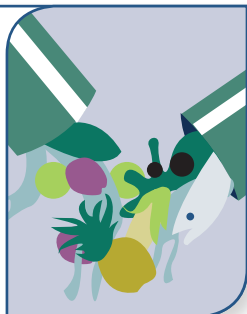


## WHAT IS THE DIFFERENCE? Nutraceuticals to Medications

### Nutraceutical

Commonly used word with no uniformly accepted definition. Nutraceuticals are not an FDA-recognized category.<sup>8,9</sup>

- Individual nutraceuticals may not be tested for medical or health benefits<sup>9</sup>

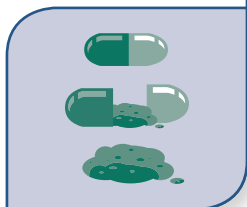


### Dietary Supplement

Regulated separately from conventional food and medicine, a product that adds nutritional value with one of the following ingredients<sup>10,11</sup>:

- Vitamin
- Mineral
- Amino acid
- Concentrate
- Metabolite
- Herb or other botanical
- Substance to increase total dietary intake

The FDA has said that CBD may not be sold as a dietary supplement.<sup>12</sup>



### FDA-Approved Medication

A designation from the FDA after thorough, controlled, clinical studies to guide safe and effective medical use of new compounds.<sup>13</sup>

All information about contents, shelf stability, and batch consistency must be provided.<sup>7</sup>

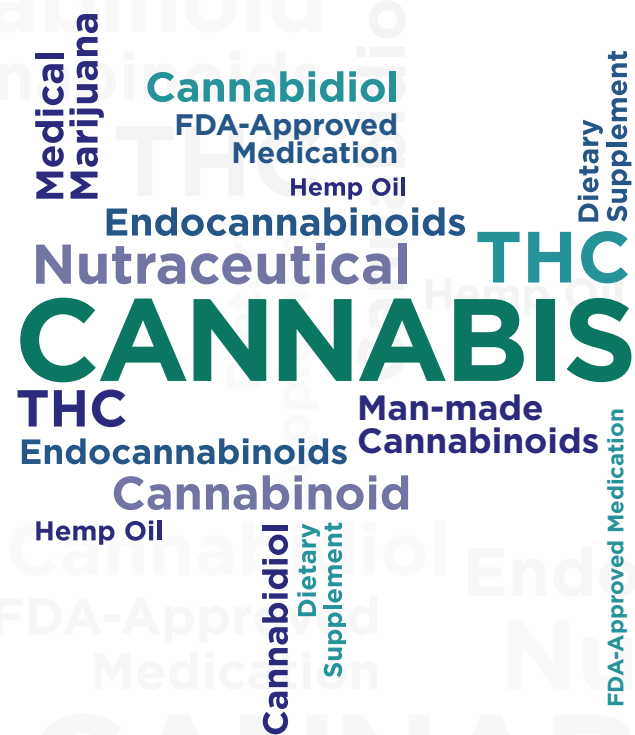


This brochure cites federal laws as they (in theory) supersede any state laws in place regarding cannabis.

