

Salvia

Salvia (*salvia divinorum*) is an herb common to southern Mexico and Central and South America. The main active ingredient in salvia, salvinorin A, is a potent activator of kappa opioid receptors in the brain^{1,2}. These receptors differ from those activated by the more commonly known opioids, such as heroin and morphine.

Traditionally, *S. divinorum* has been ingested by chewing fresh leaves or by drinking their extracted juices. Recreationally, the dried leaves of *Salvia divinorum* can be smoked as a joint, consumed in water pipes or vaporized and inhaled. Although salvia currently is not a drug regulated by the Controlled Substances Act, several states and countries have passed legislation to regulate its use.³ The Drug Enforcement Agency has listed salvia as a drug of concern and is considering classifying it as a Schedule I drug, like LSD or marijuana.

Health/Behavioral Effects

People who abuse salvia generally experience hallucinations or psychotomimetic episodes (a transient experience that mimics a psychosis).^{4,5} Subjective effects have been described

as intense but short-lived, appearing in less than 1 min and lasting less than 30 min. They include psychedelic-like changes in visual perception, mood and body sensations, emotional swings, feelings of detachment, and importantly, a highly modified perception of external reality and the self, leading to a decreased ability to interact with one's surroundings.⁵ This last effect has prompted concern about the dangers of driving under the influence of Salvinorin. The long-term effects of Salvia abuse have not been investigated systematically.

Extent of Use

In 2009, NIDA's Monitoring the Future Survey of 8th, 10th, and 12th graders asked about salvia abuse for the first time 5.7 percent of high school seniors reported past year use (greater than the percent reporting ecstasy use). Although information about this drug is limited, recent salvia-related media reports and Internet traffic suggest the possibility that its abuse is increasing in the US and Europe,⁴ likely driven by drug-related videos and information on Internet sites.³ Because of the nature of the drug's effects its use may be restricted to individual experimentalists, rather than as a social or party drug.⁵

For more information on the effects of hallucinogenic drugs, see NIDA's *Research Report on Hallucinogens and Dissociative Drugs* at www.nida.nih.gov/ResearchReports/hallucinogens/hallucinogens.html.

For more information on *salvia divinorum* and the Controlled Substances Act, visit www.deadiversion.usdoj.gov/drugs_concern/salvia_d/salvia_d.htm.

For **street terms** searchable by drug name, street term, cost and quantities, drug trade, and drug use, visit www.whitehousedrugpolicy.gov/streetterms/default.asp.

¹ Chavkin, C., Sud, S., Jin, W. et al. (2004) Salvinorin A, an active component of the hallucinogenic sage *salvia divinorum* is a highly efficacious kappa-opioid receptor agonist: structural and functional considerations, *J Pharmacol Exp Ther*, 308, 1197-203.

² Harding, W.W., Tidgewell, K., Schmidt, M., Shah, K., Dersch, C.M., Snyder, J., Parrish, D. Deschamps, J.R., Rothman, R.B., and Prisinzano, T.E. Salvinicins A and B, New Neoclerodane Diterpenes from *Salvia Divinorum*. *Organic Letters*, 7, pp. 3017-3020, 2005.

³ www.deadiversion.usdoj.gov/drugs_concern/salvia_d/salvia_d.htm. Retrieved 09-24-07

⁴ Roth, B. L., Baner, K., Westkaemper, R. et al. (2002) Salvinorin A: a potent naturally occurring non-nitrogenous kappa opioid selective agonist, *Proc Natl Acad Sci USA*, 99, 11934-9.

⁵ Gonzalez, D., Riba, J., Bouso, J. C., Gomez-Jarabo, G. & Barbanoj, M. J. (2006) Pattern of use and subjective effects of *Salvia divinorum* among recreational users, *Drug Alcohol Depend*, 85, 157-62.