

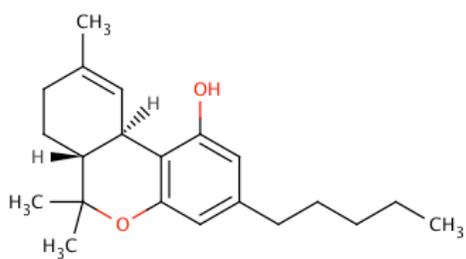
Naturally Occurring Psychoactive Organic Compounds

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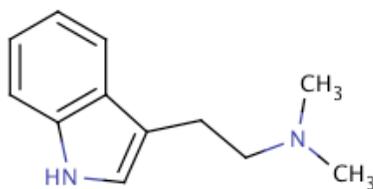
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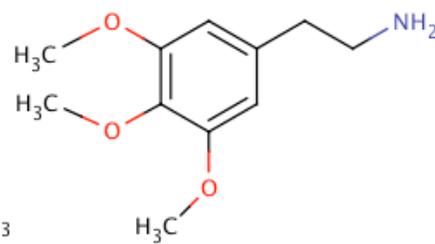
ABSTRACT



THC



DMT

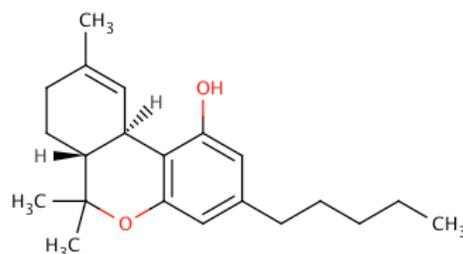


Mescaline

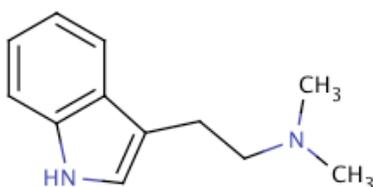
Psychoactive drugs have an enormous impact in society today, and have had such an impact for the thousands of years of human history. Many indigenous cultures around the world continue to expand their minds and tighten their spiritual connection through the use of drugs. Though taboo legally, the fact that these compounds occur naturally on earth, provides some proof that humans were meant to explore deep into their own mind through the mediation of drugs.

Tetrahydrocannabinol is the primary psychoactive compound found in the cannabis plant. Though not known for any psychedelic experience when ingested (commonly through smoking the cannabis, or marijuana plant), THC has both recreational and medicinal value in society today. It is placed under (2) Schedule I of the controlled substances act, along the likes of LSD, MDMA, DMT and Heroin—essentially stating that it has no medical value, it has a high potential for abuse, and it is unsafe. This is how THC is viewed on a federal level, many states have allowed the use of Medical Marijuana, and THC-infused products to reduce nausea and increase appetite in cancer, AIDs, and other chronically ill patients. Synthetically, the FDA has approved a THC pill, “Marinol,” to treat such conditions. When the smoke is inhaled, the (1) THC is in the bloodstream within seconds, and works directly on the Central Nervous System by

mimicking a neurotransmitter named anandamide. It then binds to cannabinoid receptors, which in turn will go on to activate neurons, ultimately causing the varying relaxing, hazy effects of cannabis.

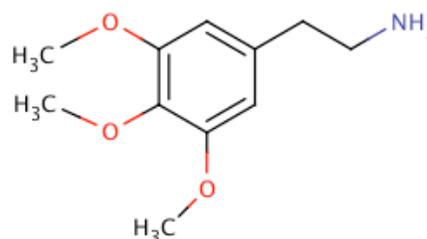


N,N-Dimethyltryptamine is but another naturally occurring psychoactive compound, which is an extreme psychedelic; with the potency dozens of times stronger than LSD. It is found in almost all sorts of plants, and miniscule amounts are found in humans as well. It belongs to the tryptamine family, which contains other psychedelic compounds like psilocybin (found in magic mushrooms), and hormones such as serotonin and melatonin. When ingested (can be smoked or injected), the user quickly loses their grip of reality, (3) and usually will experience an extreme out-of-body psychedelic trip lasting approximately 15 minutes. It is commonly used with indigenous populations globally, who partake as means to strengthen spiritual bonds in their respective tribe. Like nearly all hallucinogens, DMT acts on serotonin receptors (5-HT) in the brain, consequently releasing excess serotonin, also known as the happiness-hormone. DMT is largely not understood do to its effects on consciousness, which modern science has no definite explanation for. It currently has no legal medical application, but it is used occasionally to aid in psychotherapy.

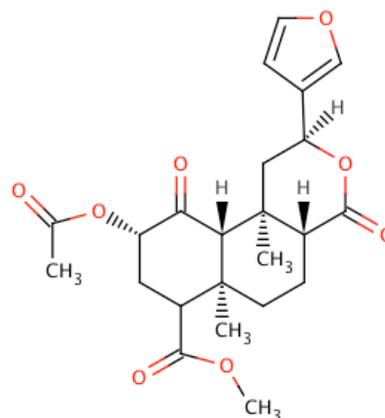


Salvinorin A is the main psychoactive molecule found in *Salvia divinorum* plant species. It originates in Mexico, and has a historical use by (1) Mazatec shamans to alter their state of consciousness for spiritual endeavors. *Salvia* induces a hard mind-altering high, where the user may feel uncontrollable laughter, and an absence of current reality. Surprisingly, *Salvia* is not under any illegal enforcement by the DEA, but some states have made legislation to prohibit the drug. Structurally, it is unlike the other hallucinogens presented, due to the absence of Nitrogen in the compound. Groups of chemists have aimed to synthetically construct the compound in lab, but have failed to come up with any reasonable process. The best yield was a 30 step process, with 4.5% Salvinorin A content.

Lastly, there is *Mescaline*. Like THC and DMT, mescaline is a naturally occurring psychoactive alkaloid, which draws more of a similarity to the mind-altering state of DMT. It works the same way as DMT in its activation of 5-HT serotonin receptors, exciting neurons in the prefrontal cortex. It also known to stimulates dopamine receptors as well. Mescaline is found in the Peyote cactus, and has been used for thousands of years by Native Americans as a part of religious ceremony. Mescaline itself is placed with the others in Class I controlled substances, but is federally legal for use in Native American religious or tribal ceremonies.



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 [3] DMT: The Spirit Molecule (2010) – Documentry
 [4] Nozawa M, Suka Y, Hoshi T, Suzuki T, Hagiwara H (2008). "Total synthesis of the hallucinogenic neoclerodane diterpenoid salvinorin A". *Organic Letters*



Salvinorin A