

The Family Cannabaceae, or making “sens” out of CBD, THC, and hemp the future of THC in Workers Compensation

Donato Borrillo MD JD

Certificate to Recommend (CTR) under the Ohio Medical Marijuana Control Program

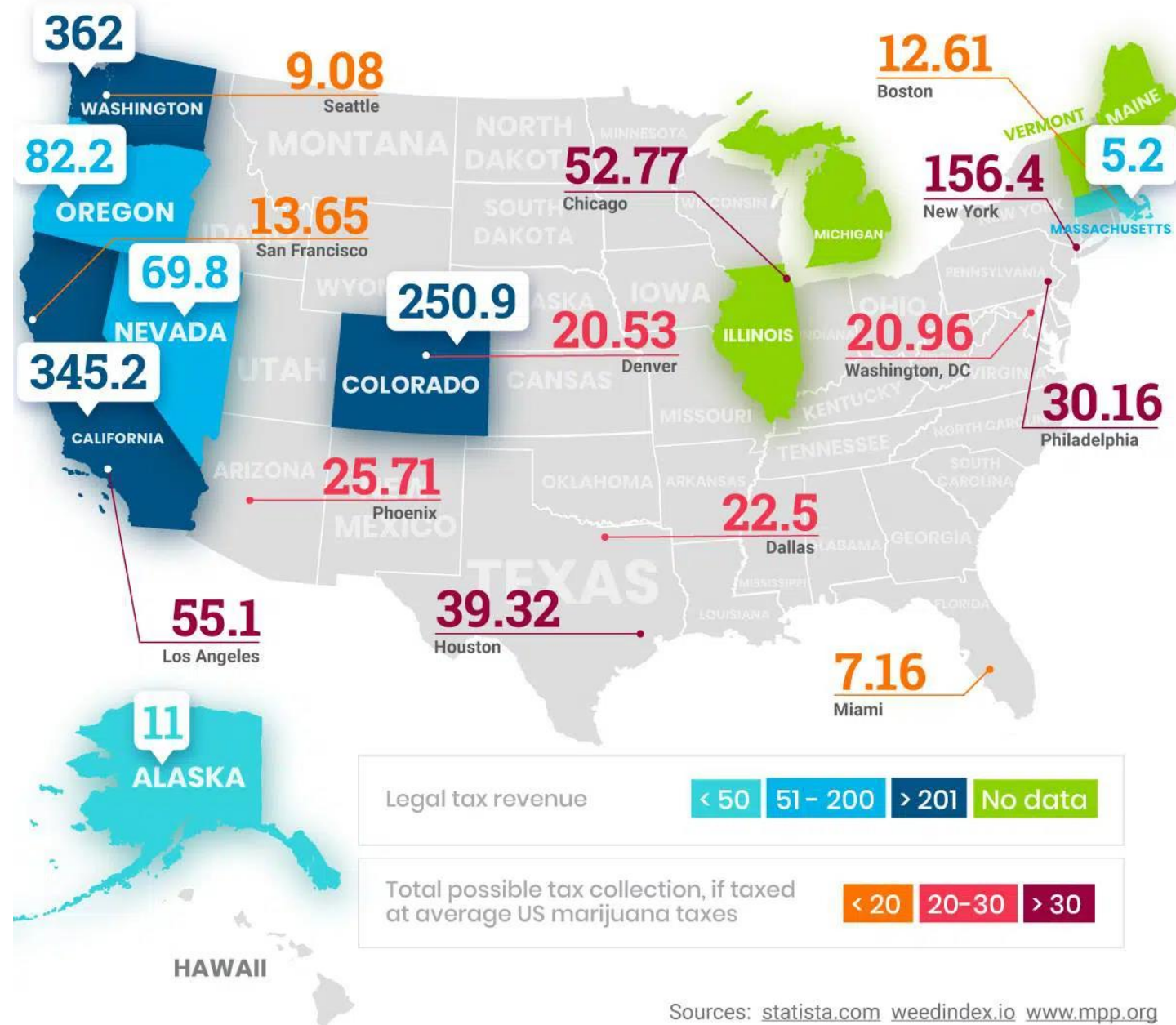
Certified Medical Review Officer

Of Counsel, Zoll and Kranz LLC

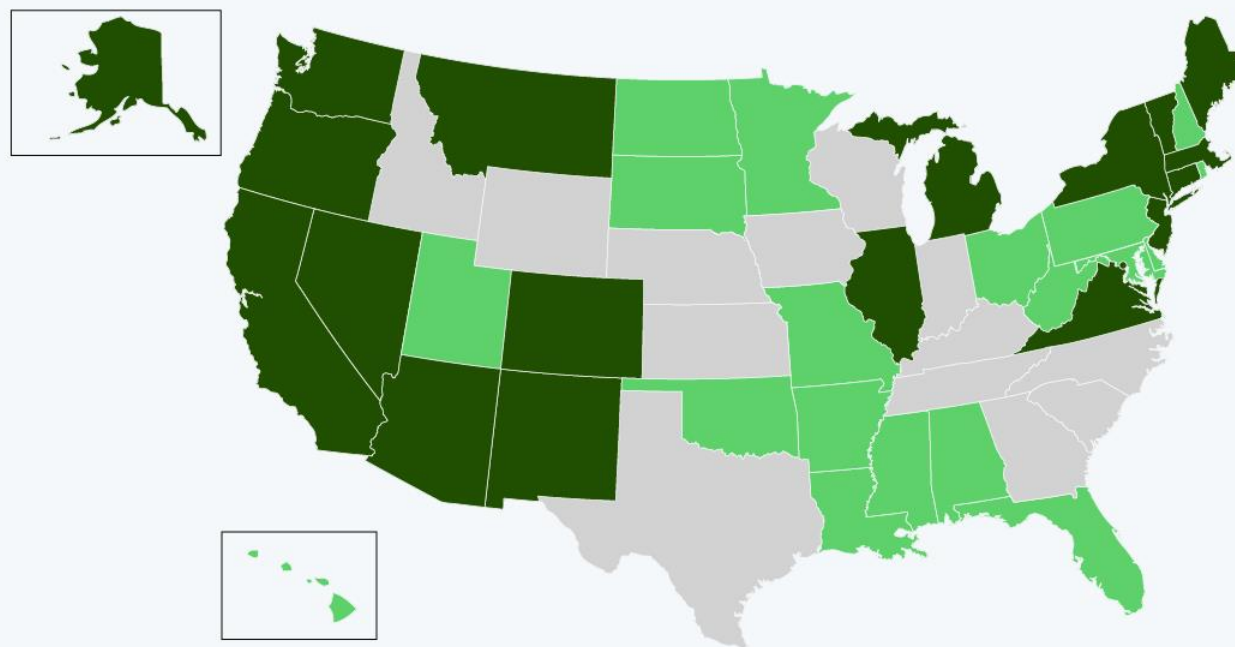
August 18, 2022, Gateway Continuing Education

Marijuana Tax Revenue by State

Numbers in millions US Dollars



■ Legal recreational & medical use ■ Medical use only



Sources: NORML

THC, the problem

The disconnect is between Federal and State Laws regarding the use of Marijuana for medical or recreational purposes.

Anyone having to comply with Federal laws or regulations can have a zero tolerance for any Marijuana use.

