



## MDMA: Another View of Ecstasy

By Richard B. Seymour

Not since LSD has a consciousness effective drug so excited the mass media as has MDMA in the last few months. Every major newspaper and television network has done a feature on this drug. Some of the reports are from the viewpoint of researchers and clinicians who have been working with the substance as an adjunct to psychotherapy. Others are from the viewpoint of the Drug Enforcement Administration (DEA). Often it sounds as though they are talking about two totally different substances.

The researchers speak of MDMA as a consciousness effective drug with a low abuse potential and few dangerous or habituation provoking effects. Physicians have given it to hundreds of patients in the course of psychotherapy and claim good results in many cases.

The DEA considers MDMA to be a potentially dangerous drug. It is currently holding hearings to determine whether or not MDMA should be placed in Schedule I of the Controlled Substances Act. If placed there permanently, it would join such drugs as heroin, LSD, marijuana, mescaline, psilocybin and MDA in being labeled as a drug with a high abuse potential and no accepted medical use in the United States.

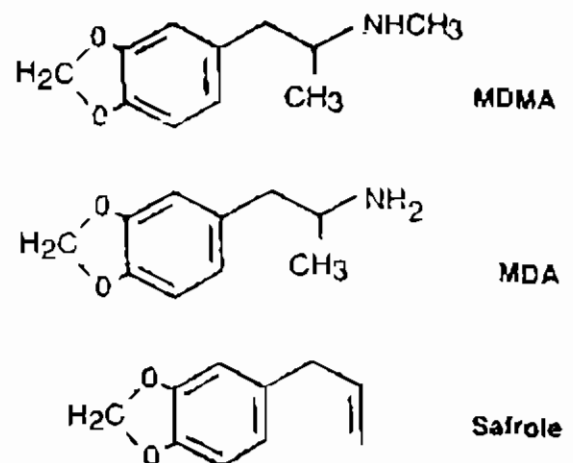
Just what is this controversial substance? MDMA is a short-acting phenylethylamine compound that was first synthesized and patented by E. Merck and Co. of Germany in 1914. It was originally developed as an appetite suppressant but never marketed. Its chemical name is N-methyl-3,4-methylenedioxy-alpha-methylbenzethanamine N, alpha-dimethyl-1,3-benzodioxole-5, ethanamine. Similar in structure to both MDA (3,4-methylenedioxyphenylisopropylamine) and the aromatic substitution pattern of the essential oil safrole, MDMA is synthesized from molecular components of methamphetamine and either safrole from sassafras or nutmeg (see figures).

The only toxicological and behavioral report involving this compound until recently was an Army Chemical Center study performed in the 1950's, declassified in 1967, and published in 1973 (Hardman, et al., 1973). MDMA received occasional mentions during the 1970's in the illicit street drug market. In that it was closely related to MDA and other methoxylated or psychotomimetic amphetamines, and the overdose

symptoms are similar for all of these substances, client mentions at such treatment centers as the Haight Ashbury Free Medical Clinic are usually lumped together under a general heading.

Writing in 1978, Shulgin and Nichols cited one toxicological report (Gaston and Rasmussen, 1972) and a personal communication from the PharmChem Foundation of Palo Alto, California, to characterize the mentions of MDMA as "occasional and erratic." They

Figure 1



went on to describe MDMA as having a higher threshold level than, but similar potency, to MDA. They described the effects to an oral dosage of 75-150 mg. as: "first noted very quickly, within the half-hour following administration. With most subjects the plateau of effects is reported to occur in another half-hour to hour. The intoxication symptoms are largely dissipated within an additional two hours except for a mild residual sympathomimetic stimulation which can persist for several additional hours. There are few physical indicators of intoxication, and psychological sequelae are virtually non-existent. Qualitatively, the drug appears to evoke an easily controlled altered state of consciousness with emotional and sensual overtones. It can be compared in its effects to marijuana, to psilocybin devoid of the hallucinatory component, or to low levels of MDA (Shulgin and Nichols, 1978)."

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Over the years, there has been a small but steady incidence of clients exhibiting adverse reactions to MDMA, MDA and other drugs in their general category. At the Haight Ashbury Free Medical Clinic's Drug Treatment Project, where 400 to 460 new drug clients per month are seen, these mentions average about three to four a month. This comes out to less than one percent for the entire drug group. As individual drugs within the group are not differentiated, the incidence of adverse effects from MDMA seen at the Clinic is probably considerably less than one percent of its total drug-related client load.

