

= Salvia divinorum =

Salvia divinorum ( also known as sage of the diviners , ska maría pastora , seer 's sage , yerba de la pastora and just salvia ) is a psychoactive plant which can induce visions and other altered and spiritual experiences . Its native habitat is in cloud forest in the isolated Sierra Mazateca of Oaxaca , Mexico , where it grows in shady and moist locations . The plant grows to over a meter high , has hollow square stems , large leaves , and occasional white flowers with violet calyxes . Botanists have not determined whether Salvia divinorum is a cultigen or a hybrid ; native plants reproduce vegetatively , rarely producing viable seed .

Mazatec shamans have a long and continuous tradition of religious use of Salvia divinorum , using it to facilitate visionary states of consciousness during spiritual healing sessions . Most of the plant 's local common names allude to the Mazatecs ' post @-@ Columbian belief that the plant is an incarnation of the Virgin Mary , with its ritual use also invoking that relationship .

Its chief active psychoactive constituent is a structurally unique diterpenoid called salvinorin A , a potent ? @-@ opioid and D2 receptor agonist . Salvia divinorum is generally understood to be of low toxicity ( high LD50 ) and low addictive potential since it is a ? @-@ opioid agonist and a great deal of research has indicated that ? @-@ opioid agonist activation of the kappa opioid receptor as shown by salvia may , in fact , serve as a potent addiction treatment therapy .

Salvia divinorum remains legal in most countries and , within the United States , is legal in the majority of states . However , some have called for its prohibition . While not currently regulated by US federal drug laws , several states have passed laws criminalizing the substance . Some proposed state bills have failed to progress and have not been made into law ( with motions having been voted down or otherwise dying in committee stages ) . There have not been many publicized prosecutions of individuals violating anti @-@ salvia laws in the few jurisdictions in which it is prohibited .

= = History = =

Salvia divinorum is native to the Sierra Mazateca in Oaxaca , Mexico , where it is still used by the Mazatec , primarily to facilitate shamanic visions in the context of curing or divination . S. divinorum is one of several species with hallucinogenic properties that are ritually used by Mazatec shamans . Others include certain morning glory seeds ( Turbina corymbosa ) , psilocybin mushrooms , and various coleus species . In their rituals , the shamans use only fresh S. divinorum leaves . They see the plant as an incarnation of the Virgin Mary , and begin the ritual with an invocation to Mary , Saint Peter , the Holy Trinity , and other saints . Ritual use traditionally involves being in a quiet place after ingestion of the leaf ? the Maztec shamans say that " La Maria ( S. divinorum ) speaks with a quiet voice . "

It is also used remedially at lower dosages as a diuretic , and to treat ailments including diarrhea , anemia , headaches , rheumatism , and a semi @-@ magical disease known as panzón de borrego , or a swollen belly ( literally , " lamb belly " ) .

The history of the plant is not well known , and there has been no definitive answer to the question of its origin . Speculation includes Salvia divinorum being a wild plant native to the area ; a cultigen of the Mazatecs ; or a cultigen introduced by another indigenous group . Botanists have also not been able to determine whether it is a hybrid or a cultigen .

= = Academic discovery = =

Salvia divinorum was first recorded in print by Jean Basset Johnson in 1939 while he was studying Mazatec shamanism . He later documented its usage and reported its effects through personal testimonials . It was not until the 1990s that the psychoactive mechanism was identified by a team led by Daniel Siebert .

Gordon Wasson tentatively postulated that the plant could be the mythological pipiltzintzintli , the " Noble Prince " of the Aztec codices . Wasson 's speculation has been the subject of further debate

amongst ethnobotanists , with some scepticism coming from Leander J. Valdés , and counterpoints more supportive of Wasson 's theory from Jonathan Ott .

The identity of another mysterious Aztec entheogen , namely that of poyomatli , has also been suggested as being *Salvia divinorum* . Here too there are other candidate plants , notably *Cacahuaxochitl* ( *Quararibea funebris* ) , again suggesting that there is no consensus .

### = = = Etymology = = =

The genus name , *Salvia* , was first used by Pliny for a plant that was likely *Salvia officinalis* ( common sage ) and is derived from the Latin *salvere* . The specific epithet , *divinorum* , was given because of the plant 's traditional use in divination and healing. it is often loosely translated as " diviner 's sage " or " seer 's sage " . Albert Hofmann , who collected the first plants with Wasson , objected to the new plant being given the name *divinorum* :

I was not very happy with the name because *Salvia divinorum* means " *Salvia* of the ghosts " , whereas *Salvia divinatorum* , the correct name , means " *Salvia* of the priests " , But it is now in the botanical literature under the name *Salvia divinorum* .