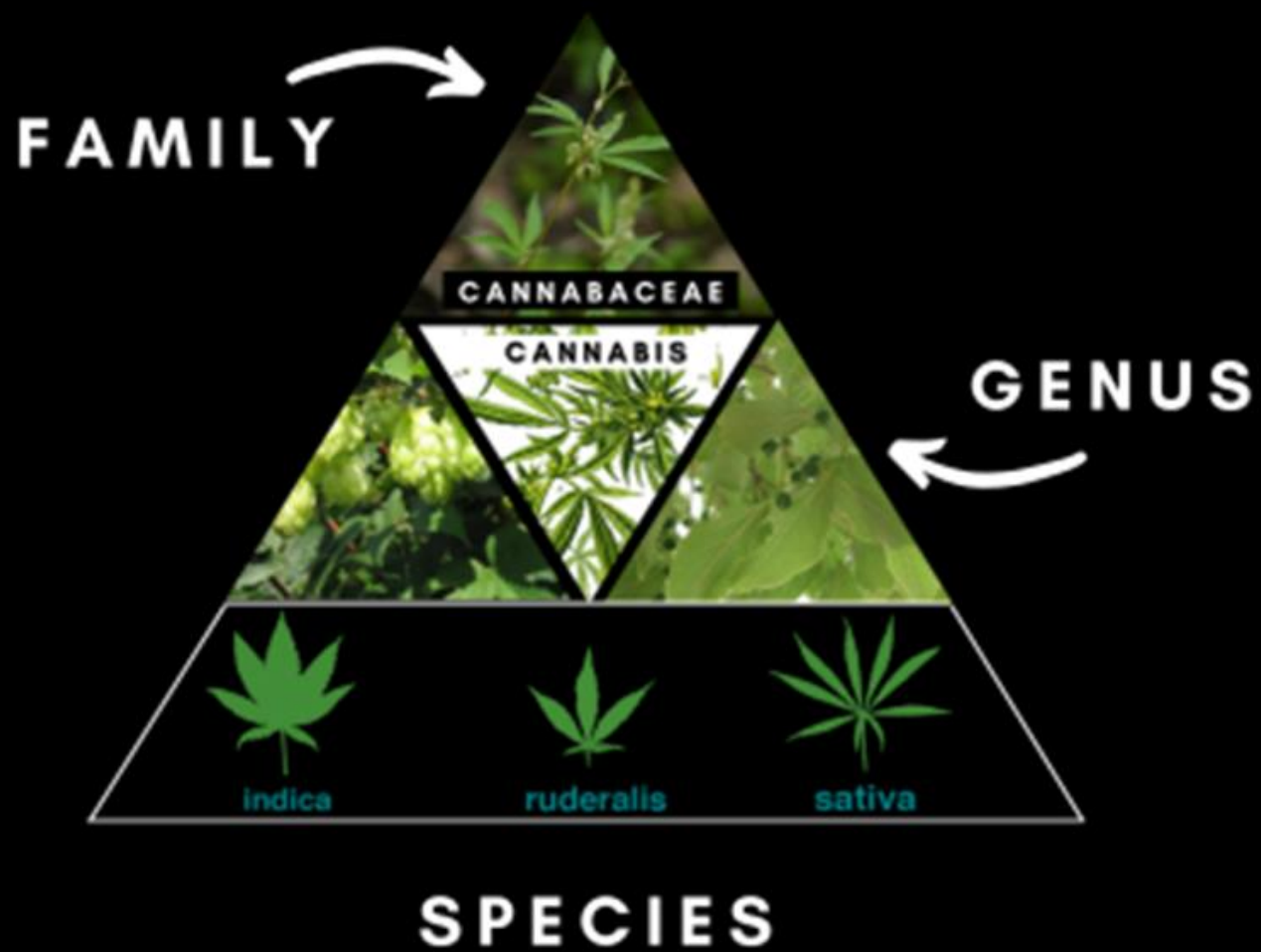
Marijuana is still considered a Schedule I drug under Federal law.

The FDA is not likely going to reschedule THC as a Schedule II, although they have allowed more research to occur.

One of the issues creating confusion is that Marijuana does have some therapeutic/medical benefits and there are 483 active chemicals in Marijuana.

Legalization of Hemp in all but 2 states. Oklahoma and Idaho. Hemp can contain up to .3% THC.

THE CANNABIS FAMILY HIERARCHY



KINGDOM	CLADES	ORDER	FAMILY	GENUS	SPECIES
Plantae <i>green plants</i>	Tracheophytes └─ Angiosperms └─ Eudicots └─ Rosids	Rosales	Cannabaceae	Humulus Cannabis	<i>Humulus lupulus</i> <i>Cannabis sativa</i>

includes roses, apples, strawberries, plums, peaches, almonds, pears & more...

climbing plants with petalless flowers

Genus: Tremula Aphananthe Parasponia **Cannabis** Gironniera Humulus Celtis

Species:

Cannabis Ruderalis

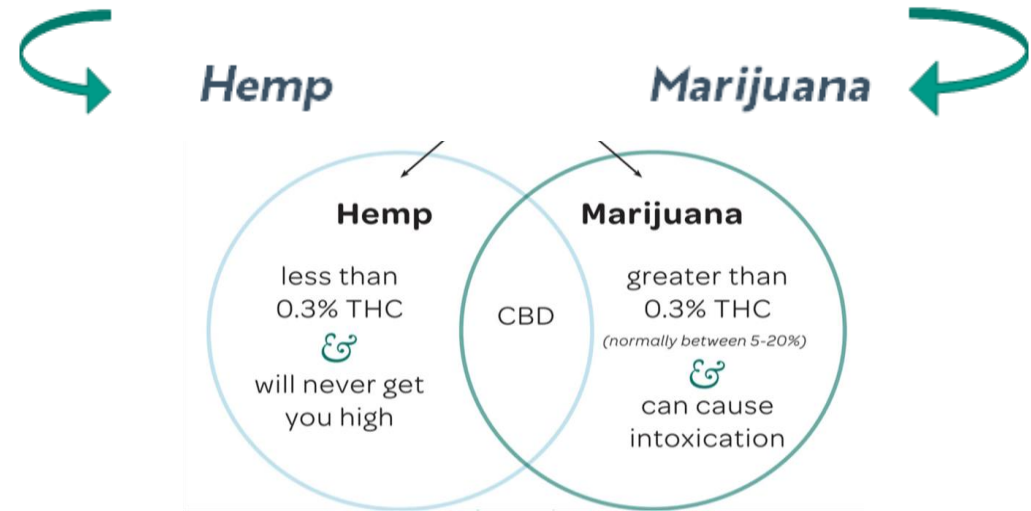
Cannabis Sativa

Cannabis Indica

Contains less than 0.2% THC

Contains more than 0.2% THC

Categories simplified:

