% solutions. It is prescription item, but is not controlled under the Controlled Substances Act.

"If the powder is applied to the mucus membranes," according to the BNDD Chief Medical Officer's Office, "there is a very rapid absorption of the

drug, which may lead to overdose subsequently resulting in convulsions and even death." Dibucaine is a central nervous system stimulant.

Needle induced malaria occurrences in North Carolina and Illinois are reported in the Public Health Service, Center for Disease Control, Morbidity and Mortality for week ending May 8, 1971. Two previous outbreaks of needle-induced malaria associated with heroin use has been reported by CDC since July, 1970.

Strychnine in drugs was reported by the press during May Day demonstrations in Washington, D. C. None of the submissions to the BNDD Washington Regional Laboratory contained strychnine. Fifty percent of the submissions were not as purported to be. Alleged mescaline was identified as LSD/PCP combination or LSD alone. THC in all cases was PCP, and in one case, alleged methamphetamine was found to be diphenhydramine.

A square, red, wax candle was received by the Northern Illinois Police Crime Laboratory through the mail from overseas. The exhibit is approximately 8 1/2" X 2 3/4" X 2 3/4". Contents of the candle revealed a foil packet, which contains a plastic bag with approximately 10 grams of black pepper. Inside the plastic bag is another foil packet containing a plastic bag with approximately 50 grams of marihuana.

Andrew H. Principe, Executive Director of the laboratory, believes the pepper may have been added to mask the odor of marihuana, probably to interfere with the detection by dogs.

MEETINGS

The 85th Annual Meeting of the Association of Official Analytical Chemists will be held October 11-14, 1971 at the Marriott Motor Hotel, Twin Bridges, Washington, D. C. About 1500 scientists are expected, and about 230 papers will be presented on new techniques, methods and instrumentation for the analysis of a wide variety of substances. Registration fee: \$3.00.

There will be three symposia. Of special interest is a symposium on forensic science, Thursday, October 14, with the keynote address being "The Prosecutor and Forensic Scientist."

The Fourth Annual Meeting of the American Academy of Clinical Toxicology will be held in Philadelphia, October 21 through 23, at the Marriott Motel on City Avenue. Papers on drug abuse will be presented on Friday morning, October 22nd, and there will be other topics, including a special session on alcohol. For details, write to Program Chairman, American Academy of Clinical Toxicology, Post Office Box 2565, Houston, Texas 77001.

NEW BOOKS AND SELECTED REFERENCES

Winek, Charles L., Drug Abuse Reference 1971, Bek Technical Publications, Inc., Bridgeville, Pennsylvania 15017

Camps, Francis E., Recent Advances in Forensic Pathology, J. & A. Churchill Ltd., 104 Gloucester Place, London, England

Winek, Charles L., Drug Abuse Reference 1971, Bek Technical Publications, Inc., 100 West Mall Plaza, Carnegie, Pennsylvania 15106

Finkle, Bryan S., "Ubiquitous Reds: A Local Perspective on Secobarbital Abuse," The Forensic Science Gazette, Vol. 2, No. 2 (April 1971)

Bulletin on Narcotics, Vol. XXIII, No. 1, (Jan. - March, 1971), Division of Narcotic Drugs, United Nations, Palais des Nations, Geneva, Switzerland

Roselle, Harry A., M.D. et al., "Unusual Complication of Heroin Addiction," JAMA, Vol. 216, No. 9 (May 31, 1971)

Gossett, John T., Ph.D. et al., "Extent and Prevalence of Illicit Drug Use as Reported by 56,745 Students," JAMA, Vol. 216, No. 9 (May 31, 1971)



BNDD LABORATORY NOTES

DATE

NO.

DRUG TYPE Narcotic

METHODOLOGY Column and Gas Chromatography

QUANTITATIVE ANALYSIS OF METHADONE IN ORANGE JUICE

Albert R. Sperling, Ph.D.

Research Chemist

Special Testing and Research Laboratory

Bureau of Narcotics and Dangerous Drugs

Recently, a series of samples of methadone in orange juice (or Tang) was submitted for quantitative analysis. Using the method described by Tomczak (1) in the March issue of Microgram, low and erratic results were obtained. Standard recoveries on this method were also low and erratic. An alternate procedure was therefore developed, utilizing column chromatography and gas chromatography, which was much faster and more accurate.

