

CANNABINOIDS: A Fact Sheet for Consumers

The Food and Drug Administration (FDA) has approved the marketing of four cannabinoid medications in the U.S. Other products containing cannabinoids, such as liquid capsules containing cannabidiol (CBD) oil and lollipops containing delta-8-tetrahydrocannabinol (THC), have not been approved by the FDA. Nevertheless, these products are widely advertised and available. Some of these cannabinoid products are marketed with unproven medical claims, while others are promoted for their intoxicating effects.

This fact sheet for consumers defines and identifies cannabinoids, discusses their legal status, and summarizes research surrounding their potential health effects.



DEFINITIONS

Cannabinoids

Cannabinoids are a group of substances found in the cannabis plant.¹ More than 100 cannabinoids have been isolated and identified.² The most commonly noted cannabinoids are delta-9-THC and CBD.³

Cannabis

Cannabis is a plant of the Cannabaceae family that includes multiple species. Cannabis sativa is grown to produce varying concentrations of cannabinoids, including THC and CBD.⁴ The terms cannabis and marijuana are often used interchangeably; however, they do not have the same meaning under federal law.

Marijuana

Under federal law, marijuana refers to all parts of the cannabis sativa plant, whether growing or not, that contain more than 0.3 percent delta-9-THC on a dry weight basis. The federal definition of marijuana includes seeds, the resin extracted from the plant, derivatives of the plant, and products manufactured from the plant. The definition of marijuana does not include hemp.

Hemp

Hemp is any part of the cannabis sativa plant containing 0.3 percent or less delta-9-THC on a dry weight basis.⁵

Delta-9-THC

Delta-9-THC is the primary psychoactive cannabinoid that produces marijuana's intoxicating and impairing effects.⁶

CBD

CBD is one of the cannabinoids in cannabis.⁷ CBD does not have intoxicating effects, but it can cause drowsiness, changes in mood, and gastrointestinal distress.⁸ The FDA has approved one CBD medication, Epidiolex, for the treatment of seizures associated with three rare health conditions.⁹ Non-FDA-approved CBD products are commonly marketed with unproven medical claims.¹⁰

Delta-8-THC

Delta-8-THC is a form of THC typically found in low concentrations in marijuana and hemp plants.¹¹ Delta-8-THC is created in higher concentrations by chemically converting CBD extracts. This process yields intoxicating and impairing effects in delta-8-THC that are similar to, yet slightly milder than, those produced by the delta-9-THC in marijuana.¹²

Delta-10-THC

Delta-10-THC is another form of THC found in low concentrations in marijuana and hemp plants. Delta-10-THC is created in concentrated amounts by chemically converting CBD extracts. The concentrated product yields euphoric effects when consumed.

LEGAL STATUS


Cannabis

Cannabis with more than 0.3 percent delta-9-THC is marijuana. Cannabis with 0.3 percent delta-9-THC or less is hemp.

Marijuana

It is illegal under federal law to manufacture, distribute, dispense, or possess marijuana.¹³ Marijuana has not been approved as a drug by the FDA and has no currently accepted medical use under federal law.¹⁴ Nevertheless, 37 states and the District of Columbia have legalized marijuana for certain therapeutic uses.¹⁵ Nineteen states and the District of Columbia have enacted measures to permit and regulate adult non-medical use of marijuana.¹⁶

The FDA has approved one medication that contains a purified substance derived from marijuana, Epidiolex.²⁰ The FDA has approved three synthetic marijuana-related medications, nabilone and two forms of dronabinol. These FDA-approved medications are only dispensed with a prescription.²¹



The conflict between federal law, which prohibits the manufacturing, distribution, and possession of marijuana, and state laws that permit some of those activities, raises the question of whether the federal government will enforce federal law when consumers comply with state marijuana law but violate federal marijuana law.¹⁷ Federal law enforcement has generally focused its efforts on criminal networks involved in the illegal marijuana trade, not state-authorized activities.¹⁸ Furthermore, in each year since 2014, Congress has enacted spending laws that prohibit the use of federal funds to prevent states and the District of Columbia from implementing their own laws permitting marijuana manufacturing, distribution, and possession.¹⁹

LEGAL STATUS

Hemp

Hemp is legal under federal law.²²

Delta-9-THC

The delta-9-THC in hemp and hemp derivatives that contain 0.3 percent delta-9-THC or less is legal under federal law. The delta-9-THC in FDA-approved medications is subject to federal drug laws and is available only with a valid prescription. All other delta-9-THC is illegal.²³

