

MDMA ANALYSIS

maps **mdma** analysis projectRick **Doblin**

in

FEBRUARY AND MARCH OF 1996, people from around the United States and England sent

MDMA for analysis to a licensed testing facility. The purpose of the study was to gather information about the quality of the MDMA being sold on the underground market in the United States and England. Information about the quality of MDMA is necessary in order to estimate the dangers faced by users of illicitly manufactured and distributed MDMA and to place reports of adverse effects in some context.

A total of 33 samples were tested, 22 from the United States, 10 from England and 1 from South Africa. Quantitative and qualitative analyses were conducted on all the samples. The total cost of the study was \$3,520. Nicholas Saunders, author of *E for Ecstasy*, *Ecstasy* and the *Dance Culture* and the forthcoming *Dance, Trance and Transformation*, donated \$1,650 to MAPS for the study. An additional \$1,100 was donated to MAPS for the study from High Times Magazine. A total of \$660 came from MAPS' general fund and the remaining \$110 was paid directly by a private individual.

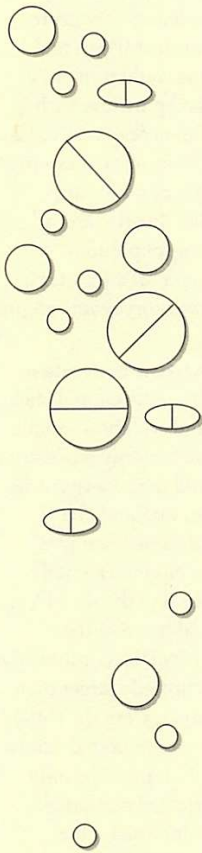
Technological Limitations

The testing was conducted with a gas chromatograph-mass spectrometer (GC/MS). The gas chromatograph separates the different components of the sample. The mass spectrometer identifies the atomic composition of each of the components. This data is then compared by a computer to a database of hundreds of known drugs and other compounds to see if there are any matches. In this way, many of the ingredients in the samples can be identified.

There are some limitations to the GC/MS technology. Certain inorganic and some organic compounds may not volatilize and/or chromatograph and therefore would not be detected. These compounds include baking soda, baby powder and certain sugars that are sometimes used to dilute cocaine and other drugs in powder form such as MDMA. There also may be many compounds that can be detected by the GC/MS technology but are not contained in the computer data base and therefore cannot be identified.

United States Samples

We were fortunate to obtain a rather good geographic distribution of the 22 samples from the United States. Five samples came from New York State, of those 4 came from New York City and 1 from other parts of the state. Three samples came from near Chicago, Illinois. One sample was from Minneapolis, 1 from Eunice, Louisiana (near Baton Rouge), 1 from Charlotte, North Carolina and 1 from Sarasota, Florida. Ten samples came from California, of those 3 were from San Francisco and 7 were from the Santa Barbara/Los Angeles area. Despite the fact that the samples were from around the country, there is no way to determine if they comprise a representative sample of the MDMA being sold in the United States. Therefore, the results from this study can be used only to draw inferences and not conclusions about the content of the pills and capsules being sold as MDMA in the United States. Furthermore, according to Nicholas Saunders, "you cannot be sure that any pill that looks similar to the ones illustrated will have



The claims that MDMA
is frequently mixed
with crushed glass,
rat poison, heroin
and other dangerous
substances has
not been
substantiated.

similar contents. When a pill earns a good reputation, it is frequently exploited by dud lookalikes after a few weeks, and the same press may be used for completely different ingredients."

Of the 22 samples from the United States, 17 were tablets and 5 were capsules. Eight out of the 22 samples had no MDMA at all. Interestingly, all the capsules contained MDMA while only about half of the tablets did. Of those samples that did contain MDMA, the highest dose was 119 mg. The lowest was 45 mg. Of the 14 samples that contained MDMA, the average dose was 79 mg. This average is significantly lower than the standard dose sold before the criminalization of MDMA which was in the range of 100-125 mg. Doses lower than 100 mg, are generally considered to be below the level at which many people will feel the full effects of MDMA.

