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## Controversial Plant Cannabis: A Medicinal Boon or A Drug

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### Abstract

**M**edicinal Cannabis, or medicinal marijuana, is a medication that even in recent times, has received much worldwide attention. A few of the issues associated with this treatment are controversies surrounding legal, ethical and societal implications connected with use; secure implementation, labelling and distributing; adverse health consequences and deaths attributed to marijuana intoxication; and therapeutic indications based on limited experimental research. At present, marijuana is acknowledged by the U.S. The 1970 Comprehensive Drug Abuse Prevention and Control Act (Regulated Substances Act) of the Drug Enforcement Agency (DEA's) as a Schedule I controlled substance, defined as having an abuse potential, no currently accepted medicinal use in treatment in the United States and a shortage of accepted safety information for medical supervision use. House of Representatives passes marijuana legalisation bill, according to recent news from USA TODAY on Dec 4, 2020.

### Introduction

**C**annabis (*Cannabis sativa*) (Common names: Weed, Bhang, Ganja, and Hashish) is a native plant of Cannabaceae and contains more than eighty chemical compounds that are biologically active. Delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD) are the most widely recognised compounds. THC is the component that generates the high associated with the use of marijuana (Figure 1). There has been widespread concern about CBD and its potential for beneficial effects. There is a difference between marijuana and CBD. In the cannabis plant, CBD is a pure substance and marijuana is a type of cannabis plant or plant product that absorbs several compounds, including CBD and THC. Just only one CBD medication, a prescribed drug to treat two rare and severe types of epilepsy, has been approved by the FDA (Food and Drug Administration). Currently, marketing and selling CBD products by adding it as a nutritional supplement to food is unconstitutional. The FDA has only seen limited CBD safety information and these personal anecdotes to risk factors that need to be considered for any purpose before taking CBD. Some CBD products are marketed and are of unknown quality with untested health services. The FDA will keep updating the public.



Figure 1: Chemical structure of CBD (<https://www.fda.gov/>)

Cannabis is a powerful plant whose dried leaves can indeed be smoked to reduce pain or to have a pleasant effect. Cannabis is a dioecious, flowering, herbaceous plant. The leaves, with sharpened leaflets, are palmate compound. A group of chemicals called cannabinoids are produced by cannabis plants, producing mental and physical effects when consumed. Glandular trichomes that occur most abundantly in the floral calyxes and bracts of female plants secrete cannabinoids, terpenoids, and other compounds. It usually comes in the form of dried infructescences ('buds' or 'marijuana'), resin (hashish), or various extracts are known collectively as hashish oil as a drug. It became unlawful in most of the world during the 20<sup>th</sup> century to cultivate or possess Cannabis for export, and sometimes even for private usage. It is an upright plant with finger-like leaves, covered with long soft, wool-like hair, and a slender, grooved stem. In clusters, creamy yellow coloured flowers emerge. The female plant's leaves and flowering/ fruiting tops possess narcotic qualities and are used in very low doses as a drug. For many traditional Ayurvedic preparations, such as 'Vijayavatika', 'Kameswarmodak' and 'Vedanantak rasa', the resin extracted from flowers and leaves forms a component. The various types of narcotics obtained from this plant are Bhang or siddhi, ganja and charas. A special drink is made from them, which is enjoyed during specific festivals by the local communities.

## Cannabis Statistics

**1** 58.8 million people in the world use marijuana, more than 3.8 percent of the population of the planet, according to the United Nations. In the U.S., over 94 million people have admitted to using it at least once. 2.1 million people across the US abused marijuana for the first time that year, according to the 2007 National Study on Substance Use and Health. In 2007, among 12 to 17-year-olds, 6.7 percent were current users of marijuana. Domestic marijuana production has increased tenfold over the last twenty-five years, according to U.S. government estimates: from 1,000 metric tonnes (2.2 million pounds) in 1981 to 10,000 metric tonnes (22 million pounds) in 2006. Not unexpectedly, 58 percent of people between the ages of 12 and 17 say that marijuana is easy to acquire. In the year 2000, U.S. marijuana users spent nearly \$ 10.5 billion on the drug. Marijuana was involved in 2,42,200 emergency room visits in the United States in 2005. A large percentage of those arrested for crimes test positive for Cannabis, according to the U.S. Law Enforcement Administration. At the time of their arrest, nationwide, 40 percent of adult males tested positive. Of adults 26 or older who used marijuana before age 15, 62 percent at some point in their lives continued to use cocaine; 9 percent went on to use heroin at least once and 54 percent made some non-medical use of prescription drugs that alter the mind. Marijuana is the second most frequently detected drug in the bodies of drivers involved in fatal car accidents,

behind alcohol.