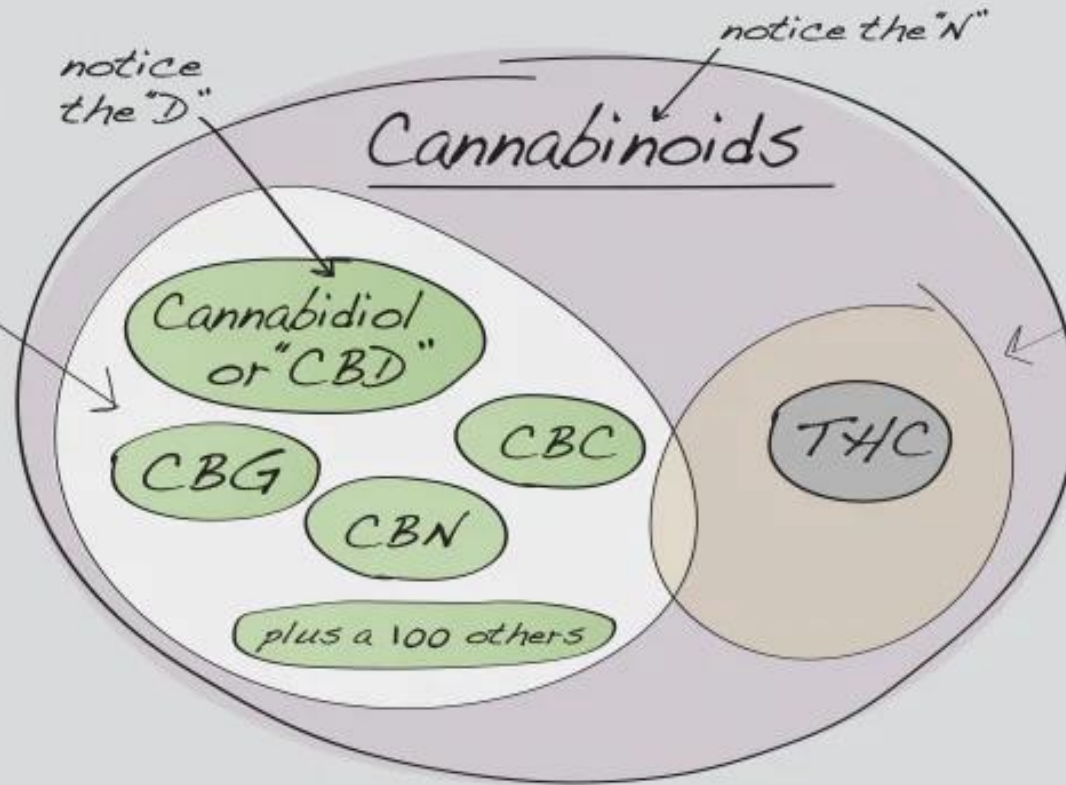
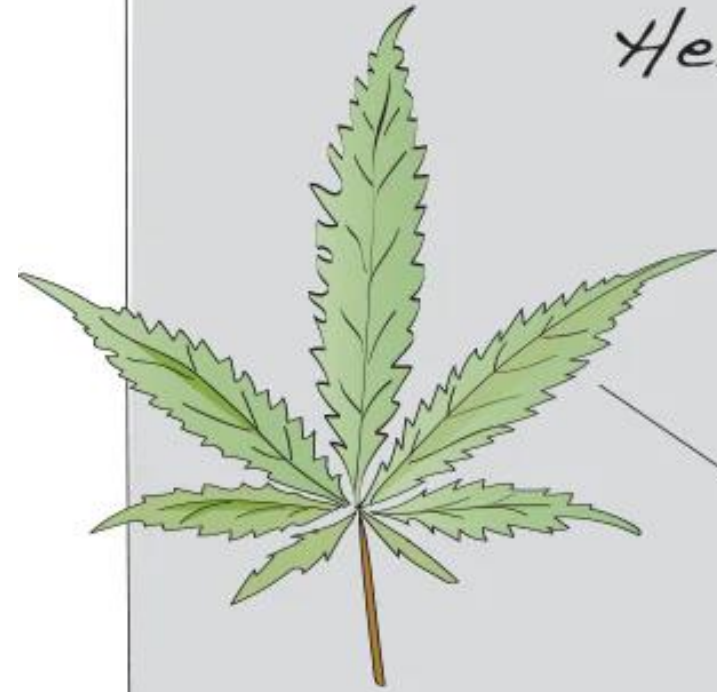


Cannabis Plants

Hemp Plant

vs.

Marijuana Plant



CANNABIS HAS OVER **100**
CANNABINOIDS



HEMP

contains

0.3%

THC

(OR LESS)