There are many common names for *S. divinorum* , most of them relating to the plant 's association with the Virgin Mary . The Mazatec believe the plant to be an incarnation of the Virgin Mary , so they take great care in handling the plant . The name " *Ska Maria Pastora* " , often shortened to " *Ska Maria* " or " *Ska Pastora* " , refers to " the leaf or herb of Mary , the Shepherdess . " Other Spanish names include " *hojas de Maria* " , " *hojas de la Pastora* " , " *hierba ( yerba ) Maria* " , and " *la Maria* " . A plant believed to be *S. divinorum* was referred to as " *hoja de adivinacion* " ( leaf of prophecy ) by the Cuicatec and Mazatec . *S. divinorum* is also known as *la hembra* ( " the female " ) , when it is included by the Mazatec as part of a family of similar religious hallucinogens . The others it is connected with are *Coleus pumila* , called *el macho* ( " the male " ) , and two forms of *Coleus blumei* which are called *el nene* ( " the child " ) and *el ahijado* ( " the godson " ) .

Some researchers see the lack of an indigenous Mazatec name as demonstrating a non @-@ Mazatec origin for the plant . Others point out that the Virgin Mary is not normally viewed as a shepherdess in Christianity , and that image may hint at a pre @-@ Hispanic Mazatec cultural reference to the plant .

### = = = Recent history = = =

*Salvia divinorum* has become both increasingly well @-@ known and available in modern culture . The Internet has allowed for the growth of many businesses selling live *salvia* plants , dried leaves , extracts , and other preparations .

Medical experts , as well as accident and emergency rooms , have not been reporting cases that suggest particular *salvia* @-@ related health concerns , and police have not been reporting it as a significant issue with regard to public order offences ; in any case , *Salvia divinorum* has attracted negative attention from the media and some lawmakers .

Media stories generally raise alarms over *Salvia divinorum* 's legal status and are sometimes headlined with generally ill @-@ supported comparisons to LSD or other psychoactive substances . Parental concerns are raised by focusing on *salvia* 's usage by younger teens ? the emergence of YouTube videos purporting to depict its use being an area of particular concern in this respect . The isolated and controversial suicide of Brett Chidester received much media attention .

*Salvia divinorum* was the subject of the first use of YouTube within drug @-@ behavioral research when scientists at San Diego State University rated randomly selected videos of *salvia* users to study observed impairment . Their findings corroborate reports that the most profound effects of smoking *salvia* appear almost immediately and last about eight minutes . Effects include temporary speech and coordination loss .

### = = Botany = =

*Salvia divinorum* has large green ovate ( often also dentate ) leaves , with a yellow undertone that reach 10 to 30 cm ( 4 to 12 in ) long . The leaves have no hairs on either surface , and little or no petiole . The plant grows to well over 1 metre ( 3 ft ) in height , on hollow square stems which tend to break or trail on the ground , with the plant rooting quite readily at the nodes and internodes .

The flowers , which bloom only rarely , grow in whorls on a 30 @-@ centimetre ( 12 in ) inflorescence , with about six flowers to each whorl . The 3 @-@ centimetre ( 1 @.@ 2 in ) flowers are white , curved and covered with hairs , and held in a small violet calyx that is covered in hairs and glands . When it does bloom in its native habitat , it does so from September to May .

Early authors erred in describing the flowers as having blue corollas , based on Epling and Játiva 's description . The first plant material they received was dried , so they based the flower color on an erroneous description by Hofmann and Wasson , who didn 't realize that their " blue flowers , crowned with a white dome " were in fact violet calyces with unopened white corollas .

#### = = = Distribution and habitat = = =

*Salvia divinorum* is endemic to the Sierra Mazateca in the state of Oaxaca in Mexico , growing in the primary or secondary cloud forest and tropical evergreen forest at elevations from 300 to 1 @,@ 830 metres ( 980 to 6 @,@ 000 ft ) . Its most common habitat is black soil along stream banks where small trees and bushes provide an environment of low light and high humidity .

#### = = = Reproduction = = =

*Salvia divinorum* produces few viable seeds even when it does flower ? no seeds have ever been observed on plants in the wild . For an unknown reason , pollen fertility is also comparatively reduced . There is no active pollen tube inhibition within the style , but some event or process after the pollen tube reaches the ovary is aberrant . The likeliest explanations are inbreeding depression or hybridity . All of the Mazatec populations appear to be clonal . The plant 's square stems break easily and tend to trail on the ground , rooting easily at the nodes and internodes .

#### = = = Taxonomy = = =

*Salvia divinorum* was first documented in 1939 , but it was many years before botanists could identify the plant due to Mazatec secrecy about the growing sites . Flowers were needed for a definitive identification of the species . In 1962 , the Swiss chemist Albert Hofmann , and ethnomycologist R. Gordon Wasson , traveled throughout the Sierra Mazateca researching Mazatec rituals and looking for specimens of the plant . They were unable to locate live plants . Eventually , the Mazatec provided them some flowering specimens . These specimens were sent to botanists Carl Epling and Carlos D. Játiva , who described and named the plant as *Salvia divinorum* , after its use in divination and healing by the Mazatec . By 1985 , up to fifteen populations of the plant had been found .