Odisha is among India's leading major producers of ganja (Cannabis). Clandestine agriculture in remote forested areas of the state is flourishing. Officially, over the last five years, more than four crores hemp plants with an estimated value of approximately 4,000 crores have been destroyed. The State Police, the Excise Department and the Drug Control Bureau have intensified enforcement of laws to curtail the cultivation of Cannabis illegally. In 2018-19, as many as 1,37,06,989 hemp plants were killed, whose approximate market value could be valued at 1,370 crores. Similarly, in 2017-18, 79,32,006 illegal plants worth 793 crores were set on fire. On average, an acre of 1,500 hemp plants can be cultivated. Each hemp plant generates at least 500 gm of ganja when harvested. The ganja is sold locally at around 2,000 per kg. There is, however, no study in Odisha on the development of chara, another by-product, by further refining sections of hemp plants. According to a survey on substance use in India between December 2017 and October 2018 (Figure 2), the state of Uttar Pradesh had 2.8 million people who needed help for cannabis-related problems. This was the highest number of dependents in any state in the country by a large margin. Punjab, Odisha and Maharashtra followed suite with over a million problematic users of Cannabis (Statista Research Department, Oct 16, 2020).

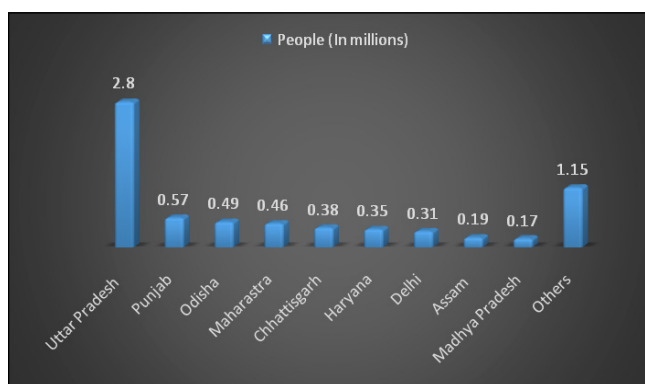


Figure 2: Number of people who need help for Cannabis-related problems across India between December 2017 and October 2018, by state (in millions) (Source - [www.statista.com](http://www.statista.com))

## Potential Harm and Side Effects of Cannabis Plant

**C**BD is capable of causing liver injury. CBD can impact the way potentially causing serious side effects. Usage of CBD with alcohol or other medications that slow down the activity of the brain, such as those used to treat anxiety, panic attacks, stress, or sleep disorders, reduces the risk of complications caused by sedation and drowsiness. In studies of animals exposed to CBD, consumption of

CBD leads to human sexual toxicity or damage to fertility in males or male descendants of women who have been exposed. Gastrointestinal distress, most usually observed as diarrhoea and/or reduced appetite and mood changes, most commonly experienced as irritability and agitation, may cause side effects that we can note, such as changes in alertness, most commonly experienced as somnolence (drowsiness or sleepiness). When CBD is stopped or when the quantity used is lowered, these side effects should improve.

## Potential Risks Associated with using CBD Products

- **Liver Injury:** The FDA identified certain safety concerns, such as the risk for liver injury, throughout its analysis of the marketing plan for Epidiolex, a distilled form of CBD that the FDA approved in 2018 for use in the treatment of two rare and serious seizure disorders. If an FDA-approved CBD drug product is taken under medical supervision, this significant risk can be controlled, but it is less clear how it could be managed if CBD is used even more commonly, without physician treatment and not in compliance with the FDA-approved labelling. Although this risk was increased when taken with other liver-impacting medicines, signs of liver damage were also seen in patients who did not use these medicines. As is often the case with early problems with the liver, the presence of this liver injury was detected by blood tests. Liver damage in published literature has also been seen in other CBD trials.
- **Drug Interactions:** Information from studies of the FDA-approved CBD drug Epidiolex suggests that there is a risk that other medicines you take can affect CBD or that other medicines you take may affect the safe dose of CBD you may use. Taking CBD with other medicines can increase or decrease the other medicines' effects. This may lead to an increased risk of side effects from or diminished efficacy of the other drugs. Drug interactions in published literature have also been seen in other CBD trials. Furthermore, there is little research on the interactions in dietary supplements between CBD products and herbs or other plant-based products. When mixing CBD products with herbs or dietary supplements, customers should use caution.
- **Male Reproductive Toxicity:** Studies in laboratory animals have shown male reproductive toxicity, including in the male offspring of pregnant women treated with CBD. The changes seen include decreased testicular size, sperm growth and development inhibition, and decreased testosterone circulation, among others. Since these results were only seen in animals, what these findings mean for human patients and the effect they may have on men (or pregnant women's male children) who are taking CBD is not yet clear. For example, these findings raise the concern that a man's fertility may be negatively affected by CBD. To better understand this potential risk, further testing and assessment are needed. Furthermore,