CBD

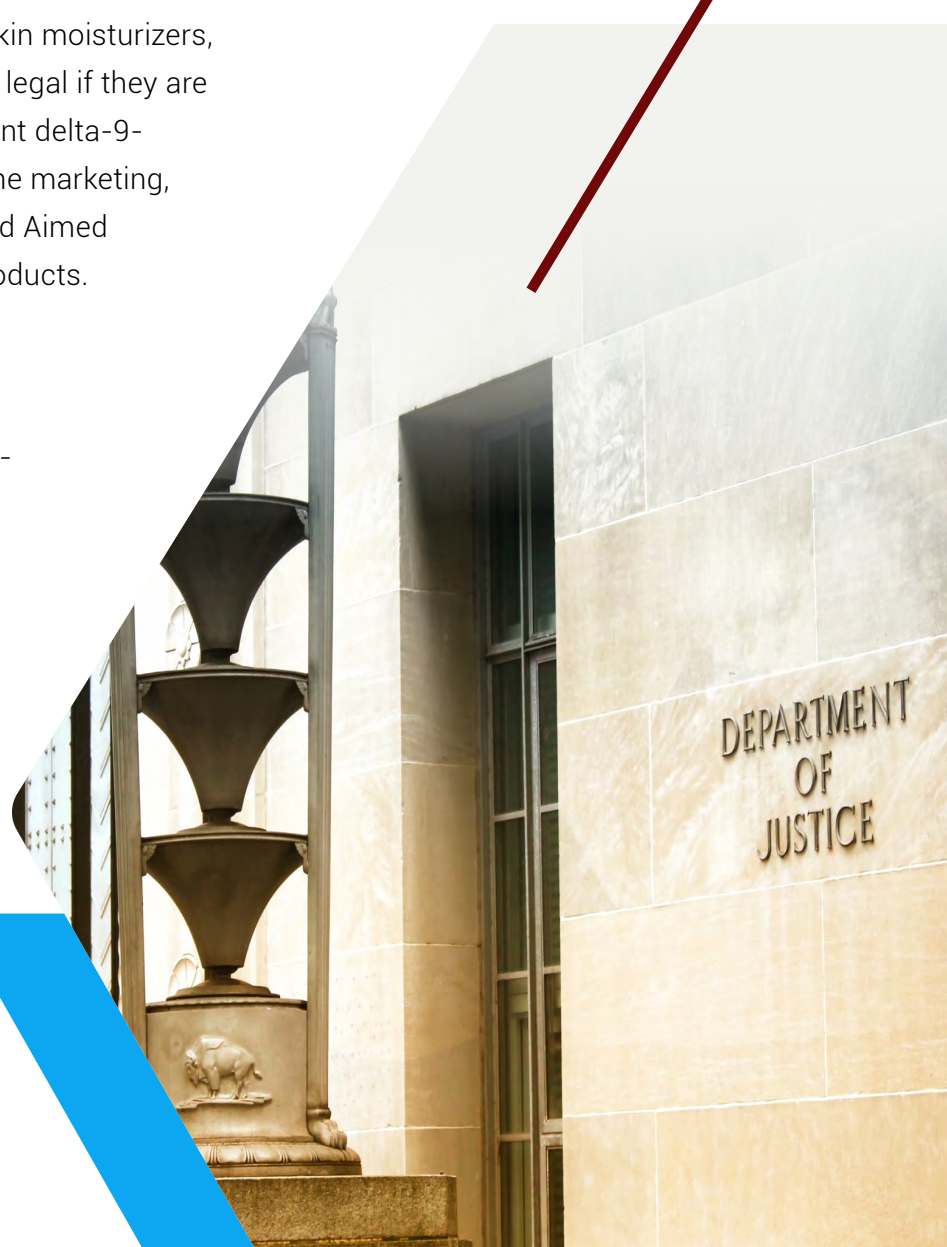
The FDA-approved prescription medication Epidiolex is the only legal CBD drug in the U.S. Nonetheless, many CBD products of unknown quality are marketed with unproven and illegal medical claims.²⁴ It is illegal under U.S. law to market CBD as a food ingredient or dietary supplement.²⁵ CBD-containing cosmetic products, such as skin moisturizers, makeup, shampoos, and deodorants, are legal if they are safe to consumers and contain 0.3 percent delta-9-THC or less.²⁶ For more information on the marketing, sale, and regulation of CBD products, read Aimed Alliance's [Position Statement](#) on CBD Products.