Until 2010 , there were differing opinions on whether *Salvia divinorum* is an interspecific hybrid . The plant 's partial sterility was suggestive of a hybrid origin , though no two parent species have been found with an obvious affinity to *Salvia divinorum* . One other possibility for the plant 's partial sterility is that long @-@ term cultivation and selection have produced an inbred cultigen .

In 2010 , a molecular phylogenetic approach by DNA sequencing of *Salvia divinorum* and a number of related species strongly suggest that the species is not a hybrid . One earlier proposed parent was *Salvia cyanea* ( a synonym for *Salvia concolor* ) , which Epling and Játiva believed to be closely allied to *Salvia divinorum* . The 2010 study demonstrated *Salvia divinorum* 's closest relative to be *Salvia venulosa* ? a rare and endemic *Salvia* that is native to Colombia , growing in shaded , wooded gullies at 1 @,@ 500 to 2 @,@ 000 m ( 4 @,@ 900 to 6 @,@ 600 ft ) elevation . It also showed that *Salvia divinorum* does not belong to the *Salvia* section *Dusenostachys* , as believed earlier . The genetic study also indicated that *Salvia venulosa* was likely misplaced into *Salvia* section *Tubiflorae* , and that it may not be related to other Colombia *Salvia* species , though further

tests are needed .

The origin of *Salvia divinorum* is still a mystery , one of only three plants in the extensive *Salvia* genus ( approximately 900 species ) with unknown origins ? the other two are *Salvia tingitana* and *Salvia buchananii* .

== Strains ==

There are two commonly cultivated strains which are known to be distinct . One is the strain that was collected in 1962 by ecologist and psychologist Sterling Bunnell ( the Bunnell strain ) , colloquially mis @-@ attributed as the Wasson @-@ Hofmann strain . The other was collected from Huautla de Jiménez in 1991 by anthropologist Bret Blosser ( the Blosser or Palatable strain ) . There are other strains that are not as well documented , such as the Luna strain ( possibly Bunnell ) isolated from a Hawaiian patch of *Salvia divinorum* clones , featuring unusually serrated and rounded rather than ovate leaves .

== Cultivation ==

=== Propagation by cuttings ===

*Salvia divinorum* is usually propagated through vegetative reproduction . Small cuttings , between two and eight inches long , cut off of the mother plant just below a node , will usually root in plain tap water within two or three weeks .

=== Flowering ===

Blooms occur when the day length becomes shorter than 12 hours ( beginning in mid @-@ October in some places ) , necessitating a shade cloth in urban environments with exposure to light pollution ( HPS ) .

== Chemistry ==

The known active constituent of *Salvia divinorum* is a trans @-@ neoclerodane diterpenoid known as salvinorin A ( chemical formula  $C_{23}H_{28}O_8$  ) . This compound is present in the dried plant at about 0 @-@ 18 % .

Salvinorin A is not an alkaloid , ( meaning it does not contain a basic nitrogen ) , unlike most known opioid receptor ligands . Salvinorin A is the first documented diterpene hallucinogen .

Similar to many psychoactive herbs , *Salvia divinorum* synthesizes and excretes its active constituent ( salvinorin A ) via trichomes , of the peltate @-@ glandular morphology , located just beneath the cuticle ( subcuticular ) layer .

=== Potency ===

By mass , salvinorin A " is the most potent naturally occurring hallucinogen . " It is active at doses as low as 200 µg . Synthetic chemicals , such as LSD ( active at 20 ? 30 µg doses ) , can be more potent . Research has shown that salvinorin A is a potent and selective ? @-@ Opioid ( kappa @-@ Opioid ) receptor agonist . It has been reported that the effects of salvinorin A in mice are blocked by ? @-@ Opioid receptor antagonists . However , it is an even more potent D2 receptor partial agonist , and it is likely this action plays a significant role in its effects as well . Salvinorin A has no actions at the 5 @-@ HT2A serotonin receptor , the principal molecular target responsible for the actions of ' classic ' hallucinogens , such as mescaline and LSD , nor is it known to have affinity for any other sites to date .

Salvinorin 's potency should not be confused with toxicity . Rodents chronically exposed to dosages

many times greater than those to which humans are exposed show no signs of organ damage .

== Other terpenoids ==

Other terpenoids have been isolated from *Salvia divinorum* , including other salvinorins and related compounds named divinorins and salvinicins . None of these compounds has shown significant ( sub @-@ micromolar ) affinity at the ? @-@ Opioid receptor , and there is no evidence that they contribute to the plant 's psychoactivity .

== Other pharmaceutical action ==

Salvinorin A is capable of inhibiting excess intestinal motility ( e.g. diarrhea ) , through a combination of ? @-@ opioid and cannabinoid ( mainly CB1 receptor ) receptors in inflamed but not normal gut in vivo . The mechanism of action for Salvinorin A on ileal tissue has been described as ' prejunctional ' , as it was able to modify electrically induced contractions , but not those of exogenous acetylcholine . Results from a small study by an assistant professor at the University of Iowa indicate that it may have potential as an analgesic and as a therapeutic tool for treating drug addictions .

