**Introduction:**

_Salvia divinorum_ is a perennial herb in the mint family native to certain areas of the Sierra Mazateca region of Oaxaca, Mexico. The plant, which can grow to over three feet in height, has large green leaves, hollow square stems and white flowers with purple calyces, can also be grown successfully outside of this region. _Salvia divinorum_ has been used by the Mazatec Indians for its ritual divination and healing. The active constituent of _Salvia divinorum_ has been identified as salvinorin A. Currently, neither _Salvia divinorum_ nor any of its constituents, including salvinorin A, are controlled under the federal Controlled Substances Act (CSA).

**Licit Uses:**

Neither _Salvia divinorum_ nor its active constituent salvinorin A has an approved medical use in the U.S.

**Chemistry and Pharmacology:**

Salvinorin A, also called Divinorin A, is believed to be the ingredient responsible for the hallucinogenic effects of _Salvia divinorum_. Chemically, it is a neoclerodane diterpene found primarily in the leaves, and to a lesser extent in the stems of the plant. Although several other substances have been isolated from the plant, none have been shown to be psychoactive.

In the U.S., plant material is typically either chewed or smoked for its psychoactive effects. When chewed, the leaf mass and juice are maintained within the cheek area with absorption occurring across the lining of the oral mucosa (buccal). Effects first appear within 5 to 10 minutes. Dried leaves, as well as extract-enhanced leaves purported to be enriched with salvinorin A, are also smoked. Smoking pure salvinorin A, at a dose of 200-500 micrograms, results in effects within 30 seconds and lasts about 30 minutes.

Several studies have reported the effects of using either plant material or salvinorin A. Psychic effects include perceptions of bright lights, vivid colors and shapes, as well as body movements and body or object distortions. Other effects include dysphoria, uncontrolled laughter, a sense of loss of body, overlapping realities, and hallucinations (seeing objects that are not present). Adverse physical effects may include incoordination, dizziness, and slurred speech.

Scientific studies show that salvinorin A is a potent and selective kappa opioid receptor agonist. Other drugs that act at the kappa opioid receptor also produce hallucinogenic effects and dysphoria similar to those produced by salvinorin A. Salvinorin A does not activate the serotonin 2A receptor, effects and dysphoria similar to those produced by salvinorin A. Salvinorin A does not activate the serotonin 2A receptor, which mediates the effects of other schedule I hallucinogens.

**Illicit Uses:**

Salvinorin A and _Salvia divinorum_ products are abused for their ability to evoke hallucinogenic effects, which, in general, are similar to those of other scheduled hallucinogenic substances.

_Salvia divinorum_ is grown domestically and imported from Mexico and Central and South America. The Internet is used for the promotion and distribution of _Salvia divinorum_. It is sold as seeds, plant cuttings, whole plants, fresh and dried leaves, extract-enhanced leaves of various strengths (e.g., 5x, 10x, 20x, 30x), and liquid extracts purported to contain salvinorin A. These products are also sold at local shops (e.g., head shops and tobacco shops).

**User Population:**

According to the National Survey on Drug Use and Health (NSDUH) 2016 Results, published by SAMHSA, it is estimated that 5.3 million persons aged 12 or older used _Salvia divinorum_ in their lifetime in 2016, in comparison to 5.1 million persons a year ago in 2015 and 1.8 million persons a decade ago in 2006. Although, in 2015, the NSDUH survey methodology was re-designed, so comparisons to previous years for trending are not equivalent or advised. However, the lifetime use among persons, aged 12 or older, was 5.2 million in 2012; with lifetime use more common among young adults, aged 18 to 25 years, than adults aged 26 and older (i.e., the same age group comparison and pattern as 2006). In contrast, in 2016, use was more common among adults aged 26 and older (3.8 million persons) as opposed to young adults (18 to 25 years old) at 1.5 million. Use continues to remain more common in males than females according to NSDUH.

According to DEA’s National Forensic Laboratory Information System (NFLIS) and System to Retrieve Information From Drug Evidence (STRIDE)/STARLIMS, federal, state and local law enforcement officials encountered 103 drug exhibits in 2011, 107 drug exhibits in 2012, and 70 exhibits in 2013 identified as _Salvia divinorum_ or salvinorin A. In recent years, the drug exhibits have continued to decrease to 64 in 2014, 33 in 2015, 31 in 2016, and 22 in 2017.

The Monitoring the Future survey reported that in 2012, 1.4% of 8th graders, 2.5% of 10th graders, and 4.4% of 12th graders used “Salvia” in the past year. But by 2016, the annual use of “salvia” declined in all five populations, suggesting that the popularity of this drug has peaked. Still, 0.9% of 8th and 10th graders and 1.8% of 12th graders reported some past-year use in 2016, but the college and young adult populations had prevalence levels at or below 0.8%.

**Control Status:**

_Salvia divinorum_ and salvinorin A are not currently controlled under the Controlled Substances Act.

Comments and additional information are welcomed by the Drug and Chemical Evaluation Section; Fax 202-353-1263, telephone 202-307-7183 or Email DPE@usdoj.gov.