Of the 14 samples that contained MDMA, only 1 also contained another psychoactive compound identified by the GC/MS. That sample was a tablet from New York State that contained MDMA and caffeine. In the remaining 13 samples, MDMA was 100% of only three of those samples, all capsules from San Francisco. The other samples contained a range of percentages of other ingredients that were not measured by the GC/MS technology. For example, the capsule of MDMA from Santa Barbara was only 59% MDMA, the capsule from Sarasota was 85% MDMA and the tablet from New York City was 25% MDMA. While these unidentified ingredients could have been another psychoactive ingredient or a byproduct of manufacturing, they were not cocaine, heroin, barbiturates, benzodiazapines, tranquilizers, hypnotics, ketamine, methamphetamine, amphetamine or any of several hundred other compounds. Some of these unidentified ingredients were fillers or binding agents used in the manufacture of the tablets. Whether these unidentified ingredients are toxic cannot be determined. The common rumor that MDMA is frequently cut with heroin was not substantiated.

Of the 8 samples that contained no MDMA, 2 contained the psychoactive drug MDE (3,4-methylenedioxyethylamphetamine), a chemical cousin of MDMA that generates an emotional reaction that is not quite

as profound as that of MDMA, and 1 contained an unidentified compound. The remaining 5 contained various combinations of ingredients found in over-the-counter preparations including dextromethorphan (an ingredient found in cough suppressants that has a ketamine-like psychoactive effect especially in higher doses), ephedrine/pseudoephedrine (a stimulant found in many plants, over-the-counter medicines and Herbal Ecstasy and other similar pseudo-MDMA products), phenylpropanolamine (a decongestant and mild stimulant found in cold medicines as well as diet aids), and glyceryl guaiacolate (a compound that dries sinuses and is an expectorant).

The ingredients in the samples that did not contain MDMA raise some degree of concern since the interaction of genuine MDMA and ephedrine/pseudoephedrine could provoke a significant elevation in blood pressure. Such interactions could occur if someone were to take two different samples at a time, one containing genuine MDMA and the other containing ephedrine/pseudoephedrine. In one case, a person who had taken 20 mg. of pseudoephedrine in the morning and MDMA later in the day reported having transitory severe anginal chest pain.¹

England and South Africa Samples

Just like the samples from the United States, the 10 samples from England and the 1 sample from South Africa are not necessarily representative of the MDMA being sold in those countries.

Of the 10 samples from England, five contained MDMA. Three of these 5 samples contained only MDMA, 1 contained a small amount of caffeine in addition to the MDMA and 1 contained some MDE in addition to the MDMA. The average dose of MDMA in these five samples was 128 mg., substantially larger than the average dose of the samples from the United States. The only psychoactive compound detected in 3 samples was MDE. In 2 samples the only psychoactive compound detected was caffeine. Thus, 8 out of 10 samples contained some MDMA or MDE, two drugs with a somewhat similar subjective effect. The 1 sample from South Africa contained only one psychoactive ingredient, MDMA, and a very substantial dose of 138 mg.

Conclusion

All the capsules from the United States contained MDMA while only about half the tablets did so. The samples with MDMA were likely to be weak, averaging only 79 mg., well below the standard dose generally considered to



Tablets from England

be in the range of 100-125 mg. The one capsule from England contained caffeine and only half the tablets contained MDMA, averaging 128 mg. per tablet. It seems that the doses of MDMA in the United States are lower than those in England, perhaps a contributing factor in the virtual absence of MDMA-related deaths in the United States.

Four out of 10 samples from England contained MDE while only 2 samples out of 22 in the United States contained MDE. Perhaps there are differential penalties between MDMA and MDE in some countries in Europe, in the United States both MDMA and MDE carry the same penalty.

While there were no toxic additives found in any of the samples, there were unidentified ingredients in virtually all the samples. It is possible that all of these compounds were benign fillers or binders of some sort used in the manufacturing of the tablets or benign "cuts" used to expand the amounts of the powder.