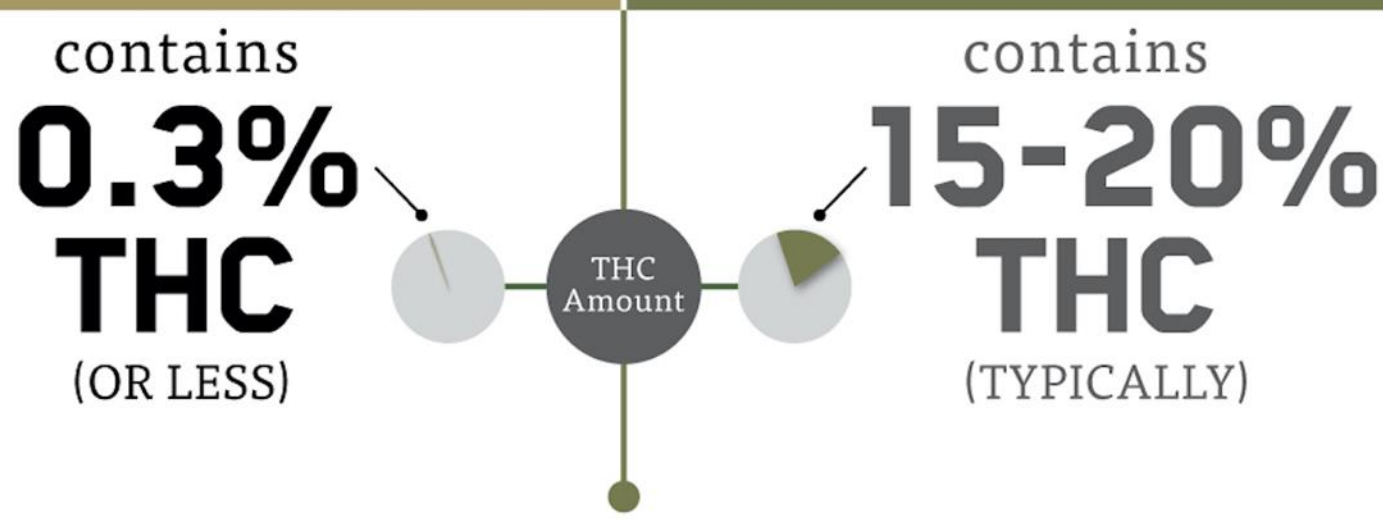
MARIJUANA

contains

15-20%

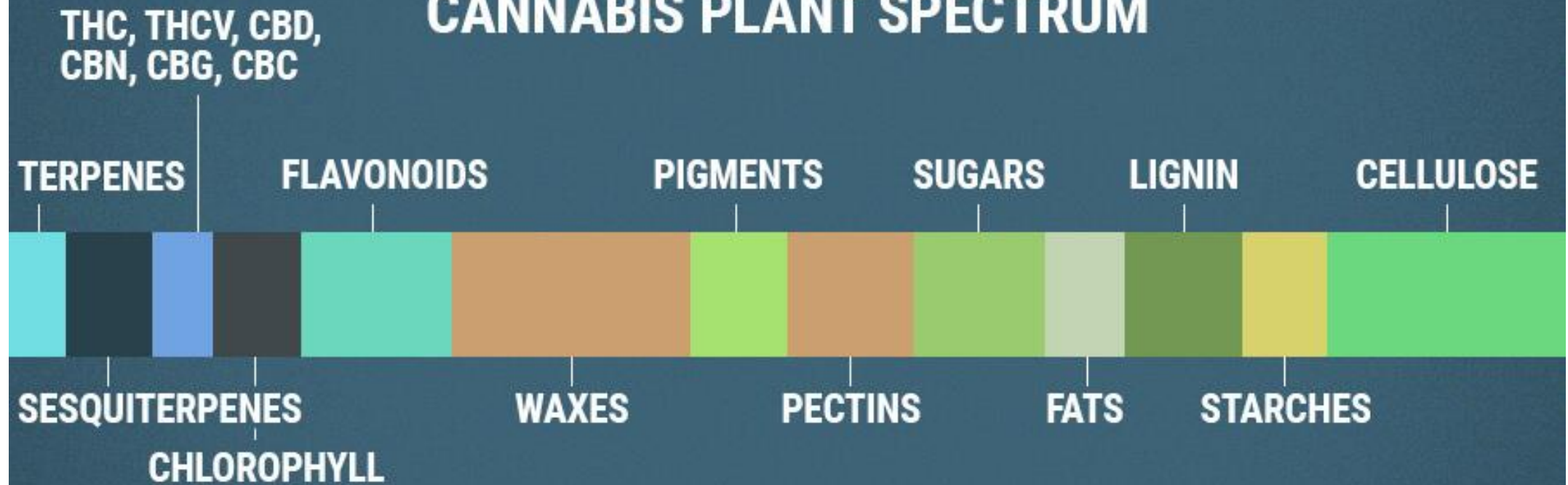
THC

(TYPICALLY)

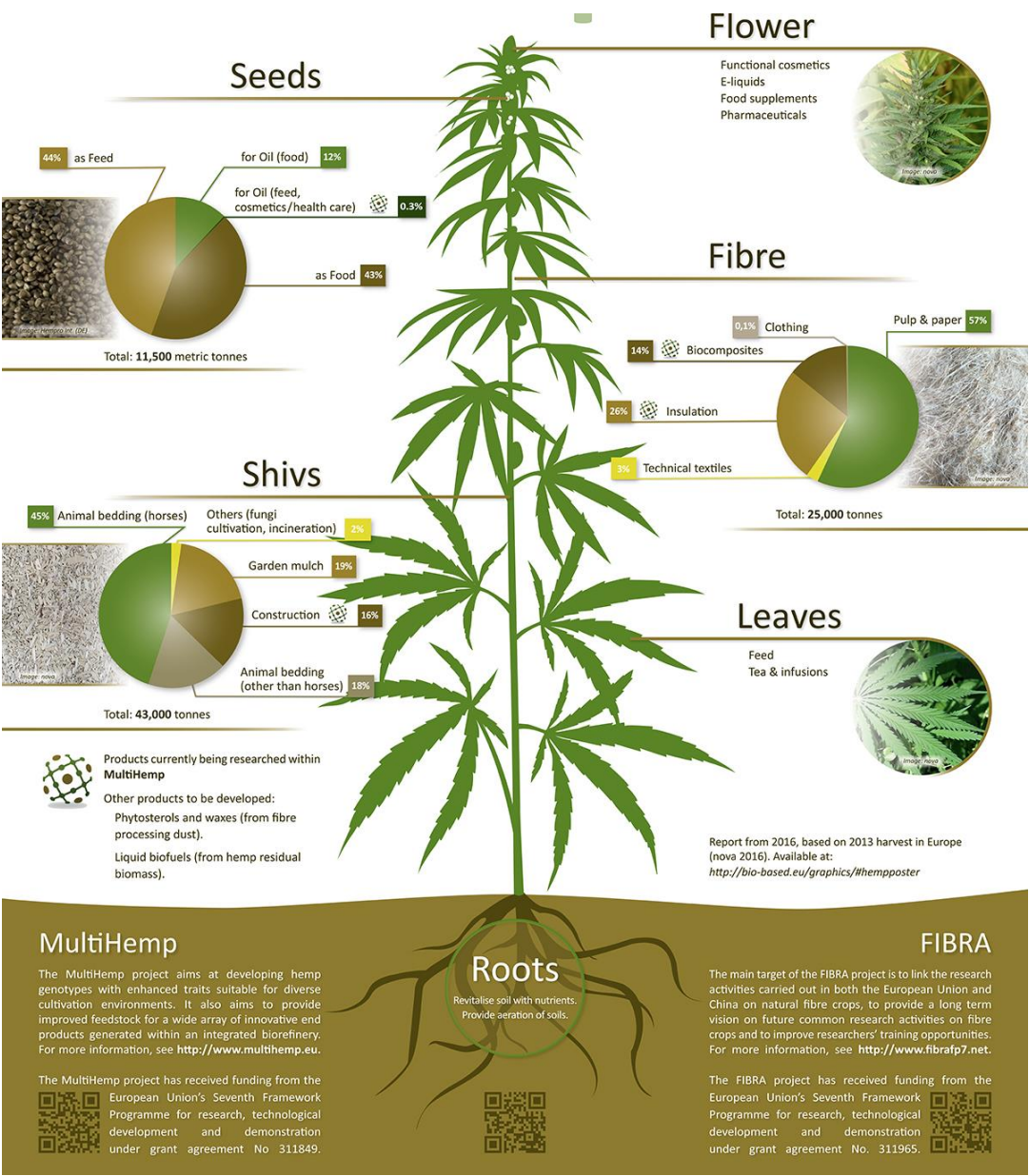
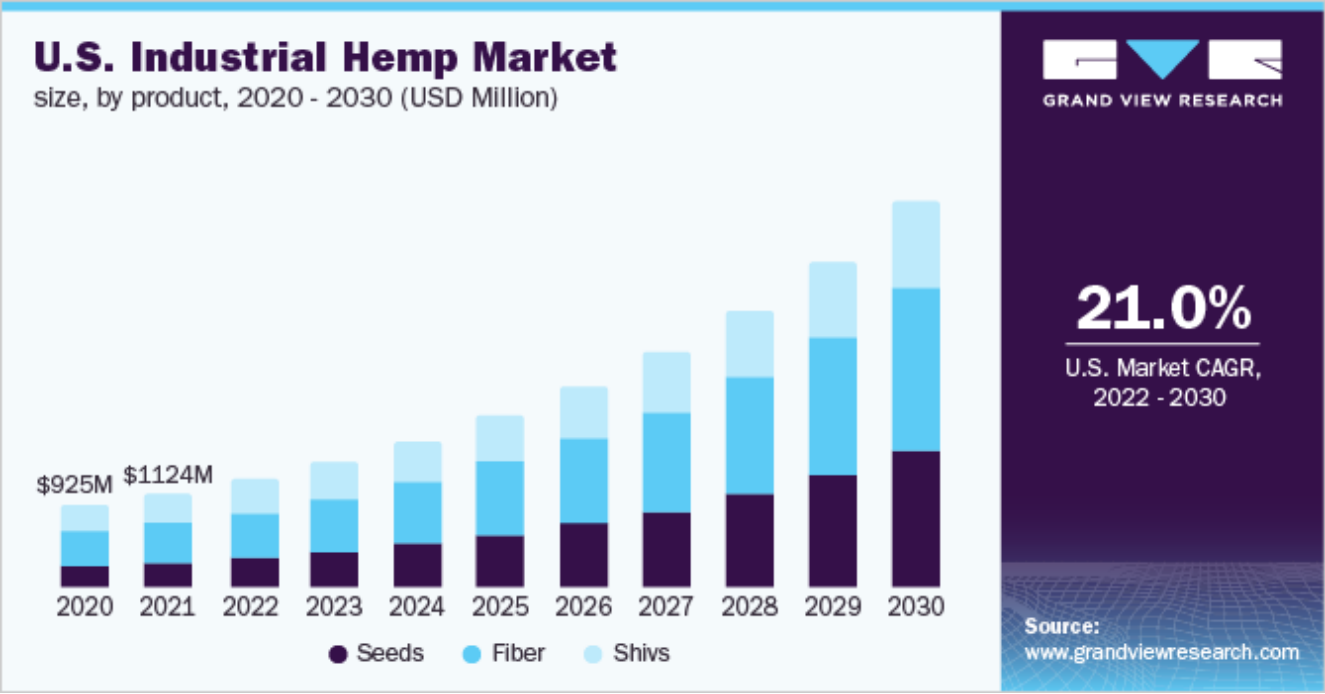