A pharmacologically important aspect of the contraction @-@ reducing ( antispasmodic ) properties of ingested Salvinorin A on gut tissue is that it is only pharmacologically active on inflamed and not normal tissue , thus reducing possible side @-@ effects .

== Ingestion ==

There are a few ways to consume *Salvia divinorum* . In traditional Mazatec ritual , shamans use only fresh *Salvia divinorum* leaves . Modern methods have been developed to more effectively absorb the active principle , salvinorin A. If enough salvinorin A is absorbed , an altered state of consciousness can occur . The duration of experience varies with the method of ingestion and the amount of salvinorin A absorbed .

== Traditional methods ==

Mazatec shamans crush the leaves to extract leaf juices from about 20 to 80 ( about 50g / 2 oz to 200g / 7 oz . ) or more fresh leaves . They usually mix these juices with water to create an infusion or ' tea ' which they drink to induce visions in ritual healing ceremonies .

Chewing and swallowing a large number of fresh leaves is the other Mazatec method . Oral consumption of the leaf makes the effects come on more slowly , over a period of 10 to 20 minutes . The experience , from the onset of effects , lasts from about 30 minutes up to one and a half hours .

Doses for chewing vastly exceed doses used for smoking . By calculating the concentrations per leaf ( " an average concentration of 2 @. 45 mg per gram " of leaf ) , the average weight per leaf ( " about 50 g " per 20 leaves , or 2.5g / leaf ) , and the standard dose for chewing ( about 8 @-@ 28 leaves ) , the doses can range from about 50 mg to 172 mg .

== Modern methods ==

Modern methods of ingestion include smoking or chewing the leaf , or using a tincture , as described in the following sections .

*Salvia divinorum* is becoming more widely known and used in modern culture . The National Survey on Drug Use and Health , an annual US based survey sponsored by the Substance Abuse and Mental Health Services Administration ( SAMHSA ) , for 2006 estimated that about 1 @. 8 million persons aged 12 or older had used *Salvia divinorum* in their lifetime , of which approximately 750 @, 000 had done so in that year . The following year , 2007 , saw the annual figure rise from 750 @, 000 to 1 million US users .

### ===== Smoking =====

Dry leaves can be smoked in a pipe , or through the use of a water pipe to cool the smoke . The temperature required to release salvinorin from the plant material is quite high ( about 240 ° C ) . A cooler flame will work , but the direct application of a more intense flame , such as that of a torch lighter , is often preferred .

Some find that untreated dry leaf produces unnoticeable or only light effects . Concentrated preparations or extracts which may be smoked in place of untreated leaves , have become widely available . This enhanced ( or " fortified " ) leaf is described by a number followed by an x ( e.g. 5x , 10x ) , the multiplicative factors being generally indicative of the relative amounts of leaf concentrate , though there is no accepted standard for these claims . Other sources may use a system of color codes to form their own standards of potency ; for example , " green " , " yellow " , and " red " . "

These grades of potency may be roughly indicative of the relative concentration of the active principle , ( salvinorin A ) , but the measure should not be taken as absolute . Overall extract potency will depend on the ( naturally varying ) strength of the untreated leaf used in preparing the extract , as well as the efficiency of the extraction process itself . Extracts reduce the overall amount of inhalations needed to ingest a given amount of active principle , thus facilitating more powerful experiences .

If salvia is smoked , then the main effects are experienced quickly . The most intense ' peak ' is reached within a minute or so and lasts for 1 ? 5 minutes , followed by a gradual tapering off . At 5 ? 10 minutes , less intense yet still noticeable effects typically persist , giving way to a returning sense of the everyday and familiar until back to baseline after about 15 to 20 minutes .

### ===== Quid chewing =====

The traditional method of chewing the leaves has continued in modern use . However , salvinorin A is generally considered to be inactive when orally ingested , as salvinorin A is effectively deactivated by the gastrointestinal system . Therefore , in what 's understood to be a modern innovation , the ' quid ' of leaves is held in the mouth as long as possible in order to facilitate absorption of the active constituents through the oral mucosa . ' Quid ' refers to the fact that at the end of this method the user spits out the leaves rather than swallowing them because ingesting the leaves has no known effect . Chewing consumes more of the plant than smoking , and produces a longer @-@ lasting experience .

### ===== Using a tincture =====

Less commonly , some may ingest salvia in the form of a tincture . This is administered sublingually , usually with the aid of a glass dropper . It may be taken diluted with water just before use , which may slightly reduce the intensity of its effects , but can also serve to lessen or avoid a stinging sensation in the mouth caused by the presence of alcohol . Tinctures vary in potency , and the effects can range from inducing a mild meditative state to bringing about a more intense visionary one .