When they do appear, these clients present with symptoms that include anxiety, rapid pulse and heartbeat, and in advanced cases, paranoia that is either general or with ideas of reference. Treatment is symptomatic. The client is assured that these feelings are a result of taking too much of the drug and that they will lessen as the effects of the drug wear off. Talkdown methods, such as those used with psyc-

delic bad trips and anxiety reactions in general can be helpful. With such short-acting substances, however, time and the realization that the symptoms are indeed letting up can be the best healers. In most cases, these clients can be released once the drug has worn off. In some cases, where the anxiety or paranoia persists, clients may come back for a series of counseling sessions. These rarely continue for more than a week unless the client has other drug or emotional problems as well (Seymour, 1985).

Although treatment mentions have not increased in recent years, public awareness of and interest in MDMA has increased greatly in recent months. Street and recreational use of the drug obviously exists. MDMA is recognized on the street by such names as "Adam," "Ecstasy," and "XTC." I don't think anyone knows how extensive street or recreational use is, however. In recent interviews, Dr. Ronald Siegel of the University of California at Los Angeles School of Medicine estimates that use of MDMA has increased nationally from 10,000 doses in all of 1976 to a current 30,000 a month, (Klein, 1985). Not to be outdone, the federal Drug Enforcement Administration reported in June that its agents estimate that 30,000 dosage units of MDMA are distributed each month in one Texas city. (DEA, 1985). It is hard to know whose dosage estimate to accept, if any.

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*Assistant Editor*

PharmChem Newsletter

3925 Bohannon Drive

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Legally, MDMA is an orphan drug. The Merck patent ran out years ago and cannot be renewed by anyone. The formula is in the common domain. Further, MDMA has neither been permanently scheduled within the Controlled Substances Act schedules of psychoactive substances nor has it been approved for medical use by the federal Food and Drug Administration.

In California and certain other states, a substance in this position can be synthesized by a licensed physician under the supervision of a reputable chemist and given as an experimental drug to patients. This can be done if certain conditions are fulfilled. These include the establishment of a peer review committee and the citing of pertinent material in the literature that confirms such an experimental use.

Under these conditions, physicians have been conducting experimental sessions with MDMA and reporting some positive results when the drug is used as an adjunct to psychotherapy. The effects of MDMA were described in Klein's article, by an anonymous informant who is described as a fiftyish, "soft-spoken, conservatively dressed, thoughtful, intelligent" medical research and health care administrator as: "... the drug takes away all your neuroses. It takes away the fear of response. There is an overwhelming feeling of peace; you're at peace with the world. You feel open, clear, loving. I can't imagine anyone being angry under its influence, or feeling selfish or mean or even defensive. You have a lot of insights into yourself, *real* insights that stay with you after the experience is over." (Klein, 1985)

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"In the first two months of the program, pre-employment tests were 55 percent positive. At that time we were only hiring in two locations so we don't have a statewide percentage, but positive results are still running above 50 percent for job applicants," Tounger revealed.

Alcohol and marijuana are understandably the most common drugs found among applicants and employees. There have been very few instances of cocaine and amphetamine use, according to preliminary data from the safety department.

"We were quite alarmed to find alcohol because the physical examinations were conducted in the afternoon. We felt they were drinking just before coming on duty or during the day. Federal regulations in the Department of Transportation state that no driver will operate a vehicle having consumed alcohol four hours before coming on duty."

Package Delivery Express, a subsidiary which hires younger workers, reported instances of marijuana and cocaine use, but no alcohol.

"We test all classifications of employees who operate vehicles or machinery. This includes almost everyone but clerical workers: drivers, dock workers, shop servicemen, mechanics, and anyone who drives company automobiles, including salesmen, supervisors and managers."

Tounger said most of those who tested positive for alcohol or drug use also had high rates of absenteeism and workers' compensation claims. He expects to have year-end figures on how much these related losses have cost his companies.

