EDITORIAL

Delta-8, Delta-10, HHC, THC-O, THCP, and THCV: What Should We Call These Products?

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ABSTRACT. The 2018 U.S. Federal Agriculture Improvement Act ("Farm Bill") resulted in what some have called a "legal loophole" in cannabis regulation. As different types of cannabis products proliferate, so has the terminology used to attempt to categorize them. This article presents a variety of potential descriptors to encourage dialogue about the language used to classify the multitude of psychoactive cannabinoid products that have grown in popularity since the passage of the 2018 Farm Bill. Our recommended term for these products is *derived psychoactive cannabis products.* The term *derived* helps distinguish these products from naturally grown cannabis products. *Psychoactive* makes clear that these products can produce psychoactive effects. Finally, *cannabis products* balances accuracy and understandability regarding the substance while discouraging perpetuation of the word *marijuana* because of its racist inception. The resulting term, *derived psychoactive cannabis products,* is broad enough to encapsulate all related products while being specific enough to exclude other substances. Adopting accurate and consistent terminology will reduce confusion and help establish a more cohesive scientific literature base. (*J. Stud. Alcohol Drugs, 84,* 000–000, 2023)

THE 2018 FEDERAL Agriculture Improvement Act ("Farm Bill") was the largest practical change in U.S. cannabis laws since California legalized cannabis for medical use in 1996, starting the wave of state-level legal reforms (Mikos, 2019). Because of its ambiguous wording and focus on delta-9 tetrahydrocannabinol (THC), the 2018 Farm Bill resulted in what some have called a "legal loophole" in cannabis regulation. The cannabis marketplace has become increasingly complex in recent years, with the derivation of new psychoactive products from components of the cannabis plant, namely cannabidiol (CBD) and hemp. Although delta-8 THC has, to date, been the most common product sold (Livingston et al., 2021), other products include delta-10 THC, hexahydrocannabinol (HHC), tetrahydrocannabinol-O-acetate (THC-O), tetrahydrocannabiphorol (THCP), and tetrahydrocannabivarin (THCV), as well as blends of these products.

As types of cannabis products proliferate under the 2018 Farm Bill loophole, so has the terminology used to categorize them. Some of these terms include *hemp-derived cannabinoids, CBD-derived cannabinoids, hemp-derived isomers, THC isomers, synthetic cannabinoids,* and *semi-synthetic cannabinoids*. This editorial reviews and comments on the language used to classify the multitude of psychoactive cannabis products that have grown in popularity since the passage of the 2018 U.S. Farm Bill (Livingston et al., 2021; LoParco et al., 2023). In doing so, we hope to encourage the adoption of a more accurate and consistent terminology to classify these products.

From a public health perspective, there are concerns about the lack of federal safety standards, marketing restrictions, and minimum purchase age laws for these products (LoParco et al., 2023). Thus, there is a need to distinguish these "derived" or "synthesized" products from naturally grown cannabinoids that have not undergone chemical treatments, fall into a different legal category, and are therefore sold in more highly regulated settings (LoParco et al., 2023). In an effort to reduce associated harm, some states have adopted laws surrounding these derived products (LoParco et al., 2023). However, these laws' effectiveness and enforcement hinge on complete and accurate definitions of these substances. For example, if subsequent laws aim to close the loophole created by the 2018 Farm Bill, it would be useful to have established consistent and comprehensive terminology and definitions that encompass all existing similar products, as well as other chemically similar compounds that could potentially be derived in the future.

From a risk communication perspective, it would also be useful to have terminology to help distinguish and categorize products that are relatively homogenous in terms of the

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production process and end product. In the absence of such terminology, the cannabis industry may adopt their own, potentially misleading, terms to categorize and sell products. For example, the tobacco industry has a long history of shaping language surrounding their products to downplay the associated risks (Chapman, 2003; O'Connor et al., 2021; Rossheim et al., 2022). Moreover, some consumers of these products have already adopted several of their own contextual terminologies, such as "work weed" or "diet weed" (Kruger & Kruger, 2022; Lee et al., 2011). The terminology used to describe products is important, in part, because it can affect consumers' expectations (Mikos & Kam, 2019). Having consistent terminology also reduces confusion and will result in a more cohesive scientific literature base, increasing our ability to summarize information about a single category of substances. For these reasons, as well as many others, it is important to use consistent language to refer to these products. This language should be accurate, understandable, neutral, and not misleading, especially regarding product safety.

