



## Marijuana, THC, CBD – Do you Know the Facts?

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**Received:** October 10, 2018; **Published:** November 16, 2018

That may be a hard question to answer because we are learning more and more as science and researchers continue to explore and examine. But let's look at what we have so far.

First off, we recognize how trendy wholistic medicine is when it comes to food and herbs. We are constantly witnessing cycles of a given food or herb that is supposed to be the "be all and end all". People get on the "band-wagon" and start claiming and preaching all kinds of things – which is too bad, but it is the basis of marketing as we know it.

There are a huge number of studies that are just down right, "crappy". Poor research design and analysis. Poor identification of both symptoms and compounds utilized. Which of course, leads to all kinds of inappropriate conclusions.

### This is what we currently have

#### Classification of the plant

1. Historically we had three major divisions: Cannabis indica (indica means grown in India); C. sativa (grown in the west) and C. ruderalis (grown in Eastern Europe and Russia).
2. Categorization has been controversial since the 1700s and still is today.
  - a. Initially Cannabis was included in the same genus as Stinging Nettles (*Urtica dioica*).
  - b. Then it was transferred to Hops (*Humulus*).
  - c. Now the family is Cannabaceae.
3. In recent western society, Cannabis was recognized as either hemp or marijuana but today that separation is meaningless as there are so many cross strains.
4. Today the division is not based on genetics but rather on the amount of THC.
  - a. If less than 0.3% then it is considered hemp.
  - b. If more than it is considered marijuana.

#### Compounds found in the plant

In general, the stem, leaf and flower have the following compounds:

- a) **Cannabis leaf and flower:** fiber, polyphenol/flavonoids, 9 amino acids, magnesium, calcium, phosphorus, terpenes, cannabinoids
- b) **Cannabis stem:** highest fiber content
- c) **Cannabis root:** least studied currently, but used historically topically for pain
- d) **Hemp seeds and oil:**
  - i. Full range of amino acids – but hugely dependent on the soil it's grown in as it absorbs all the toxins: hi arginine (NO)
  - ii. Volatile terpenes and sesquiterpenes (i.e., linalool, terpinolene=sedative effect vs limonene, caryophyllene=energizing effect)
  - iii. Polyphenols/Flavonoids, anti-oxidants, omega 3 (alpha-linolenic acid) and 6 fatty acids (linoleic and gamma linolenic acid), Vit E, phosphorus, potassium, sodium, magnesium, sulfur, calcium, iron, zinc.

There are over 113 cannabinoids found in cannabis:

- a. Cannabidiol (CBD), cannabinol (CBN), cannabigerol (CBG); CBC, CBL, CBV, THC, THCA, THCV, etc. Each of the above are categories.
- b. Psychoactive THC – is it THC 1, THC 2, THC 3...THC 10?
- c. THC delta 8 and THC delta 9 – most studied (delta=where the double bond occurs).
- d. THC 8 is more sedative, effects different receptors; has different results THC 9 (most abundant) – some suggestion that 8=daytime, 9=nighttime;
- e. CBD – boosts mood and eases anxiety without physical/cognitive impairment; prevents psychoactive reaction of THC (plants with hi THC have low CBD and visa versa).
- f. Resins contain the aroma compounds called terpenes. It is currently suggested that they may make a big difference

regarding how the body deals with the compounds the cannabinoids.

- g. Interaction between the resins/terpenes and THC/CBD ratio affect the impact on the body and create different results.
- h. Synthetic dronabinol does not contain CBD, CBN or other cannabinoids.

THC is also found in several other foods/herbs?

- a. Black pepper (also anti-inflammatory and metabolic compounds).
- b. Rosemary (BCP like pepper).
- c. Kava (has a similar compound that binds to the THC receptors).
- d. Cacao (1400 compounds also include anandamide (another cannabinoid that binds to CB1 receptors). and other mood boosting neurotransmitters).
- e. Black truffles (a mushroom that also has anandamide that regulates mood and pain, etc.).
- f. Echinacea (similar compounds that also relieve anxiety, headaches, arthritis, etc).
- g. Flax seeds (similar but less than hemp seeds).

Different cannabinoid compounds have different claims and different side effects:

- a. **THC 9:** mild-mod pain relief; relaxation, stimulates appetite, anti-depressant, CB 1 receptors.
- b. Insomnia, schizophrenia, anxiety.
- c. **THC 8:** anti-anxiety, anti-bacterial, anti-inflammatory, anti-oxidant, improves appetite, provokes apoptosis in breast cell cancers; pain relief; both CB1 and 2 receptors.
- d. Blocks the psychoactive effect of THC9.
- e. **CBD:** MS pain; epilepsy, pain relief due to muscle spasticity, inflammation.
- f. Sleepiness, decreased appetite, diarrhea, fatigue, malaise, weakness, sleep issues and fatigue.
- g. Doesn't have the intoxicating effect of THC and blocks psychoactive effect of THC9.
- h. **CBN:** reduces heart rate.
- i. Psychoactive, dizziness, disorientation, grogginess.
- j. **CBC:** pain relief, inflammation, reduces intraocular pressure (glaucoma), anti-biotic, anti-platelet.

Controversies include issues regarding:

- a. Creating addiction.
- b. Provoking strokes.
- c. Provoking or enhancing schizophrenia.
- d. THC 9 provoking cancer.
- e. Causes cognitive issues especially with memory.
- f. Unproven claims.
  - i. It doesn't stop manic episodes in bipolars.
  - ii. Doesn't improve Huntington's disease.
  - iii. Doesn't improve Parkinson's.
  - iv. Works with some types of epilepsy.

Some of the controversies are due to these issues:

- a. Is it THC delta 8 or delta 9.
- b. Is it CBD, CBN, etc or THC8, 9.
- c. Body metabolism, enzymes, pH.
- d. GMO fillers and compounds.
- e. Pesticides and other toxins.
- f. Quality is of huge importance!
  - I. Soil it is grown in – cannabis will absorb almost anything.
  - II. How it is harvested.
  - III. How it is processed.

Another issue may relate to the isolation of the compound used. Nothing in the universe operates in isolation, including our bodies. The body is designed to utilize whole, real, food, herbs, oils and herbal tinctures that give the full array of phytonutrients, minerals and vitamins, fibers, enzymes, omegas, etc that are required to effectively metabolize and utilize all the interactive compounds. Our bodies were not designed to work with isolated compounds. Hemp oil combines all the compounds and needs to be of the highest quality.

While there is a good argument that sometimes a patient needs to take a given supplement in order to get enough of the compound required, but ultimately, the body doesn't work that way.

Quality, identification or active compounds and additional ingredients, and dosing are huge variables that need to be researched prior to recommendation [1-7].

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**Volume 2 Issue 9 December 2018**

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