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In psychotherapy, these effects can be translated as the untying of psychic knots in order to get at and work with repressed material and the ability to communicate beyond denial. Therapists who have used it say that it doesn't do anything that long term therapy alone wouldn't do, but in cases where MDMA has been used to ease traumatic immediacies and unravel painful mental blocks the process may be hastened and long-term psychic pain ameliorated. Therapists have used MDMA with patients who suffered childhood sexual molestation or more recent rape trauma to get at suppressed emotions. It has been used with patients who are suffering from long-term or terminal illnesses, such as cancer, to help them put impending death into perspective and communicate their feelings to loved ones. In couples therapy, MDMA has helped break down long standing destructive barriers between husbands and wives. Therapists are also looking at other possible applications of MDMA in therapy, such as with Vietnam veterans suffering from delayed stress syndrome.

Practitioners who have made use of MDMA maintain that it has a low abuse potential when it is used at clinical dosages and under medical supervision. They point out that tolerance develops rapidly to the desirable effects, leaving only the sympathomimetic or stimulant effects when one uses too much of the drug or takes it too often. These are the effects described by treatment staff at the Haight Ashbury Free Medical Clinic and elsewhere, effects that are usually considered both undesirable and unpleasant.

Therapists also point out that at clinical dosages, and possibly at any dosage, MDMA is neither hallucinogenic nor euphoric. In therapy, they will ordinarily use one session or at the most two with any given client.

One factor that concerns therapists and everyone else who is involved with the drug is the lack of research that has been done on it. There have been few animal studies. More are needed. Most of what is known about the human reaction to MDMA is of an anecdotal nature. By and large, and probably because of the fear that positive data could cause increased street use that would in turn lead to a ban on the drug, therapists who have used it in treatment have maintained a low profile. In fact, a representative of the Drug Enforcement Administration says that his office didn't know MDMA was being used for research and treatment until after they recommended its scheduling.

Only one clinical study of MDMA involving treatment and follow-up on multiple subjects has been written to date. That study, "MDMA: A New Psychotropic Compound and Its Effects in Humans" by George Greer, M.D., involved 29 subjects to whom MDMA had been administered in a therapeutic setting. Dr. Greer acknowledges that the study leaves a lot to be desired as a research instrument. "The primary purpose of the sessions conducted with MDMA was therapeutic rather than investigative... only the therapists' observations and the subjects' reports are available for analysis. Independent psychological evaluations with testing before and after sessions, control group data with double-blind assessment, vital signs during sessions... pre- and post-session laboratory testing of organ and metabolic functions, etc., were not done." (Greer, 1983)

Essentially, little is known of either the side effects, possible allergic reactions or long term effects of MDMA. Because it does have certain sympathomimetic effects, subjects are screened and anyone with high blood pressure, heart problems or any other cardiovascular difficulties, history of seizure or diabetes, hypoglycemia or any related problems are advised not to use it. Nor should it be used in conjunction with stimulants, MAO-inhibiting drugs or antidepressants. Because the fetal and newborn effects are unknown, breast-feeding mothers or women who are pregnant or have any thought that they might be pregnant should not use it either. Subjects who are using it shouldn't try to drive an automobile or use

any type of machinery, even though they may feel perfectly capable of doing so. The toxicology of MDMA is also largely unknown. There have been two deaths in which MDMA may have been involved but the connection is tenuous. Much, much more needs to be learned about this drug, and I would recommend extensive animal and human research on it.

Hearings on the permanent scheduling of MDMA are currently in progress and are scheduled to continue throughout the latter part of 1985. Three cross-examination sessions were scheduled; the first took place in Los Angeles on June 10. At these, lawyers representing the DEA and a lawyer representing physicians who are contesting the placement of MDMA in Schedule I are allowed to question witnesses who have submitted written testimony on the matter. Two more sessions are scheduled for Kansas City and Washington, D.C., respectively.