## References

1. What is marijuana? National Institute on Drug Abuse website. [www.drugabuse.gov/publications/research-reports/marijuana/what-marijuana](http://www.drugabuse.gov/publications/research-reports/marijuana/what-marijuana). Accessed March 8, 2018.
2. Sevigny EL, Pacula RL, Heaton P. The effects of medical marijuana laws on potency. *Int J Drug Policy*. 2014;25:308-319.
3. Chandra S, Lata H, El Sohly MA, Walker LA, Potter D. Cannabis cultivation: methodological issues for obtaining medical-grade product. *Epilepsy Behav*. 2017;70:302-312.
4. Mead A. The legal status of cannabis (marijuana) and cannabidiol (CBD) under U.S. law. *Epilepsy Behav*. 2017;70:288-291.
5. Small E, Marcus D. Hemp: a new crop with new uses for North America. In: Janick J, Whipkey A, eds. *Trends in New Crops and New Uses*. Alexandria, VA: ASHS Press; 2002:284-326.
6. Legitimacy of Industrial Hemp Research. Section 7606 of 2013 Farm Bill. [www.votehemp.com/PDF/Pages\\_from\\_farm0127.pdf](http://www.votehemp.com/PDF/Pages_from_farm0127.pdf). Accessed March 8, 2018.
7. Guidelines for the use of non-pharmaceutical grade compounds in laboratory animals. National Institutes of Health website. [oacu.oir.nih.gov/sites/default/files/uploads/arac-guidelines/pharmaceutical\\_compounds.pdf](http://oacu.oir.nih.gov/sites/default/files/uploads/arac-guidelines/pharmaceutical_compounds.pdf). Accessed March 8, 2018.
8. Kalra EK. Nutraceutical—definition and introduction. *AAPS PharmSci*. 2003;5:E25.
9. Koch A, Brandenburger S, Türpe S, Birringer M. The need for a legal distinction of nutraceuticals. *Food Nutr Sci*. 2014;5:905-913.
10. Dietary supplements. US Food and Drug Administration website. [www.fda.gov/Food/DietarySupplements/default.htm](http://www.fda.gov/Food/DietarySupplements/default.htm). Accessed March 8, 2018.
11. Dietary Supplement Health and Education Act, Pub L No. 103-417, 108 Stat 4325 (1994) website. [ods.od.nih.gov/About/DSHEA\\_Wording.aspx](http://ods.od.nih.gov/About/DSHEA_Wording.aspx). Accessed March 8, 2018.
12. Federal Food, Drug, and Cosmetic Act, 21 USC §321(ff)(3) (B)(ii) (2017). [legcounsel.house.gov/Comps/Federal%20Food,%20Drug,%20and%20Cosmetic%20Act.pdf](http://legcounsel.house.gov/Comps/Federal%20Food,%20Drug,%20and%20Cosmetic%20Act.pdf). Accessed March 8, 2018.
13. How drugs are developed and approved. US Food and Drug Administration website. [www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/](http://www.fda.gov/Drugs/DevelopmentApprovalProcess/HowDrugsareDevelopedandApproved/). Accessed March 8, 2018.
14. Hillig KW, Mahlberg PG. A chemotaxonomic analysis of cannabinoid variation in *Cannabis* (Cannabaceae). *Am J Bot*. 2004;91:966-975.
15. Drug scheduling. US Drug Enforcement Agency website. [www.dea.gov/druginfo/ds.shtml](http://www.dea.gov/druginfo/ds.shtml). Accessed March 8, 2018.
16. Brenneisen R. Chemistry and analysis of phytocannabinoids and other cannabis constituents. In: ElSohly MA, ed. *Marijuana and the Cannabinoids*. Totowa, NJ: Humana Press; 2007:17-50.
17. Grotenhermen F. Cannabinoids and the endocannabinoid system. *Cannabinoids*. 2006;1:10-14.
18. ElSohly M, Gul W. Constituents of *Cannabis sativa*. In: Pertwee RG, ed. *Handbook of Cannabis*. Oxford, UK: Oxford University Press; 2014:3-22.
19. Rosenberg EC, Tsien RW, Whalley BJ, Devinsky O. Cannabinoids and epilepsy. *Neurotherapeutics*. 2015;12:747-768.
20. Williams CM, Jones NA, Whalley BJ. Cannabis and epilepsy. In: Pertwee RG, ed. *Handbook of Cannabis*. Oxford, UK: Oxford University Press; 2014:547-563.
21. Wohlfarth A, Mahler H, Auwarter V. Rapid isolation procedure for Δ9-tetrahydrocannabinolic acid A (THCA) from *Cannabis sativa* using two flash chromatography systems. *J Chromatogr B Analyt Technol Biomed Life Sci*. 2011;879:3059-3064.

## Patient's Guide to Cannabinoid Terms



Sponsored by Greenwich Biosciences Inc.,  
a subsidiary of GW Pharmaceuticals plc.

©2018 Greenwich Biosciences, Inc.