When taken as a tincture the effects and duration are similar to other methods of oral ingestion , though they may be significantly more intense , depending on extract potency .

### ===== Immediate effects =====

Psychedelic experiences are necessarily somewhat subjective and variations in reported effects are to be expected . Aside from individual reported experiences there has been a limited amount of published work summarising the effects . D.M. Turner 's book Salvinorin ? The Psychedelic Essence of Salvia Divinorum quotes Daniel Siebert 's summarisation , mentioning that the effects may include :

Uncontrollable laughter

Past memories , such as revisiting places from childhood memory

Sensations of motion , or being pulled or twisted by forces

Visions of membranes , films , various two @-@ dimensional surfaces , and fractal patterns

Merging with or becoming objects

Overlapping realities , such as the perception of being in several locations at once

There also may be synesthetic experiences . Glossolalia ( speaking in tongues ) has been reported by Reason .

A survey of salvia users found that 38 % described the effects as unique in comparison to other methods of altering consciousness . 23 % said the effects were like yoga , meditation or trance .

One firsthand journalistic account has been published in the UK science magazine New Scientist ( note : the dose for this experience was not reported ) :

The salvia took me on a consciousness @-@ expanding journey unlike any other I have ever experienced . My body felt disconnected from ' me ' and objects and people appeared cartoonish , surreal and marvellous . Then , as suddenly as it had began , it was over . The visions vanished and I was back in my bedroom . I spoke to my ' sitter ' ? the friend who was watching over me , as recommended on the packaging ? but my mouth was awkward and clumsy . When I attempted to stand my coordination was off . Within a couple of minutes , however , I was fine and clear @-@ headed , though dripping with sweat . The whole experience had lasted less than 5 minutes .

There have been few books published on the subject . One notable example is Dale Pendell 's work " Pharmako / Poeia ? Plant Powers , Poisons , and Herbcraft " , which won the 1996 Firecracker Alternative Book Award and has a chapter dedicated to Salvia divinorum . It includes some experience accounts :

It 's very intense , I call it a reality stutter , or a reality strobing . I think that having been a test pilot , and flying in that unforgiving environment with only two feet between our wingtips , helped to prepare me for this kind of exploration .

Other users have written extensive prose and / or poetry about their experiences ; some describe their visions pictorially , and there exist examples of visionary art which are ' salvia @-@ inspired ' . Others claim musical inspiration from the plant : including " Salvia divinorum " by 1200 Micrograms , " Salvia " by Deepwater Sunshine , and " Flight 77 " by Paul Dereas .

= = = Cautionary notes = = =

Dale Pendell expresses some concerns about the use of highly concentrated forms of salvia . In its natural form salvia is more balanced and benevolent , and quite strong enough , he argues . High strength extracts on the other hand can show " a more precipitous , and more terrifying , face " and many who try it this way may never wish to repeat the experience .

The Salvia Divinorum User 's Guide recommends having a trip sitter present to those who are new to salvia , are experimenting with a stronger form , or are using a more effective method of ingestion .

The guide says that while the effects of salvia are generally quite different from those of alcohol , like alcohol , it impairs coordination . It also emphasizes that salvia is not a ' party drug.'

Salvia is not ' fun ' in the way that alcohol or cannabis can be . If you try to party with salvia you probably will not have a good experience . Salvia is a consciousness @-@ changing herb that can be used in a vision quest , or in a healing ritual . In the right setting , salvia makes it possible to see visions . It is an herb with a long tradition of sacred use . It is useful for deep meditation . It is best taken in a quiet , nearly dark room ; either alone , or with one or two good friends present .

= = = Vaporization = = =

Daniel Siebert cautions that inhaling hot air can be irritating and potentially damaging to the lungs . Vapor produced by a heat gun needs to be cooled by running it through a water pipe or cooling chamber before inhalation .

The vaporizers that have been reported effective for use with dried *S. divinorum* leaves are those that use a paint stripper ? heat gun ? as the heat source . These get very hot , and people have reported that they work quite well sometimes too well ? for smoking dried *S. divinorum* leaves ; we have heard of several people using this type of vaporizer who had experiences that were too intense , including one report of someone passing out . Measuring an accurate dose with these devices can be quite tricky , and they are not recommended .

An experienced salvia user who is chewing a quid , may often choose to do it alone , and may be quite safe in doing so . But having a pleasant , sensible , sober sitter is an absolute must if you are trying vaporization , smoking high doses of extract @-@ enhanced leaves , or using pure salvinorin .