While these hearings appear to be proceeding calmly and in a nonadversarial manner, the DEA dropped something of a bombshell 10 days before the first hearing. At the end of May, and effective July 1, 1985, the Acting Administrator of the Drug Enforcement Administration enacted a Temporary Placement of MDMA, also known as MDM, Ecstasy and Adam, into Schedule I of the Federal Schedules of Controlled Substances. To do this, the DEA made use of a new amendment to Section 201 of the Controlled Substances Act that was voted in by Congress on October 12, 1984 as part of the Comprehensive Crime Control Act of 1984 (Public Law 98-473). This amendment was a result of the synthesis and street proliferation in the late 1970's and early 1980's of highly potent analogues to the pain killer fentanyl. These so-called "designer drugs" were immune from prosecution even though they were being sold as "synthetic heroin" and causing overdoses and deaths. Much to the frustration of the DEA, new fentanyl analogues were being developed faster than the old ones could be scheduled. Under these circumstances, enactment of emergency powers to schedule dangerous drugs seems justified. However, the use of this amendment to label MDMA as a drug with "a high potential for abuse" in the midst of permanent scheduling hearings is considered highly questionable by those who oppose it. The DEA maintains that the emergency scheduling is a completely separate and parallel action from the proposed scheduling that will in no way interfere with the hearings in progress regarding the permanent scheduling of MDMA (DEA, 1985).

The core of the emergency scheduling is a study done on rats with ultra-high dose injections of MDA, amphetamine and methamphetamine that indicates "destruction" of serotonergic nerve terminals in the rat brain, (Ricaurte et. al., unpublished). Opponents feel that this is guilt by association. MDMA, which is only taken orally, was not used in the experiment. The researchers state in their paper that its findings may not be equivocal in humans. Other animal studies using both MDA and MDMA indicate that the two compounds have opposite ways of working in the brain.

Also, the other two drugs studied are FDA approved for several treatment indications including hyperkinesis in children. Several researchers who favor the clinical use of MDMA, however, are taking steps to replicate in studies using clinically equivalent doses of MDMA administered to rats orally.

Physicians and researchers who are opposed to the Schedule I placement of MDMA agree with the Drug Enforcement Administration that MDMA should be scheduled, so as to allow prosecution of the operators of clandestine laboratories and to restrict access to MDMA by the general public. They are aware, as we are in the drug treatment field, that all psychoactive substances including MDMA have an abuse potential that can be critical with some people, including those who are vulnerable to addictive disease. They are also aware that clandestine manufacturers can make just about anything and sell that substance as a popular drug. They feel however that a lower level of scheduling would serve the DEA's purposes and safeguard the general public. Many of them see MDMA as the possible prototype of a new therapeutic category, such as nitrous oxide and diethyl ether were for the general anesthetics, and they fear that placement in Schedule I will bring about a hiatus in research as it has with all the other consciousness effective drugs so placed.

## References

1. Hardman, H.F., Haavik, C.O. and SeEVERS, M.H. Relationships of the Structure of Mescaline and Seven Analogs to Toxicity and Behavior in Five Species of Laboratory Animal. *Tox. Appl. Pharm.* 25, 299, 1973.
2. Gaston, T.R. and Rasmussen, G.T. Identification of 3,4-Methylenedioxymethamphetamine, *Microgram*, 5, 60, 1972.
3. Shulgin, A.T. and Nichols, D.E. Characterization of Three New Psychotomimetics. In: *The Psychopharmacology of Hallucinogens*. Eds: Stillman and Willette. Pergamon Press, New York, 1978.
4. Seymour, R.B. *Is Ecstasy Spelled MDMA?* Longmeadow Press, Stamford, 1985.
5. Klein, J. The New Drug They Call Ecstasy. *New York*, May 20, 1985.
6. DEA. Temporary placement of 3,4-Methylenedioxymethamphetamine (MDMA) into Schedule I. 21 CFR Part 13013. 1985.
7. Greer, G. MDMA: A New Psychotropic Compound and Its Effects in Humans. Unpublished report, 1983.
8. Ricaurte, G., Bryan, G., Strauss, L., Selden, L., and Schuster, C., Hallucinogenic Amphetamine Selectively Destroys Brain Serotonin Nerve Terminals: Neurochemical and Anatomical Evidence. Unpublished.

(Richard Seymour is training director of the Haight-Ashbury Free Medical Clinic and author of the forthcoming *Is Ecstasy Spelled MDMA?* published by Longmeadow Press and distributed early this fall by Walden Books. A portion of the proceeds will go to support physician training in drug abuse at the Haight-Ashbury Free Medical Clinic. Seymour recently testified before the Drug Enforcement Administration's public hearing on MDMA in Los Angeles.)