

## ***N,N*-DIMETHYLTRYPTAMINE (DMT)**

### **Introduction:**

*N,N*-Dimethyltryptamine (DMT) is the prototypical indolethylamine hallucinogen. The history of human experience with DMT likely goes back several hundred years, because DMT usage is associated with several 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 and hoasca. In addition, DMT can be produced synthetically. The original synthesis was conducted by a British chemist, Richard Manske, in 1931.

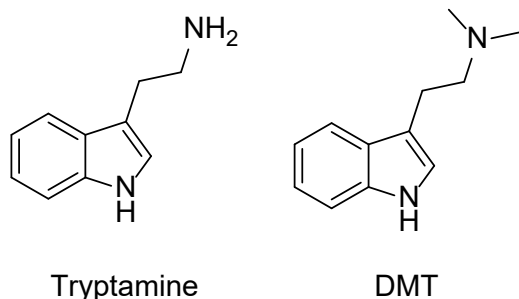
DMT gained popularity as a drug of abuse in the 1960s and was placed under federal control in schedule I when the Controlled Substances Act was passed in 1971. Today, DMT is still encountered on the illicit market alongside a number of other tryptamine hallucinogens.

### **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 the Drug Enforcement Administration (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 ( $-CH_3$ ) groups for the two hydrogen atoms (H) on the terminal nitrogen of the ethylamine side chain of tryptamine.



### **Pharmacology:**

Administered alone, DMT is usually smoked or snorted, because the oral bioavailability of DMT is very poor unless combined with a substance that inhibits its metabolism. For example, in ayahuasca, the presence of harmala alkaloids (harmine, harmaline, tetrahydro-harmaline) inhibits the enzyme monoamine oxidase, which normally metabolizes DMT. Consequently, 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 has been administered intravenously and produces strong hallucinogenic effects. The onset of DMT effects is very rapid but generally 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 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 who do not choose to experience the mind-altering perceptions over the extended periods of time associated with other hallucinogens, like LSD.

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

### **User Population:**

DMT is a recreational drug that is also used for religious or ceremonial purposes internationally. Evidence indicates that the main users of DMT, similar to other schedule I hallucinogens, are college students and young adults.

### **Illicit Distribution:**

DMT is extracted from various plant material or synthetically produced in clandestine labs. Like other hallucinogens, internet sales and distribution have served as the source of drug supply in this country. DEA's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by participating federal, state, and local forensic drug laboratories. NFLIS-Drug received 589 reports of DMT in 2016, which increased to 1,061 in 2021, then decreased to 797 in 2022, 891 in 2023, and 638 in 2024 (reports still pending). According to NFLIS-Drug, DMT has been encountered in all 50 states, Washington, D.C., and Puerto Rico.

### **Control Status:**

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