= = After @-@ effects = =

= = = Short term = = =

After the peak effects , normal awareness @-@ of @-@ self and the immediate surroundings return but lingering effects may be felt . These short @-@ term lingering effects have a completely different character than the peak experience . About half of users report a pleasing ' afterglow ' , or pleasant state of mind following the main effects . Researchers from the University of California and California Pacific Medical Center Research Institute conducted a survey of 500 salvia users which identified that they ' sometimes or often ' experience certain effects , including :

Other commonly reported effects include :

Feelings of calmness : 42 @.@ 2 %

Weird thoughts : 36 @.@ 4 %

Things seeming unreal : 32 @.@ 4 %

Floating feelings : 32 %

Mind racing : 23 @.@ 2 %

Feeling lightheaded : 22 @.@ 2 %

= = = Long term = = =

Differing studies suggest no consensus so far with regard to the long @-@ term effects of *Salvia divinorum* on mood . It is well @-@ established that some k @-@ opioid agonists can cause dysphoria in humans . One study using rats in forced @-@ swim tests has been used to suggest that *Salvia divinorum* may have " depressive @-@ like " effects , although this conclusion has been contradicted by subsequent research . However , a report has been published detailing an individual case of *Salvia divinorum* use as self @-@ medicated treatment for depression , and Baggott 's survey of 500 people with firsthand experience of salvia found that 25 @.@ 8 % of respondents reported improved mood and " antidepressant @-@ like effects " lasting 24 hours or longer . Only 4 @.@ 4 % reported persisting ( 24 hours or more ) negative effects ( most often anxiety ) on at least one occasion .

There has been one report of salvia precipitating psychosis . The authors state that they suspect this patient was genetically predisposed to schizophrenia , but their own clinical report shows no family psychiatric history , no personal psychiatric history , and no abnormal lab results .

It has been suggested that the long @-@ term effects of salvia use may include feelings of déjà vu .

The Baggott survey found little evidence of addictive potential ( chemical dependence ) in its survey population . 0 @.@ 6 % percent of respondents reported feeling addicted to or dependent on salvia at some point , and 1 @.@ 2 % reported strong cravings . About this the researchers said " there were too few of these individuals to interpret their reports with any confidence " .

Most users report no hangover or negative after @-@ effects ( e.g. withdrawal , comedown or rebound effect ) the next day . This is consistent with the apparent low toxicity of salvia indicated by



research conducted at the University of Nebraska .

== Effects on addiction ==

Salvia researcher Griffith said that from animal testing salvia appears to not be addictive , also the intensity of the experience creates a dysphoria that causes people not to return to the drug .

Thomas Prisinzano , assistant professor of medicinal and natural products chemistry at the University of Iowa , has suggested that salvia may help treat cocaine addiction :

You can give a rat free access to cocaine , give them free access to Salvinorin A , and they stop taking cocaine .

== Therapeutic potential ==

Aside from individual reports of self @-@ medicated use in the treatment of depression , research suggests that Salvia divinorum , in line with the studied effects of other ? @-@ opioid agonists , may have further therapeutic potential .

Professor Bryan L. Roth , director of the National Institute on Mental Health 's Psychoactive Drug Screening Program , has said :

We think that drugs derived from the active ingredient could be useful for a range of diseases : Alzheimer 's , depression , schizophrenia , chronic pain and even AIDS or HIV .

Clinical pharmacologist John Mendelsohn has said :

There may be some derivatives that could be made that would actually be active against cancer and HIV [ ... ] At the present time , there are a lot of therapeutic targets that have many people excited .

An ABC news story which reported on this went on to suggest " the excitement could vanish overnight if the federal government criminalized the sale or possession of salvia , as the Drug Enforcement Agency [ sic ] is considering doing right now . " A proposed Schedule I classification would mean ( among other things ) that there 's no " currently accepted medical use " as far as the United States government is concerned . Scientists worry that such legislation would restrict further work . Mendelsohn said scheduling salvia could scare away a great deal of research and development into salvia 's therapeutic promise .

== Controversy ==

The relatively recent emergence of Salvia divinorum in modern Western culture , in comparison to its long continuing traditions of indigenous use , contrasts widely differing attitudes on the subject .

Opinions range from veneration of the plant as a spiritual sacrament or " a gift from the gods " , to ' threat to society ' , to be banned as quickly as possible in order to " spare countless families the horror of losing a loved one to the relentless tentacles of drug abuse " .

== Media coverage ==

Interest in Salvia divinorum has been escalating in the news media , particularly in the United States , where an increasing number of newspaper reports have been published and television news stories broadcast .

These stories generally raise alarms over salvia 's legal status , for example comparing it to LSD , or describing it as " the new pot " , with parental concerns being raised by particular focus on salvia 's use by younger teens .

Story headlines may also include ' danger ' keywords , such as " Dangerous Herb is Legal ... " or " Deadly Dangers Of A Street Legal High " .

Mainstream news coverage and journalistic opinion has widely been negative on the subject . In a local news report aired on ABC affiliate WJLA in Washington , DC on July 11 , 2007 , the anchors are seen to exchange expressions of incredulity when referring to a salvia story with the following

introduction " Now , an exclusive I @-@ Team investigation of a hallucinogenic drug that has begun to sweep the nation . What might amaze you is that right now the federal government is doing nothing to stop it " .