PROCEDURE

Transfer a 2 ml. aliquot of the orange juice sample into a beaker. Add five drops of concentrated HCl, mix well, and then add 4 grams of Celite 545 (acid washed). Mix well and transfer to a chromatographic column. Elute the column with water saturated chloroform into a 50 ml. volumetric flask to which 3 ml. of an internal standard solution has been added. The sample is then analyzed by gas chromatography.

INSTRUMENTAL CONDITIONS

flame ionization detector
6 ft. x 4 mm. ID glass column packed with 3% OV-1 on gas chrom Q
column temperature - 210°C
flow rate - 60 ml./min.

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BND-115 (9/69)

PREPARATION OF INTERNAL STANDARD SOLUTION

Prepare a chloroform solution of n-eicosane (2) to give a concentration of 1.6 mg./ml.

PREPARATION OF STANDARD METHADONE HCl SOLUTION

Accurately weigh about 10 mg. of methadone HCl into a 50 ml. volumetric flask. Add 3 ml. of the internal standard solution and bring to volume with chloroform.

Calculation:

$$\frac{M_u \times I_s \times C}{M_s \times I_u \times 2} = \text{mg./ml.}$$

where

M_u is the peak area of the unknown sample solution.

M_s is the peak area of the standard solution.

I_s is the peak area of the internal standard in the standard solution.

I_u is the peak area of the internal standard in the sample solution.

C is the concentration of the standard methadone HCl solution in mg./50 ml.

Approximate retention times under these conditions are:

eicosane 2.9 minutes

methadone 4.6 minutes

STANDARD RECOVERY RESULTS

Sample A	101.2%
Sample B	97.3%
Sample C	96.1%

Sample A was prepared by adding a known concentration of methadone to a solution of Tang.

Sample B and C were prepared by adding a known amount of methadone to two of the samples which were submitted. They were analyzed before the addition of the methadone and then again after the addition of the methadone.

REFERENCES

1. Tomczak, T. Microgram, Vol. IV, No. 3, March 1971, p. 35.
2. Applied Science Laboratories, Inc., P. O. Box 440, State College, Pa. (Catalog number 19441).

1969, 1970 DRUG STATISTICS FOR NORTH CAROLINA

The following list is a breakdown into six month periods of drugs received by the North Carolina State Bureau of Investigation Crime Laboratory during 1969 and 1970. The numerical listings indicate the number of cases in which the particular drug occurred.

	January 1 - June 30, 1969	July 1 - December 31, 1969	January 1 - June 30, 1970	July 1 - December 31, 1970
Drug cases in which the sample was not identified; was not a drug law violation; or the quantity was insufficient for identification	202	238	135	128
Opium Poppies	0	0	5	1
Raw Opium	5	4	0	1
Tincture of Opium	0	0	0	1
Morphine	3	3	2	2
Codeine	7	11	3	5
Heroin (white)	46	76	80	195
Heroin (red) Lucky Strike	0	0	0	1
Dilaudid	0	0	2	4
Papaverine	0	1	0	1
Oxycodone	2	0	1	1
Oxymorphone	0	0	0	5
Dihydrocodeinone	0	1	0	0
Alvodine	1	0	0	0
Methadon	8	2	2	4
Demerol	3	3	5	4
<u>Hallucinogenics</u>				
LSD	56	80	105	165
Marihuana (more than 1 gram)	153	165	177	366
Marihuana (less than 1 gram)	188	127	105	139
Hashish	59	27	47	60
Phencyclidine	2	10	1	15
MDA (3,4-Methylenedioxyamphetamine)	0	3	2	14
STP	5	15	2	0
DMT	0	2	0	0
LBJ (JB-336)	1	0	0	1
Benactyzine HCl	0	0	1	0

Ibogaine	0	0	1	0
Bufotenin	0	0	1	0
Peyote Buttons	0	0	1	2
2,5-Dimethoxyamphetamine	0	0	0	3
4-Methoxyamphetamine	0	0	1	0
Hawaiian Baby Woodrose	0	0	0	1
Harmin HCl	0	0	1	0
<u>Stimulants & Sedatives</u>				
Amphetamine	50	57	60	59
Methamphetamine	5	11	15	8
Methylphenidate	3	5	1	2
Phenmetrazine	1	0	1	1
Cocaine	3	3	2	6
Barbiturates	55	69	52	57
Barbiturate, Stimulant Combinations	26	42	33	17