Terminology

Several terms have emerged to classify these products, including *hemp-derived cannabinoids, CBD-derived cannabinoids, THC isomers, synthetic cannabinoids,* and *semi-synthetic cannabinoids*. Some of these terms appear to be more accurate, comprehensible, and/or neutral than others. Most terms combine two descriptors: one that describes the substance (e.g., cannabis, marijuana, or THC) and another that differentiates it from similar products (e.g., CBD-derived, semi-synthetic, or isomer). Below are some initial considerations about the utility of different descriptors as a launching point for discussion.

1. *Descriptors to differentiate from similar substances* can be further divided into those that describe the production process versus the end product.

1a. *Production process descriptors* aim to provide insight about how these products were created rather than grown or extracted without chemical manipulation.

- *Synthetic* is commonly used and may help to distinguish from naturally grown products (Shafi et al., 2020); however, it may fail to distinguish these products from what has been traditionally referred to as synthetic cannabinoids (e.g., K2 and Spice), which were made illegal in the United States in 2012 (U.S. Congress, 2012). In contrast with delta-8 THC and similar compounds, these synthesized chemicals produce a "high" by using the body's endocannabinoid system but are not actually derived from the *Cannabis* plant (Debnam et al., 2018; Mathews et al., 2019). As a result, researchers have encouraged using the term *synthetic cannabinoid receptor agonists* (SCRAs) for products such as K2 and Spice (Darke et al., 2021); however, many still know these products colloquially as "synthetic cannabis." The terms *semi-synthetic* and *chemically rearranged* aim to distinguish products with a chemical structure of (or similar to) THC that have been synthetically made but that naturally exist in the cannabis plant, even in small quantities (National Cannabis Industry Association, 2022). However, these terms may downplay the riskiness of a product, as they may not properly convey the potential for chemical residue and byproducts. Moreover, these terms likely have little meaning to people with limited knowledge of chemistry.
- *Manufactured* seems to imply the involvement of a manufacturing facility or co-packer to create the end product. However, in previous research, the term *manufactured cannabis products* has been used to refer to the creation of e-cigarette devices or food products, rather than the manufacturing of THC or similar compounds (Dilley et al., 2021). Essentially, "manufactured" has been used to distinguish between modalities of use (e.g., edibles/vapes vs. flower). Thus, it does not seem especially useful in helping distinguish between the process for obtaining, or types of, the psychoactive substance in the end product.
- *Laboratory derived* seems to imply the involvement of a laboratory environment with rigorous protocols. However, these products are often not made using the same process or materials each time, resulting in different products, even within the same supplier or brand (LoParco et al., 2023). Thus, although it may help distinguish products from "naturally grown" cannabis, this term could give consumers a false impression that the substance has undergone product testing and safety standards that are currently not required federally.
- *Cannabis derived* is too broad of a descriptor because it fails to distinguish these products from CBD and hemp, which do not yield psychoactive effects.
- *Hemp derived* or *CBD derived* are commonly used terms in the industry (Leas, 2021). However, using "hemp" or "CBD" as descriptors may imply that the product contains no or low levels of THC and, thus, may leave consumers unaware of potential psychoactive effects (U.S. Food and Drug Administration, 2021).
- *Derived* would encompass the multitude of methods and settings in which these products are produced while helping distinguish from products that are naturally grown or extracted from cannabis without undergoing any chemical treatments.

1b. *End product terminology* has been used to describe numerous attributes of these products, including their chemical structure, psychoactive effects, and the relative amount of time they have been available on the retail market. They are used to differentiate these products from other products such as naturally grown cannabis products, delta-9 THC, CBD, K2, or Spice.