THC
Amount

CANNABIS PLANT SPECTRUM



Hemp a natural bio-refinery

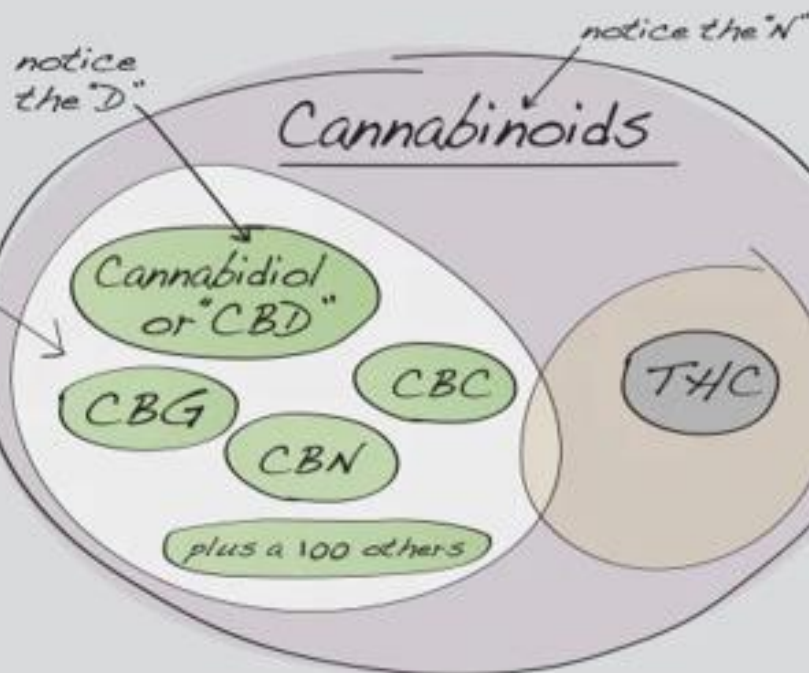
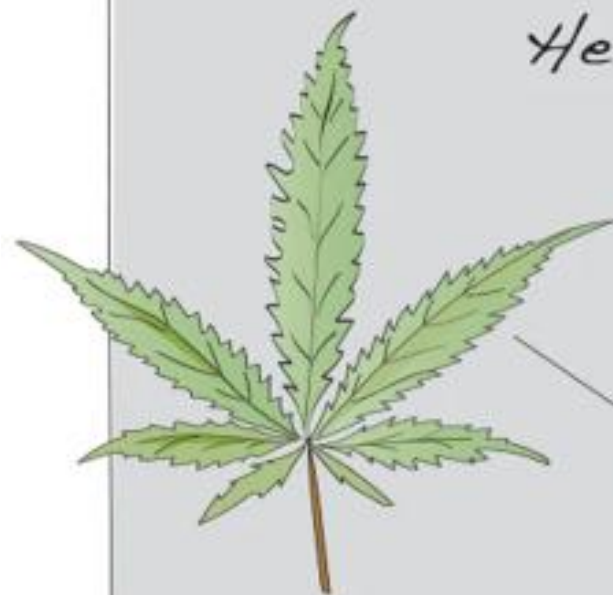


Cannabis Plants

Hemp Plant

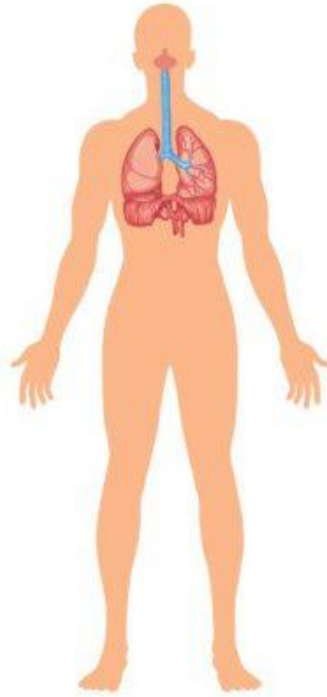
vs.