Delta-8-THC

The delta-8-THC in hemp and hemp derivatives that contain 0.3 percent delta-9-THC or less is legal under federal law. All other delta-8-THC is illegal.²⁷

Delta-10-THC

The delta-10-THC in hemp and hemp derivatives that contain 0.3 percent delta-9-THC or less is legal under federal law. All other delta-10-THC is illegal.²⁸





POTENTIAL HEALTH EFFECTS

Marijuana

The pharmacology of marijuana is complex and not fully understood because its illegality under federal law has created difficulty for researchers who seek to study marijuana.²⁹

Self-medication using marijuana is common among people with chronic conditions and mental health symptoms.³⁰ Self-medication entails using a substance for medical reasons without having received medical advice to do so.³¹ Self-medication may increase the risks of adverse effects, improper method of administration, incorrect dosage, drug interactions, and substance use disorder.³²

Marijuana use may lead to an increased risk of stroke, heart disease, and other vascular diseases.³³ People who use marijuana are more likely to experience temporary psychosis (e.g., paranoia, hallucinations) and develop long-lasting mental disorders.³⁴ Marijuana use has been linked to depression, social anxiety, suicidal thoughts, and self-harm.³⁵ Additionally, there is some evidence suggesting that heavy, regular marijuana use is linked to lack of motivation, social withdrawal, impaired concentration, and compromised occupational achievement.³⁶ Marijuana can have both depressant and stimulant effects on the central nervous system (CNS) and has potential to interact with other drugs, including commonly prescribed medications.³⁷

Hemp

The FDA has determined that hulled hemp seed, hemp seed protein powder, and hemp seed oil are safe food ingredients when manufactured as approved. As such, these hemp products may be used as ingredients in beverages, soups, dips, dressings, plant-based alternatives to meat, desserts, baked goods, cereals, snacks and nutrition bars.³⁸



POTENTIAL HEALTH EFFECTS

Delta-9-THC

Delta-9-THC is the defining component of marijuana. The potential health effects of marijuana use are described above. The FDA has approved three medications containing synthetic delta-9-THC, nabilone and two forms of dronabinol. These FDA-approved medications are only dispensed with a prescription.³⁹

Nabilone is FDA-approved for the treatment of nausea and vomiting associated with cancer chemotherapy. Post-marketing adverse reactions to nabilone include low blood pressure, heart rhythm disorder, hallucinations, depression, anxiety, and psychosis.⁴⁰

Dronabinol is FDA-approved for the treatment of anorexia in patients with Acquired Immune Deficiency Syndrome and for nausea and vomiting associated with cancer chemotherapy. Post-marketing adverse reactions to dronabinol include fatigue, throat tightness, seizures, delirium, and panic attack.⁴¹

CBD

The FDA has approved one CBD medication, Epidiolex, for the treatment of seizures associated with three rare health conditions.⁴² Adverse reactions that occurred in clinical trials of Epidiolex included insomnia, diarrhea, fatigue, rash, and infections.⁴³

The FDA has not determined other CBD products to be safe as drugs, dietary supplements, or food additives.⁴⁴ Studies of CBD safety have identified potential risks that require additional research. For example, the impacts of long-term CBD use, dosing levels that trigger known risks, and effects of CBD on children and brain development remain unknown.⁴⁵

Non-FDA-approved CBD products can contain harmful substances. They have been found to contain illegal levels of THC and harmful metals, toxins, and mold. One study found illegal substances that cause impairment, such as "spice" or "K2," in one third of the CBD vape oils analyzed.⁴⁶

Delta-8-THC

Delta-8-THC products have not been approved by the FDA for safe use in any context. National poison control centers received 2,362 exposure calls related to delta-8-THC between January 1, 2021 and February 28, 2022. Some consumer product manufacturers may use unsafe household chemicals to make delta-8 THC. As with non-FDA-approved CBD products, manufacturing may occur in unsanitary settings, which may lead to the presence of unsafe contaminants.

Delta-10-THC

Delta-10-THC was reportedly discovered in 2020 when cannabis plants were exposed to a fire retardant, causing a chemical reaction that yielded delta-10-THC.⁴⁷ Credible research into delta-10-THC does not yet exist, and the FDA has not issued a statement specific to this cannabinoid. As with delta-8-THC, it is likely that some manufacturers use unsafe chemicals to convert CBD extracts into delta-10-THC.

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