In March 2008 a Texas news report aired with the story " A legal drug that teenagers are now using to get high could soon be banned here in San Antonio - all because of a Fox News 4 investigation " , going on to say , " The drug is legal in Texas , at least for now . But a News 4 investigation could lead to a new ordinance to protect your kids . "

Many salvia media stories headline with comparisons to LSD . However , while LSD and salvinorin A may have comparative potencies , in the sense that both can produce their effects at low dosages , they are otherwise quite different . The two substances are not chemically similar or related , as salvinorin A is found naturally in a single plant while LSD is chemically semisynthesized from lysergamides like ergotamine . They are ingested in different ways and produce different effects , which manifest themselves over different timescales . For example , the effects of salvia when smoked typically last for only a few minutes as compared to LSD , whose effects can persist for 8 ? 12 hours .

= = = Brett 's law = = =

A particular focus of many US media stories is the long @-@ running coverage of the case of Brett Chidester , a 17 @-@ year @-@ old Delaware student who committed suicide in January 2006 by carbon monoxide poisoning .

Reportedly , some months before this , Brett 's mother Kathleen Chidester had learned about his salvia use and questioned him about it . Brett said that he had ceased his experimentation , but his parents did not believe that he was telling the truth . They have instead argued that salvia @-@ induced depression was largely to blame for his death . Some of Brett 's earlier writings about his salvia experiences have been used to suggest that it made him think " existence in general is pointless . " Some media stories have referred to these earlier written experience reports as if they were part of Brett 's suicide note . In any case , a law was soon passed in Delaware classifying the herb as a Schedule I controlled substance in that state . This legislation was nicknamed Brett 's law ( formally referred to as Senate bill 259 ) .

Although the Chidester story has been given continued exposure by US media , there has not been anywhere else , either before or since this controversial incident , any other reported cases involving or alleging Salvia divinorum as a serious factor in suicide , overdose , accidental , or any other kind of death . Regarding this , San Francisco attorney Alex Coolman has commented , " It 's remarkable that Chidester 's parents , and only Chidester 's parents , continue to be cited over and over again by the mainstream media in their coverage of the supposed ' controversy ' over the risks of Salvia divinorum . "

Kathleen Chidester has continued campaigning for " Schedule I " -like legislation beyond their home state of Delaware . For example , three years after Brett 's death , in written testimony in support of Senator Richard Colburn 's proposed Senate Bill to the Maryland State Legislature , saying , " My hope and goal is to have salvia regulated across the US . It 's my son 's legacy and I will not end my fight until this happens . "

= = = Usage shown on YouTube = = =

A reported concern has been the emergence of YouTube videos showing alleged salvia users laughing uncontrollably , apparently unable to perform simple tasks or to communicate . In an interview with California @-@ based newspaper the San Francisco Chronicle , published in June 2007 , Daniel Siebert was quoted as saying :

" Those videos are certainly not going to help the situation . They make salvia look like some horrible drug that makes people nuts and dangerous [ ... ] " and " The sad thing is it creates this public image where people don 't realize there are sensible ways to use something like this . "

The New York Times has reported that " in state after state [ ... ] the YouTube videos have become

Exhibit A in legislative efforts to regulate salvia . "

Waco Representative Charles Anderson ( R ) , who is sponsoring one of several bills to ban salvia in Texas saying , " When you see it , well , it sure makes a believer out of you . " Anderson told colleagues at a legislative hearing about a video that depicts a salvia user behind the wheel of a car .

" What we really worry about , " said Mr. Anderson at the hearing , " is youngsters doing this and then getting in a vehicle or getting on a motorcycle or jumping in a pool somewhere . "

Michigan Representative Michael Sak ( D ) submitted a bill which proposed Schedule I classification of Salvia divinorum and salvinorin A. He said that if people had questions about the deleterious effects of salvia , they should go on YouTube to watch the videos . A reporter questioned Sak as to whether he had ever seen a " Girls Gone Wild " video , and whether that would incite him to make alcohol illegal ( Sak replied that he hadn 't yet had a chance to review the material ) .

Nebraska Senator Vickie McDonald said :

" Anytime anything 's on YouTube it 's an issue , " and " Legislators , parents , grandparents , we need to be on top of these things , " [ ... ] " We need to protect our children ... "

Senator McDonald of Nebraska proposed Schedule I listing Salvia divinorum as part of their Controlled Substances Act , under which possession of salvia would have been considered a Class IV felony with a penalty of up to five years and trafficking would have fallen under a Class III felony with up to a 20 year penalty .

In Massachusetts , YouTube videos were shown by a retired police officer to public health and judiciary committees as evidence in favor of outlawing it there .

The issue has been raised of whether the salvia videos are in breach of YouTube 's own community guidelines , which ask users not to " cross the line " and post videos showing " bad stuff " like " drug abuse " . The question is considered as particularly problematical as the videos may be something of an enforcement grey area .