Marijuana Plant





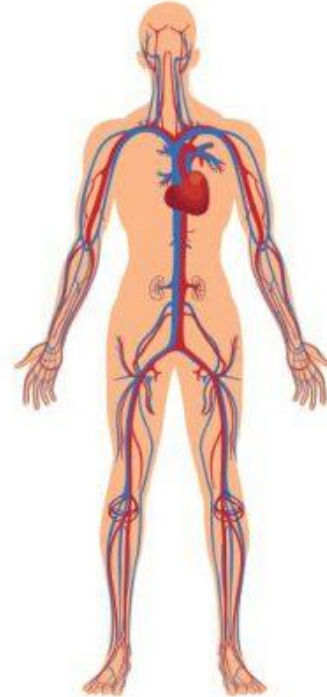
Skeletal System



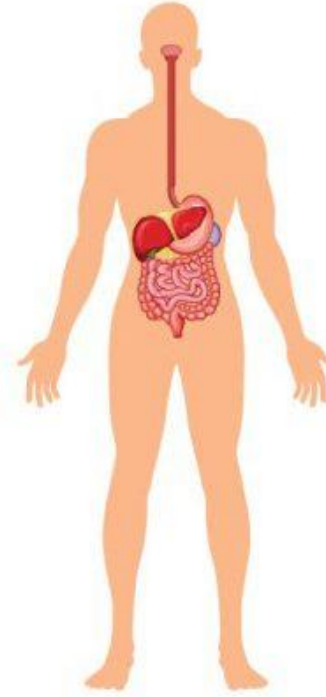
Respiratory System



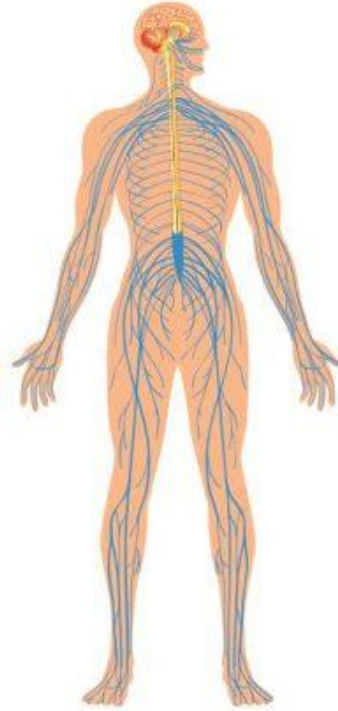
Muscular System



Circulatory System



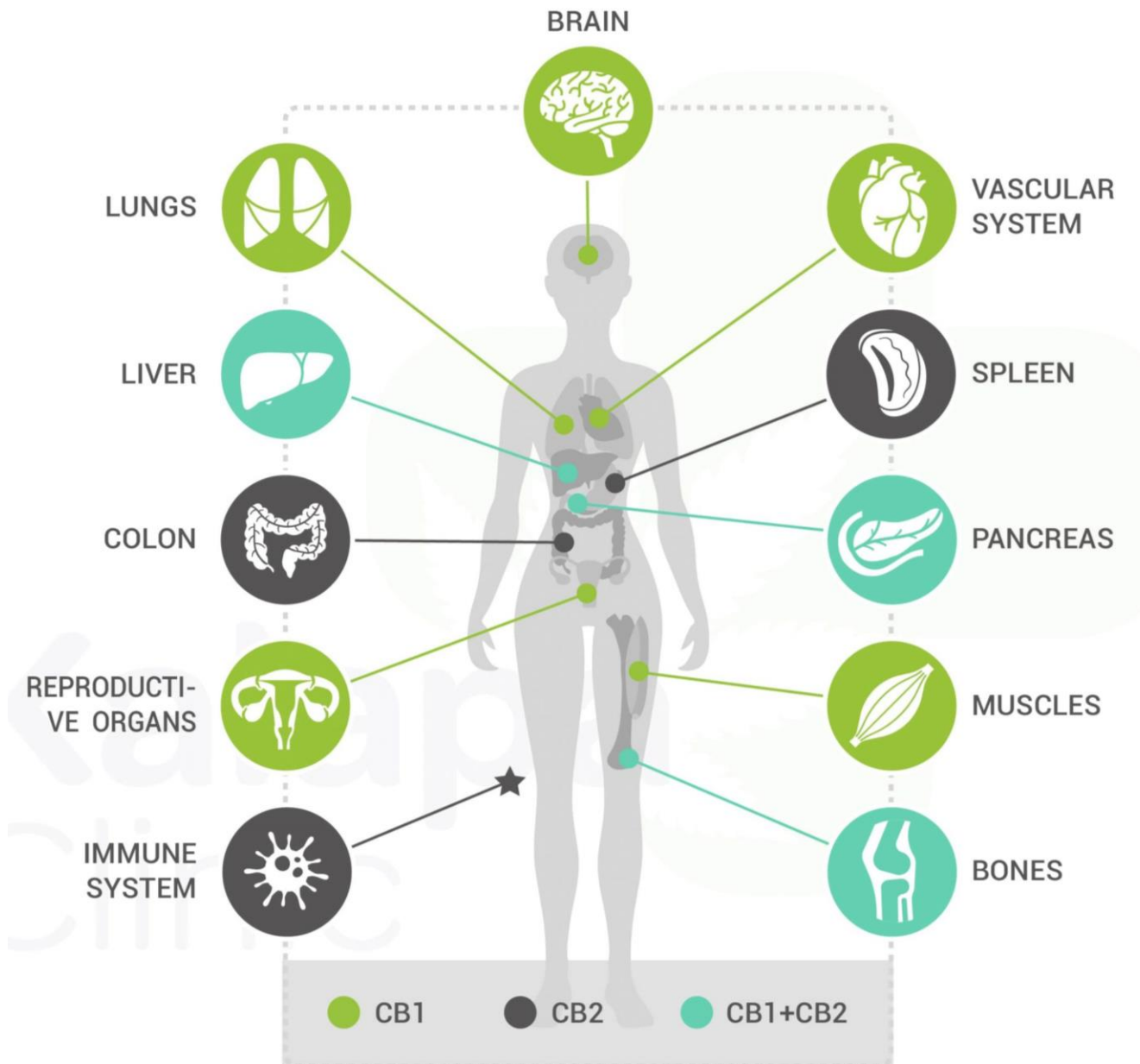
Digestive System



Nervous System



Endocannabinoid System



[illegible]

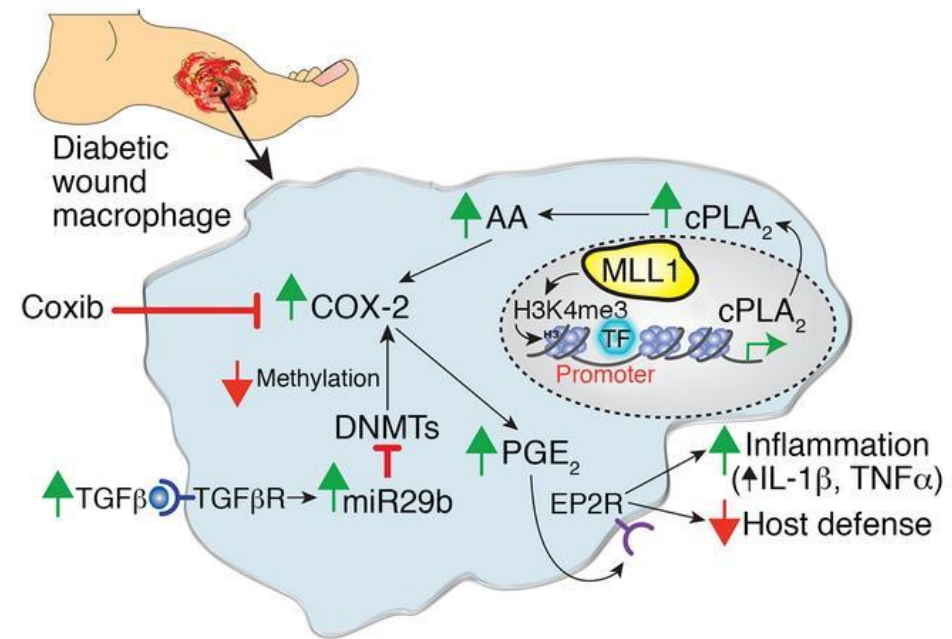
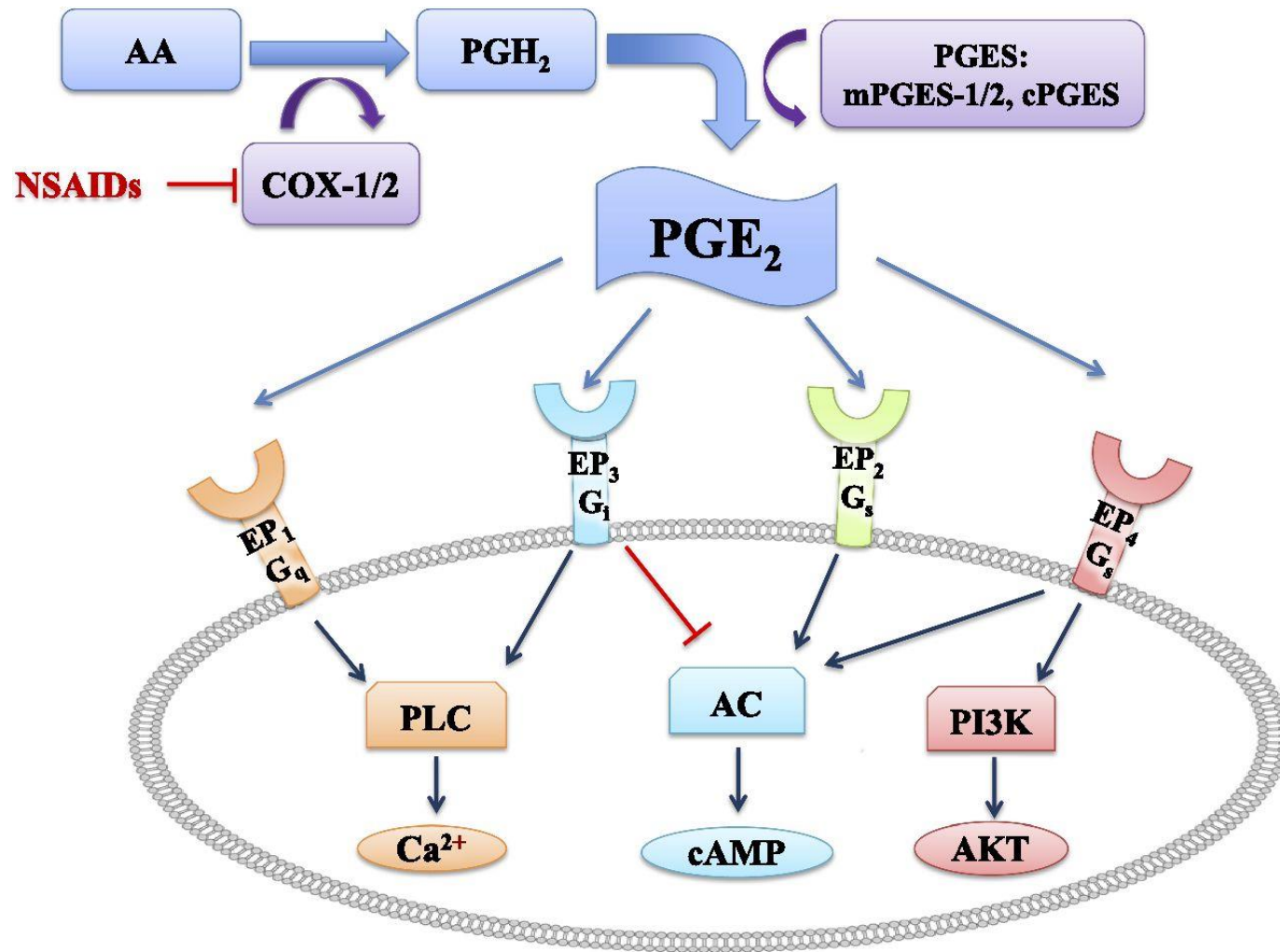
Kale, lettuce, tomatoes, apples, grapes, berries, garlic, scallions, and onions