However, the safety of MDMA tablets and capsules cannot be determined with certainty. Nevertheless, the claims that MDMA is frequently mixed with crushed glass, rat poison, heroin and other dangerous substances has not been substantiated. •

NOTE: If any MAPS readers are interested in obtaining anonymous, qualitative-only analyses of samples of illicitly manufactured drugs, Drug Detection Laboratories will conduct such analyses for \$100. Samples should be sent in a crush-proof manner to DDL, 3117 Fite Circle, Suite 104, Sacramento, CA 95827, (916) 366-3113. Include a note that indicates what you think the drug is supposed to be and assign a six-digit code number to your sample so that you can call DDL about two weeks after your sample would have been received to learn the results anonymously. Please indicate that you read about DDL in MAPS.

Location	Form	Markings	MDMA	How much?	% MDMA	What else?
Chicago	Tab	white	Yes	est. 45 mg	19%	unidentified
Chicago	Tab	white, scored, .7 cm	Yes	67 mg	59%	unidentified
Chicago	Tab	bluish, 1 cm	Yes	73 mg	21%	unidentified
New York	Tab	yellow, .8 cm	Yes	46 mg	16%	caf & unidentified
New York City	Cap	blue & clear	Yes	72 mg	79%	unidentified
New York City	Tab	white, scored, .8 cm	No	0 mg	0%	MDE & unidentified
New York City	Tab	white, scored, .8 cm	No	0 mg	0%	MDE & unidentified
New York City	Tab	Rolex crown, .6 cm	Yes	65 mg	25%	unidentified
Sarasota	Cap	clear	Yes	92mg	85%	unidentified
Eunice, LA	Tab	white, scored, 1 cm	No	0 mg	0%	dex and phenyl
Minneapolis	Tab	white, scored, .9 cm	No	0 mg	0%	phenyl, eph, glyc
Charlotte	Tab	white, no markings, 1 cm	No	0 mg	0%	unidentified
San Francisco	Cap	clear	Yes	est. 72 mg	100%	nothing else
San Francisco	Cap	clear	Yes	112 mg	100%	nothing else
San Francisco	Cap	clear	Yes	119 mg	100%	nothing else
Santa Barbara	Cap	clear	Yes	73 mg	59%	unidentified
Santa Barbara	Tab	green, 1cm	Yes	102 mg	29%	unidentified
Santa Barbara	Tab	white, scored, 1 cm	No	0 mg	0%	phenyl, eph, dex, glyc
Santa Barbara	Tab	yellow, speckled, scored, 1.3 cm	No	0 mg	0%	dex, eph,unidentified
Santa Barbara	Tab	solid yellow, 1.3 cm	No	0 mg	0%	dex, eph,unidentified
Santa Barbara	Tab	white, scored, .7 cm	Yes	92 mg	71%	unidentified
Santa Barbara	Tab	yellow, speckled, 1cm	Yes	72 mg	18%	unidentified
England	Tab	pink, scored, .9 cm	No	0 mg	0%	caf, unidentified
England	Tab	white, Dove, 9. cm	Yes	111 mg	38%	unidentified
England	Tab	white, Dove, 9. cm	Yes	134 mg	41%	unidentified
England	Tab	white, Playboy, scored, .9 cm	Yes	159 mg	56%	MDE, unidentified
England	Tab	white, Playboy, scored, .9 cm	Yes	28 mg	11%	MDE, unidentified
England	Tab	white, Playboy, scored, .9 cm	No	0 mg	0%	MDE, unidentified
England	Tab	white, Playboy, scored, .9 cm	Yes	14 mg	5%	MDE, unidentified
England	Tab	yellow, Chicken, .9 cm	Yes	106 mg	35%	unidentified
England	Tab	white, Apple with a bite	Yes	131 mg	44%	caf, unidentified
England	Cap	clear, "Warm Speed"	No	0 mg	0%	caf
South Africa	Tab	yellow, scored, 1.2 cm	Yes	138 mg	23%	unidentified

What Else? dex=dextromethorphan, caf=caffeine, MDE=3,4-methylenedioxyethylamphetamine, phenyl=phenylpropanolamine, eph=ephedrine/pseudoephedrine, glyc=glyceryl guaiacolate