- *Isomer* may not be commonly understood and is also too specific, as it is relative to another substance. Delta-8 and delta-9 THC are isomers because they only differ in the location of a double bond between two carbon atoms. However, several other derived psychoactive cannabinoids do not meet this criterion.
- *New* is time dependent and nonspecific (O'Connor et al., 2021). For example, the United Nations Office for Drugs and Crime (UNODC) defines *new psychoactive substances* (NPS) as substances not controlled by the 1961 Single Convention on Narcotic Drugs (as amended by the 1972 Protocol) or the 1971 Convention on Psychotropic Substances (Shafi et al., 2020). Of note, this list has been amended over time to include additional substances (UNODC, 2022). However, this can lead to confusion of what constitutes "new," as illustrated by the title of their 2021 report, "Current NPS Threats" (UNODC, 2021). Moreover, "new" may also imply lower risk via perceptions of innovation (O'Connor et al., 2021). "Novel" is problematic for similar reasons as "new" and may also imply enjoyment via connotations with "novelty."
- *Psychoactive* products may be legally classified as "hemp" at the federal level, yet they all have psychoactive effects (Babalonis et al., 2021; Leas, 2021). Delta-8 THC has sometimes been marketed as a "light weed," and THC-O has been claimed to be three times stronger than delta-9 THC and is marketed as having psychedelic effects (Schuba, 2022).

2. *Substance-related descriptors*

- *THC* is too specific to encompass all potentially psychoactive cannabinoids. For example, products containing cannabinol (CBN) can yield mild psychoactive effects but do not have the chemical structure of THC (Sreenivas, 2021).
- *Cannabinoids* include natural compounds found in the cannabis plant as well as synthetic compounds that can interact with the endocannabinoid system. Thus, *cannabinoids* is too broad of a term for these products, as it would also include SCRAs such as K2 and Spice.
- *Marijuana,* although widely understood in popular culture, should likely be retired from scientific use because of its racist historical connotation that led to its prohibition (Halperin, 2018).
- *Cannabis* is an accurate term, as it is the scientific name for the plant from which many of these substances are derived. Proponents of cannabis legalization often adopt the term *cannabis* to stray from the xenophobic and otherwise negative propaganda surrounding the term *marijuana* (Mikos & Kam, 2019). Because of botanical connotations and related appeals to nature, some may fear that the term *cannabis* may be associated with lower risk perceptions than *marijuana.* However, a study conducted among U.S. adults suggested that using the name *cannabis* versus *marijuana* was not associated with perceptions of harmfulness, addiction, or support for legalization (Mikos & Kam, 2019).

Recommendation

Given the above considerations, we recommend adoption of the term *derived psychoactive cannabis products*. *Derived* helps distinguish these products from naturally grown cannabis products. *Psychoactive* clarifies that these products can have mind-altering effects. Finally, *cannabis products* balances accuracy and understandability regarding the substances, while discouraging perpetuation of the term *marijuana* because of its racist inception. The resulting term, derived psychoactive cannabis products, is broad enough to encapsulate all related products (e.g., delta-8 THC, delta-10 THC, HHC, THC-O, THCP, and THCV) and similar products yet to be developed while being specific enough to exclude other substances (e.g., K2, CBD, and naturally grown cannabis). This relatively neutral terminology accurately conveys the production process (derived) and end product (psychoactive cannabis).

Because of their differing chemical structures, the formulations, potency, and risks of different types of derived psychoactive cannabis products may vary, and the legality of each may change over time. As a result, there are circumstances when using the names of specific chemical compounds will be useful. For example, the U.S. Drug Enforcement Agency (DEA) recently clarified that THC-O should be classified as a Schedule I drug and advised that stores remove it from their shelves (Kight, 2023). The U.S. DEA (2023) took similar actions against delta-8 THC in 2021, and it remains in the retail market (LoParco et al., 2023. However, this ruling regarding THC-O may have a different long-term legal trajectory because the end product is a molecule that does not naturally exist in cannabis plants (Kight, 2023).

Research is needed to better understand the comparative risk of using different kinds of derived psychoactive cannabis products. Relatedly, research is needed to better understand how these products are marketed including prices, promotions, and places. Depending on product characteristics, their psychoactive effects, and risks of use, it may be useful to create names for subgroups of derived psychoactive cannabis products. Future research should systematically test how various terminology is understood by consumers. In the interim, we recommend the adoption of derived psychoactive cannabis products. Consistent terminology will reduce confusion and will result in a more cohesive scientific literature base.

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