Parsley, thyme, celery, hot peppers,
and green olives

Citrus fruits

Soybeans and other legumes

Cranberries, black currants, red grapes, merlot grapes, raspberries, strawberries, blueberries, bilberries, and blackberries



Flavonoids; a novel pilot study of anti-inflammatory and nociceptive properties

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TABLE 1. 30-day clinical response to HempFlavin.

	HempFlavin					
	300 mcg or 100 mcg/day		100 mcg/day		300 mcg/day	
	Clinical Response		Clinical Response		Clinical Response	
	Positive	Negative	Positive	Negative	Positive	Negative
Participants (percentage)	42 (91%)	4	6 (85%)	1	36 (92%)	3
Pain scale reported	8.5/10 to 1.6/10					

I. Introduction: Flavonoids, a group of natural substances with variable phenolic structures, are found in plants and over 5,000 have been structurally identified. The focus of developing cannabis-based medicinal products has largely centered around cannabidiol and trans- Δ^9 -tetrahydrocannabinol; however, the plant contains an abundance of other metabolites including flavonoids. The present paper focuses on the effect of flavonoids, specifically the Cannflavins, which make up less than 0.15% of the fresh weight of cannabis. Barrett and colleagues identified Cannflavins A and B and verified that these prenylated flavonoids could inhibit the production of PGE2 in human rheumatoid synovial cells and provide anti-inflammatory benefits that were approximately thirty times more effective than aspirin. The usual outcome of the acute inflammatory program is successful resolution and repair of tissue damage, rather than persistence and dysfunction of the inflammatory response, which can lead to scarring and loss of organ function. It may be anticipated, therefore, that failure of acute inflammation to resolve may predispose to autoimmunity, chronic dysplastic inflammation, and excessive tissue damage. **The clinical response to prostaglandin inhibition by HempFlavin in acute and chronic pain patients is the basis for this pilot study.**

II. Materials and methods: Doctors Hemp Solutions, Labelle, Florida, utilizing a proprietary method for extraction from a 2,000-year-old Heirloom Hemp Variety, isolated Cannflavin A, B, & C, Chlorophyll, and lesser constituents. This tincture has no tetrahydrocannabinol or cannabinoid contaminants. The tincture has not been evaluated by the U.S. Food and Drug Administration for efficacy or safety and is considered a dietary supplement distributed under the tradename HempFlavin. Dosing regimens were 300 mcg/day or 100 mcg/day; with pre-study, 10 and 30 interviews. Sixty-five adult volunteer patients randomly generated; forty-six completed the full study protocol without adverse effects. Of forty-six responders, twenty-four were female, and twenty-two male; mean age was sixty with a range of thirty-one to ninety years of age. Participants suffered from a variety of osteoarthritic ailments of spine, large and small joints.

III. Results: Table 1, of the forty-six respondents, ninety-one percent (91%) reported a decrease in pain (8.5/10 to 1.6/10 average) and increase in activity with daily HempFlavin use, dosed at 300 mcg/day and 100 mcg/day, after 30 days of supplement use. A slightly better (92%) response to the 300 mcg/day dosing was observed.

IV. Discussion: This pilot study identifies a significant clinical response to HempFlavin, with a decrease in inflammatory related symptoms.

Given the current literature, more likely than not, Cannflavin A and B are inhibiting prostaglandin E2 release from joint synovial cells with a potency some 30 times that of aspirin.

A further robust study is recommended.

Literature

- Barrett and colleagues identified Cannflavins A and B
 - these prenylated flavonoids inhibit the production of PGE2 in human rheumatoid synovial cells
 - provide anti-inflammatory benefits that were approximately thirty times more effective than aspirin
 - 1985. Isolation from Cannabis sativa L. of cann-flavin-a novel inhibitor of prostaglandin production. Biochem. Pharmacol. 34, 2019-2024, see *also*, Barrett et al., 1986. Cannflavin A and B, prenylated flavones from Cannabis sativa L. Experientia 42, 452-453.
- Werz and colleagues
 - The basis for their potent anti-inflammatory properties was that Cannflavins A and B act to inhibit the in vivo production of two pro-inflammatory mediators, prostaglandin E2 and the leukotrienes
 - Werz et al., 2014. Cannflavins from hemp, a novel cannabinoid-free hemp food product, target microsomal prostaglandin E2 synthase-1 and 5-lipoxygenase. Pharm. Nutr. 2, 53-60.

