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The current state of delta-8 THC

Delta-9 tetrahydrocannabinol (THC) is the main pharmacologically active ingredient of the Cannabis plant and is responsible for the clinical effects associated with the use of this substance. While possession and/or use of cannabis has been legalized in many states, it is still currently illegal to use, sell, or possess cannabis, according to the federal government of the United States.

The United States Agriculture Improvement Act of 2018 (“2018 Farm Bill”) was passed with the purpose of supporting agricultural programs in the United States. Legislation included in the 2018 Farm Bill approved the legalization of hemp products. Hemp is a variety of the *Cannabis sativa* plant that is grown specifically for industrial use, including the manufacture of textiles, biodegradable plastics, and paint [1]. Prior to incorporation of the 2018 Farm Bill, the growth and cultivation of hemp was allowed only under state-sanctioned programs [2]. The 2018 Farm Bill removed hemp from the federal list of controlled substances, thereby allowing for the commercial sale and use of hemp-derived products, with the strict definition that hemp cannot contain more than 0.3% delta-9 THC [2]. The 2018 Farm Bill does not specifically address the possession, use, or sale of products that can be derived from hemp, including other biologically active cannabinoids such as delta-8 THC.

Delta-8 THC is a naturally occurring cannabinoid and close structural analog of delta-9 THC; it is present in low concentrations in most Cannabis plants [3]. Like delta-9 THC, delta-8 THC acts at cannabinoid and serotonergic receptors, and its use can result in psychoactive clinical effects similar to those induced by use of delta-9 THC [4,5]. The clinical effects associated with delta-8 THC use include euphoria, visual and time distortion, relaxation, difficulty in thinking, speaking, and reading, and a dream-like state [5]. The dose required to achieve these clinical effects is unclear, as dose-response studies of delta-8 THC in humans have been limited. Delta-8 THC is known to be less potent than delta-9 THC, but a standard human dose has not been identified. In one study, delta-8 THC was found to have two-thirds the potency of delta-9 THC; in another study of habitual cannabis smokers, ingestion of delta-8 THC 75 mg did not result in significant physiologic effects [5,6]. Pediatric exposure to delta-8 THC was reported in one study in which the

antiemetic potential of delta-8 THC was explored [7]. In this study, 8 children with hematologic malignancies (age range 3.5 months to 13 years) were administered oral delta-8 THC at a dose of 18 mg/m², 2 h prior to chemotherapy and repeated every 6 h for a single day. Adverse events were reported in 2 children, and included euphoria and slight irritability.

Because it is not specifically addressed in the 2018 Farm Bill, the legal status of delta-8 THC in the United States remains nebulous on the federal level. As of June 2021, several states have banned or restricted delta-8 THC products, but in other jurisdictions delta-8 THC remains legal and available for sale to individuals of all ages. In states where the sale of delta-8 THC is not restricted, the product is often available at tobacco shops and convenience stores in various formulations including vape cartridges, dried plant or “flower”, and gummies (Fig. 1).

Due to the lack of federal regulation regarding the marketing of delta-8 THC, products may be packaged in brightly-colored containers featuring cartoon characters, sweet or fruity flavors and candy-themed images that may be attractive to young children and adolescents. Delta-8 THC products are also not required to have child-resistant packaging, further increasing the potential for exploratory exposure and toxicity in the pediatric population. An additional consequence of the minimal regulation of delta-8 THC products relates to purity and standardization. The actual product contents may differ from what is listed on the package label, with the added potential for contamination with other drugs or substances.

As the awareness and popularity of delta-8 THC expands, it is likely medical providers will encounter increasing numbers of patients who are under the influence of this substance. There is no specific antidote for delta-8 THC intoxication, and supportive care is currently the mainstay of treatment for patients with adverse effects related to use of this product. Toxicology screening assays for delta-8 THC are not readily available in most medical facilities, but may be obtained from a reference laboratory. Both consumers and physicians should be aware of the potential for intoxication or adverse events after use of delta-8 THC products. As with all potentially toxic substances, delta-8 THC products should be kept well out of reach of young children, especially considering the lack of uniform child-resistant packaging in delta-8 THC products. Given its psychoactive clinical effects, further discussion is warranted at the state and federal level regarding the legal status of delta-8 THC as well as whether it should be labeled as a controlled substance.



Fig. 1. Delta-8 THC products.

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Prior presentation

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