CBD may be the source of side effects we may find. When CBD is stopped or when the quantity used is decreased, these side effects should improve.

## In Future, the Following Medical Applications could be Realised for Cannabis

- **Pain:** Animal experiments have shown that THC and other cannabinoids can strengthen the analgesic effects of opiates. A placebo-controlled single-case study showed a clear reduction in the morphine requirement when prescribing a standardised cannabis extract in the case of severe pain due to inflammatory reactions in a Malta fever patient. There are also a number of results from animal experiments indicating that cannabinoids could be especially helpful against neuropathic pain.
- **Migraines:** A range of individual case reports prove the good effectiveness of Cannabis against this illness, which is difficult to influence by currently licensed products. Possible mechanisms for this effect have been studied.
- **Spasms and Movement Disorders:** The relaxing and pain-reducing effect of Cannabis is particularly pronounced against spasms resulting from multiple sclerosis or damage to the spinal cord and also against menstrual pain. In an epidemiological survey, more than 90% of 112 MS patients questioned said that smoking cannabis was able to improve spasms, tremors and pain effectively.
- **Glaucoma:** Back in 1971, it was documented that smoking cannabis reduced internal eye pressure by around 50%. This effect was also achieved with oral and intravenous Delta-9-THC and Delta-8-THC. It was later shown that Delta-9-THC and cannabigerol (CBG) increased the aqueous humour flow by two to three times.
- **Asthma:** Inhaled Cannabis expands the bronchia. In order to avoid the damage caused to the mucus membrane by smoking, aerosols are being developed. Already in the 1970's, it was shown that Delta-9-THC inhaled as an aerosol caused comparable improvements in the functioning of the lungs as beta sympathomimetics.
- **Other Possible Indications:** disturbed sleep, reactive depressive conditions, epilepsy and movement disorders caused by medication for Parkinson's disease.

## Conclusion

The U.N. Commission on Narcotic Drugs voted on 4<sup>th</sup> December, 2020 to reclassify Cannabis, acknowledging it as a non-hazardous narcotic. In favour of the decision, India voted. Is India going to legalise Cannabis in this country now? Cannabis may be on its way to being reclassified in India, also loosely known as hemp, marijuana or Cannabis. Cannabis sales in India are largely illegal and are strictly regulated. However, now from the list of dangerous narcotic drugs, the

United Nations has voted to exclude cannabis and cannabis resin. Furthermore, in favour of the decision, India voted. In India, control of Cannabis and its products has been made public in the wake of high-profile arrests in recent times, including that of actor Rhea Chakraborty. In India, there have been calls to legalise Cannabis. India voted to exclude Cannabis and its resin from Schedule IV of the 1961 Single Convention on Narcotic Drugs at the 63<sup>rd</sup> session of the United Nations Commission on Narcotic Drugs, held from 2-4 December, which put it in the group of most dangerous drugs, alongside heroin and others. The step, experts claim, is likely to soften India's position on the possession or consumption of plant drugs that attract strict penalties under the current Narcotic Drugs and Psychotropic Substances (NDPS) Act. But unless they are amended, they would have little effect on the existing drug laws in India. It is an international treaty that cannot explicitly

influence the laws on drugs in India. A senior officer in the Drug Control Bureau clarified that it would not be right to suggest that India's policy on Cannabis has softened.

## References

- <https://www.fda.gov/consumers/consumer-updates/what-you-need-know-and-what-were-working-find-out-about-products-containing-cannabis-or-cannabis>
- <https://www.statista.com/statistics/1048893/india-number-problem-users-cannabis-by-state/>
- <https://www.usatoday.com/story/news/politics/2020/12/04/legal-weed-house-vote-marijuana-legalization-bill/3791933001/>