Materials and Methods

- Extraction from Hemp, isolated in 100 microgram per milliliter (mcg/ml) Cannflavin A, B, & C, Chlorophyll, and lesser constituents of Apigenin, Pelargonidin-3-O-glucoside, Baicalin, Vitexin, Beta Sitosterol, Wogonin, Chrysin, Rutin, Fisetin, Quercetin, Luteolin, Kaempferol, and Orientin.
- The tincture has zero (0) tetrahydrocannabinol (THC) and zero (0) cannabinoid.
- The tincture has not been evaluated by the U.S. Food and Drug Administration (FDA) for efficacy or safety and is considered a dietary supplement and is distributed under the tradename HempFlavin.
- Dosing is performed by the participants, utilizing a 1 milliliter (ml) dropper dispenser with 100 micrograms (mcg) per ml., participants were divided into two dosing regimens; a dosing of 300 mcg/day in the morning or 100 mcg/day in the morning was selected based on random assignment.
- Participants were contacted at 10 day and 30-day intervals, with a pre-study interview performed by this paper's author.

Materials and Methods cont.

- Sixty-five (65) adult volunteer patients were randomly generated for participation in the study
- Forty-six (46) or seventy percent (70%) completed the full study protocol of ten (10) and thirty (30) days
 - 24 were female, 22 male
 - Mean age 60, with range of 31 to 90
- Participants suffered from a variety of osteoarthritic ailments, both micro-trauma (e.g., DJD) and macro-trauma (e.g., MVA fractures) in origin.

TABLE 1. 30-day clinical response to HempFlavin.

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- No adverse effects
- The overall positive response rate, for decreased pain and increased function, was observed as ninety-one percent (91%).



Medical vs. Recreational Use of Marijuana

Medical use

In order to use Marijuana medically, the person must have a “qualifying medical condition”.

Recreational Use

The only requirement for recreational use is to be at least 21 years old just like alcohol.

Federally regulated employers are free to adopt a “zero tolerance” policy regarding the off duty use of Marijuana.

DOT

Hospitals-Medicare

Public Agencies

Non Federally regulated employers and licensing boards may want to take a more cautionary approach

Frequently Asked Employer Questions

- 1.** Can employers prohibit marijuana use during work hours.
- 2.** Can employers continue to test for Marijuana?
- 3.** What about off duty Marijuana consumption?
- 4.** What about medical Marijuana use in the workplace?

Before answering these questions, one must realize that Marijuana is a unique drug

THC is fat soluble...

The brain is the fattiest tissue in the body...

Heavy use can lead to thinking errors and difficulty learning and retaining information...

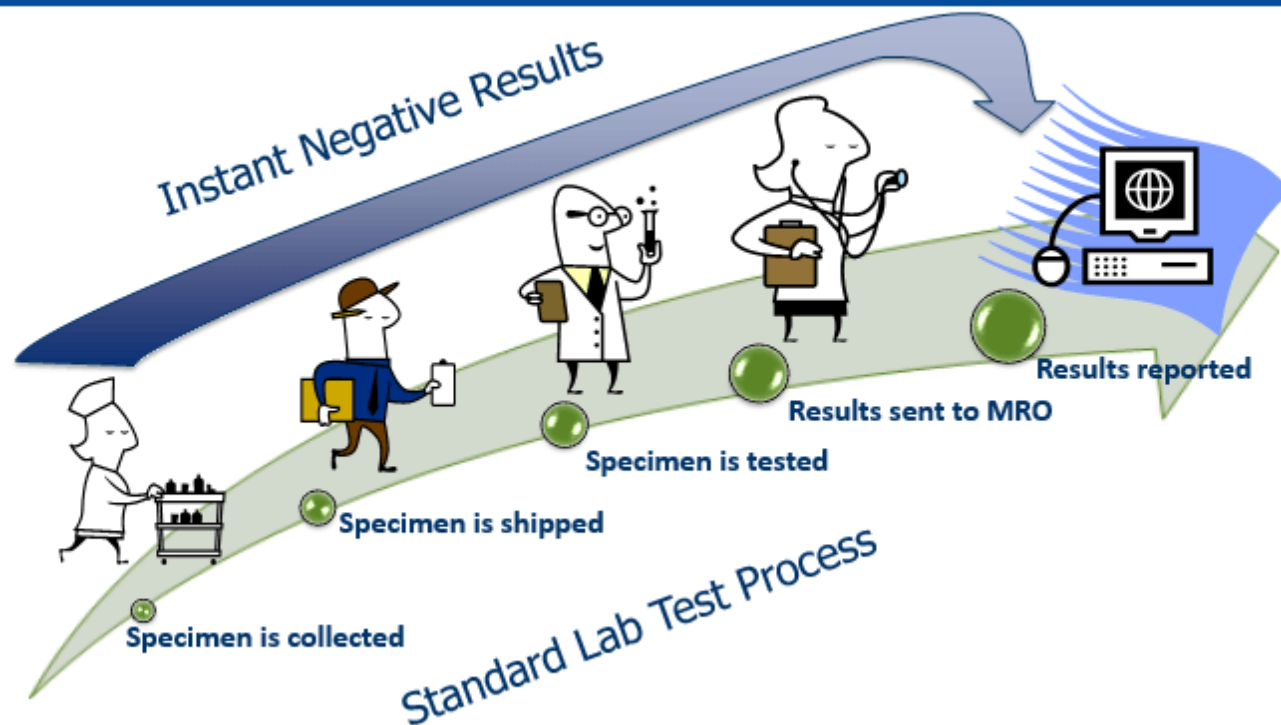
Changes are much more subtle than other drugs...Which in some ways makes it more dangerous...

Employer/Supervisor Responsibility

Under Federal and State labor laws employers are obligated to maintain a safe work environment for all employees.

Anyone acting as an “agent” for the employer must address employees that present for work and appear to be questionably “fit for duty” for whatever reason.

Instant vs. Standard Lab



Pre-Employment

- Is the most common type of drug screening.
- Courts have generally ruled that pre-employment drug screens for illegal drugs do not constitute medical examinations under the Americans with Disabilities Act.
- Such screens should be administered after a conditional offer of employment has been made because the employer may need to ask job applicants follow-up medical questions based on the results.
- "Testing an applicant is different than testing an employee, as they don't work for you yet."

Symptoms of Possible Marijuana Use

1. Difficulty staying focused on task.
2. Minimizing complacency.
3. Distortion of time and space.
4. Isolating.
5. Confusion.
6. Short and long term memory problems.
7. Disheveled appearance.
8. Inappropriate laughter.

Employers Concern

When an employee uses marijuana medically or recreationally are they “fit for duty”?

Currently science is unable to define when someone using Marijuana is “impaired”

The Impairment Issue

Employers and Law Enforcement are prevailing in challenges when they can show documented evidence of symptoms of impairment that are consistent with CURRENT Marijuana intoxication.

Post accident

Under Ohio law, a positive, post-accident drug test raises only a “rebuttable presumption” that the injured worker’s use of drugs or alcohol proximately caused the industrial injury. However, the presumption is triggered only if:

- 1.The employer must have previously posted written notice that a positive test may disqualify the employee from benefits.
- 2.The detected levels of alcohol or other controlled substances must have been above the applicable threshold. Alternatively, if the injured worker refuses to submit to a test, the presumption will be triggered.
- 3.A post accident test will qualify for the presumption only where: (1) the employer had reasonable cause to suspect that the employee was under the influence of drugs or alcohol at the time of the accident; (2) the testing was done at the request of a police officer; or 3) the testing was done at the request of a licensed physician, who is not otherwise employed by the employer.



Questions?

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