= = Legal status = =

At present Salvia divinorum remains legal in most countries . Countries where it is controlled in some manner include : Belgium , Canada , Denmark , Estonia , Italy , Japan , the United States , Russia , Spain , Sweden , Finland , and Romania .

The prohibitive degree of Salvia divinorum legislation varies widely from country to country . Australia has imposed its strictest ' schedule 9 ' ( US Schedule I equivalent ) , and Italy has also placed salvia in its ' Table I ' of controlled substances ( also US Schedule I equivalent ) . In Spain , there are controls focusing only on the commercial trade of Salvia divinorum , personal cultivation ( i.e. for non @-@ commercial use ) is not targeted .

Legislation may prove difficult to enforce . The plant has a nondescript appearance ; unlike many other drug plants , the leaves are non @-@ descript , and without a detectable odour . Salvia divinorum can be grown as an ordinary houseplant without the need of special equipment such as hydroponics or high @-@ power lights .

= = = UK legality = = =

In the United Kingdom , following a local newspaper story in October 2005 , a parliamentary Early Day Motion was raised calling for Salvia divinorum to be banned there . However , it only received 11 signatures . A second motion raised in October 2008 attracted 18 signatures , and it was reported that Mann had also written to Jacqui Smith , then Home Secretary . The Advisory Council on the Misuse of Drugs , the independent body that advises UK government on drugs , was asked to investigate further .

= = = Australia legality = = =

Salvia divinorum is considered a Schedule 9 prohibited plant in Australia under the Poisons

Standard ( October 2015 ) . A schedule 9 drug is outlined in the Poisons Act 1964 as " Substances which may be abused or misused , the manufacture , possession , sale or use of which should be prohibited by law except when required for medical or scientific research , or for analytical , teaching or training purposes with approval of the CEO . "

= = = US legality = = =

National legislation for amendment of the Controlled Substances Act to place salvinorin A and Salvia divinorum in Schedule I at the federal level in the United States was proposed in 2002 by Representative Joe Baca ( D- California ) . Those opposed to bill HR 5607 include Daniel Siebert , who sent a letter to Congress arguing against the proposed legislation , and the Center for Cognitive Liberty and Ethics ( CCLE ) , who sent key members of the US Congress a report on Salvia divinorum and its active principle , along with letters from an array of scientists who expressed concern that scheduling Salvia divinorum would negatively impact important research on the plant . The bill did not pass .

Although salvia is not regulated under the Controlled Substances Act , some American states , including Alabama , Delaware , Illinois , Louisiana , Michigan , Missouri , Ohio , Texas and others , have passed their own laws . Several other states have proposed legislation against salvia , including Alaska , California , Florida , Iowa , Maryland , New Jersey , New York , Oregon , and Pennsylvania . Many of these proposals have not made it into law , with motions having failed , stalled or otherwise died , for example at committee review stages .

Where individual state legislation does exist , it varies from state to state in its prohibitive degree .

Salvia divinorum has been banned by various branches of the U.S. military and some military bases .

= = = Internet sale = = =

Some internet vendors will not sell live salvia cuttings , leaf , or leaf products to states where its use is restricted or prohibited .

Per their drugs and drug paraphernalia policy , eBay does not permit sale of Salvia divinorum or derived products ( despite legality in most areas ) .

= = = Opinions and arguments = = =

Concerns expressed by some politicians on the subject of salvia reflect those of the media , with comparisons to LSD and particular focus on " protecting our children " being echoed ; and with legislative proposals following soon after news stories breaking .

Some arguments against salvia have been of a preventative nature , " We need to stop this before it gets to be a huge problem not after it gets to be a huge problem , " or of an imitative nature , " The Australians have clearly found a problem with it . There 's obviously a risk in people taking it . " Concerns about driving while under the influence of salvia have also been expressed .

Opponents of more prohibitive measures against salvia argue that such reactions are largely due to an inherent prejudice and a particular cultural bias rather than any actual balance of evidence , pointing out inconsistencies in attitudes toward other more toxic and addictive drugs such as alcohol and nicotine . While not objecting to some form of legal control , in particular with regard to the sale to minors or sale of enhanced high @-@ strength extracts , most salvia proponents otherwise argue against stricter legislation .

Those advocating consideration of Salvia divinorum 's potential for beneficial use in a modern context argue that more could be learned from Mazatec culture , where salvia is not really associated with notions of drug taking at all and it is rather considered as a spiritual sacrament . In light of this it is argued that Salvia divinorum could be better understood more positively as an entheogen rather than pejoratively as a hallucinogen .

===== Public opinion =====

Despite its growing notoriety in some circles , media stories generally suggest that the public at large are still mostly unaware of salvia , with the majority perhaps having never even heard of it . Although published responses may not necessarily be representative of public opinion as a whole , some news agencies generally support reader and viewer feedback in connection with their stories .

===== News references =====

===== UK =====

===== US =====

===== Further research =====