To continue learning about cannabinoid science,  
visit: [www.cannabinoidclinical.com](http://www.cannabinoidclinical.com)

## WHAT IS THE DIFFERENCE?

# Marijuana- and Cannabinoid-Related Products

## Marijuana

A dried mixture of leaves and flowers from the cannabis plant<sup>1</sup>



## Medical Marijuana

Cannabis used to treat disease or ease symptoms<sup>2,3</sup>



No scientifically accepted definition<sup>4</sup>

It is difficult to study the medical benefits of whole plant products because each plant contains many types of compounds, such as THC and CBD, in various amounts.<sup>4</sup>

## Hemp

Cannabis bred for fiber from the stalks, and/or oil from the seeds. Hemp is used industrially (eg, clothing and fiber production).<sup>5,6</sup>



Stalks and seeds contain little or no cannabinoids.<sup>5</sup>

Hemp varieties produce few flowers, which contain small amounts of cannabinoids.<sup>3</sup>

## Hemp Oil/Hemp Seed Oil

Oils from cannabis seeds that contain little or no cannabinoids



It is used in paints, varnishes, soaps, and food products.<sup>5</sup>

## CBD Oil/Hemp CBD Oil

Oils that typically contain lower levels of THC than CBD. Synthetic or CBD extracts may be added to a variety of carrier oils such as olive, coconut, or hemp seed oil.<sup>3</sup>



## FDA-Approved Formulation of CBD

CBD preparation that meets FDA standards, is regulated by FDA, and is available by prescription from a pharmacy.<sup>7</sup>



## Cannabis-Related Terms

### Cannabis

One of the oldest plant sources of fiber, food, oil, and potential medicine<sup>14</sup>

- Cannabis and cannabinoids are controlled substances<sup>4</sup>:
  - Classified as Schedule I compounds, the most restrictive class of drugs according to the DEA<sup>15</sup>
  - Federally illegal to prescribe and possess<sup>4</sup>
- Commonly referred to as pot, weed, or marijuana

**“Cannabis” is the generic term for products of the plant, *Cannabis sativa* L.**

### *Cannabis sativa* L.

The scientific name of the cannabis plant<sup>5</sup>  
*Sativa* and *indica* are two varieties (subspecies).<sup>5</sup>

The amount of CBD or THC does not distinguish *sativa* from *indica*.<sup>5</sup>

Most *Cannabis sativa* L. sold in the US is a cross-breed.<sup>5</sup>

### Cannabinoids and Terpenes/Terpenoids

Chemical components of the cannabis plant or products derived from them<sup>16</sup>

Some cannabinoids have been approved by the FDA for medical use or are being studied for possible medical benefits.<sup>17</sup>

To continue learning about cannabinoid science, visit: [www.cannabinoidclinical.com](http://www.cannabinoidclinical.com)

## Cannabinoids

### Endocannabinoids

Natural chemicals produced by one's own body that target cannabinoid receptors in the brain and body<sup>17</sup>

### Phytocannabinoids

Over 100 naturally occurring chemicals in the cannabis plant<sup>18</sup>

The most well-understood are:

- **CBD**: Cannabidiol; CBD does not bind to cannabinoid receptors and does not produce a feeling of being “high”<sup>18,19</sup>
- **CBDA**: Cannabidiolic acid; this is how CBD occurs in the plant. Heat converts CBDA to CBD.<sup>3,18</sup>
- **CBDV**: Cannabidivarin; produced from cannabidivarinic acid (CBVA)<sup>20</sup>
- **THC**:  $\Delta^9$ -tetrahydrocannabinol; THC is linked with the feelings of being “high” due to its activity at cannabinoid receptors<sup>19</sup>
- **THCA**:  $\Delta^1$ -tetrahydrocannabinolic acid A; this is how THC occurs in the cannabis plant. Heat converts THCA to THC.<sup>3,21</sup>
- **THCV**: Tetrahydrocannabivarin; produced from tetrahydrocannabivarinic acid (THCVA)<sup>20</sup>

### Man-made Cannabinoids

Cannabinoids made in the laboratory to mimic the endocannabinoids or phytocannabinoids<sup>17</sup>