

N,N-DIMETHYLTRYPTAMINE (DMT)

December 2022

Introduction:

N,N-Dimethyltryptamine (DMT) is the prototypical indolethylamine hallucinogen. The history of human experience with DMT probably goes back several hundred years since DMT usage is associated with a number of religious practices and rituals. As a naturally occurring substance in many species of plants, DMT is present in a number of South American snuffs and brewed concoctions, like Ayahuasca. In addition, DMT can be produced synthetically. The original synthesis was conducted by a British chemist, Richard Manske, in 1931.

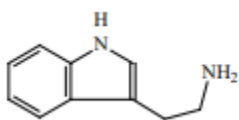
DMT gained popularity as a drug of abuse in the 1960s and was placed under federal control in schedule I when the Controlled Substances Act was passed in 1971. Today, it is still encountered on the illicit market along with a number of other tryptamine hallucinogens.

Licit Uses:

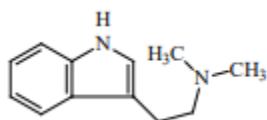
DMT has no approved medical use in the United States but can be used by researchers under a schedule I research registration that requires approval from both DEA and the Food and Drug Administration.

Chemistry:

Like other indolethylamine hallucinogens, DMT consists of the tryptamine core structure (left, structure below). DMT is formed by substituting two methyl (CH₃) groups for the two hydrogen atoms (H) on the terminal nitrogen of the ethylamine side chain of tryptamine.



Tryptamine



DMT

Pharmacology:

Administered alone, DMT is usually snorted, smoked or injected because the oral bioavailability of DMT is very poor unless it is combined with a substance that inhibits its metabolism. For example, in ayahuasca, the presence of harmala alkaloids (harmine, harmaline, tetrahydroharmaline) inhibits the enzyme, monoamine oxidase which normally metabolizes DMT. As a consequence, DMT remains intact long enough after oral administration to be absorbed in sufficient amounts to affect brain function and produce psychoactive effects.

In clinical studies, DMT administered intravenously was fully hallucinogenic at doses between 0.2 and 0.4 mg/kg. The onset of DMT effects is very rapid but usually

resolves within 30 to 45 minutes. Psychological effects include intense visual hallucinations, depersonalization, auditory distortions and an altered sense of time and body image. Physiological effects include hypertension, increased heart rate, agitation, seizures, dilated pupils, nystagmus (involuntary rapid rhythmic movement of the eye), dizziness and ataxia (muscular incoordination). According to American Association of Poison Control Centers (AAPCC) data, coma and respiratory arrest have been associated with DMT exposures.

Illicit Uses:

DMT is used for its psychoactive effects. The intense effects and short duration of action are attractive to individuals who want the psychedelic experience but do not choose to experience the mind altering perceptions over an extended period of time as occurs with other hallucinogens, like lysergic acid diethylamide (LSD).

DMT is generally smoked or consumed orally in brews like Ayahuasca.

Illicit Distribution:

DMT is found in a number of plant materials and can be extracted or synthetically produced in clandestine labs. Like other hallucinogens, Internet sales and distribution have served as the source of drug supply in this country. According to DEA's National Forensic Laboratory Information System (NFLIS) Drug database, the annual number of identifications of DMT in items analyzed by participating federal, state, and local forensic drug laboratories has remained fairly stable with 726 reports in 2018, 925 reports in 2019, 892 reports in 2020, and 1,033 reports in 2021. According to NFLIS-Drug, DMT has been encountered in all states.

Control Status:

DMT is controlled in schedule I of the Controlled Substances Act.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 571-362-4250, Telephone 571-362-3249, or Email DPE@dea.gov.