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HEMP CBD GUIDE

**SHORT PRACTICAL GUIDE
TO USING HEMP OIL PRODUCTS**

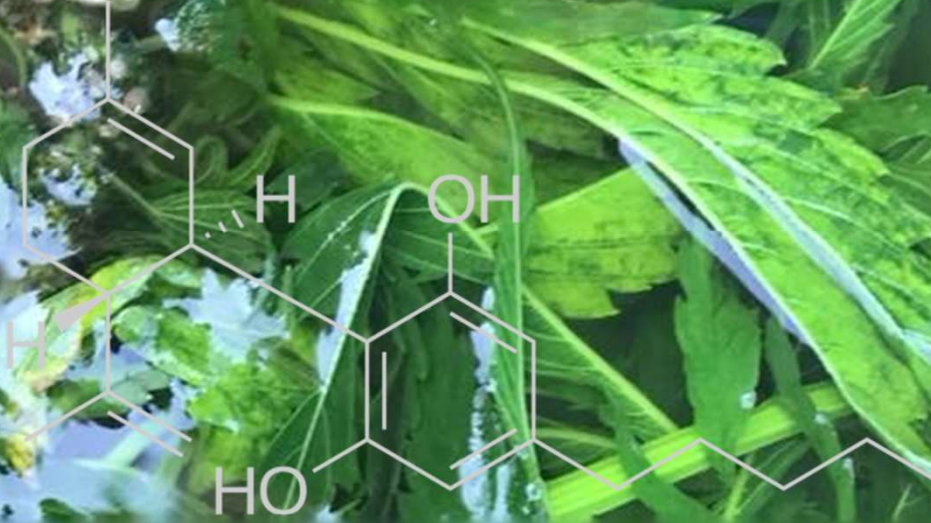
FOR HEALTHCARE PRACTITIONERS

**By Dr. Jokūbas Žiburkus, PhD
Dr. Jaime Claudio, MD**

July 22nd, 2018














MediTaurus LLC

• CBD (cannabidiol)



ENDOCANNABINOID SYSTEM

canntelligence™

Brain Neural regulation Memory  CB1 >> CB2		Heart Inflammatory response Heartbeat  CB1
Lungs Bronchial response  CB1-CB2		Stomach Inflammatory response Acid reflux Nausea  CB1
Liver Metabolism  CB1		Pancreas Insulin secretion  CB1-CB2
Intestines Inflammatory Digestive responses  CB1		Spleen Immune response  CB2
Kidneys Inflammatory and Blood vessel response  CB1		Bone marrow Immune response  CB2
Bladder Bladder control  CB1		
Skin  CB1-CB2		

Cannabinoid Receptors

Cannabinoid receptor 1 (CB1)
 > Anandamide and THC bind
 > THC causes the 'high' effect
 > Primarily found in the brain

Cannabinoid receptor 2 (CB2)
 > Immune-derived cells
 > Most concentrated in the spleen

Endocannabinoids
 Cannabinoid molecules synthesized endogenously based on demand.

CCCCCCCCCCCCCCCC(=O)NCCO Anandamide or AEA (arachidonoyl ethanolamide)

CCCC(O)O

Phytocannabinoids
 Cannabinoid molecules synthesized by cannabis plants

THC - Δ9-Tetrahydrocannabinol
 THCA - Tetrahydrocannabinolic acid
 CBD - Cannabidiol
 CBDA - Cannabidiolic acid
 CBG - Cannabigerol
 CBGA - Cannabigeronic acid
 CBDV - Cannabivarin



THE ENDOCANNABINOID SYSTEM **BODY**

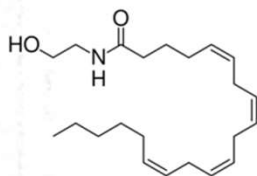
•**The endocannabinoid system (ECS)** is a regulatory body system that consists of cannabinoid molecules synthesized internally and called endocannabinoids, and their target receptors – called cannabinoid receptors (CB) proteins. See Graphic.

•**Endocannabinoids - Anandamide and 2-Arachidonoylglycerol (2-AG)** are endogenous molecules that were discovered in the 1990's. Endocannabinoids are produced and released on demand, during heightened levels of stress on the brain or the body. Endocannabinoids are lipid soluble and are not stored in vesicles, like traditional neurotransmitters. When endocannabinoids are released in the brain, they travel in a retrograde way (from post-synaptic to pre-synaptic side) and target cannabinoid receptors.

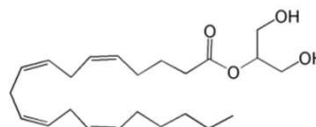
•**Endocannabinoid deficiencies** are thought to be disorders that stem from the lack of proper ECS functions. These disorders are usually hyperalgesia: Migraines, fibromyalgia, irritable bowel syndrome, neurotransmitter disorders, and epilepsies (Dr. Ethan Russo).



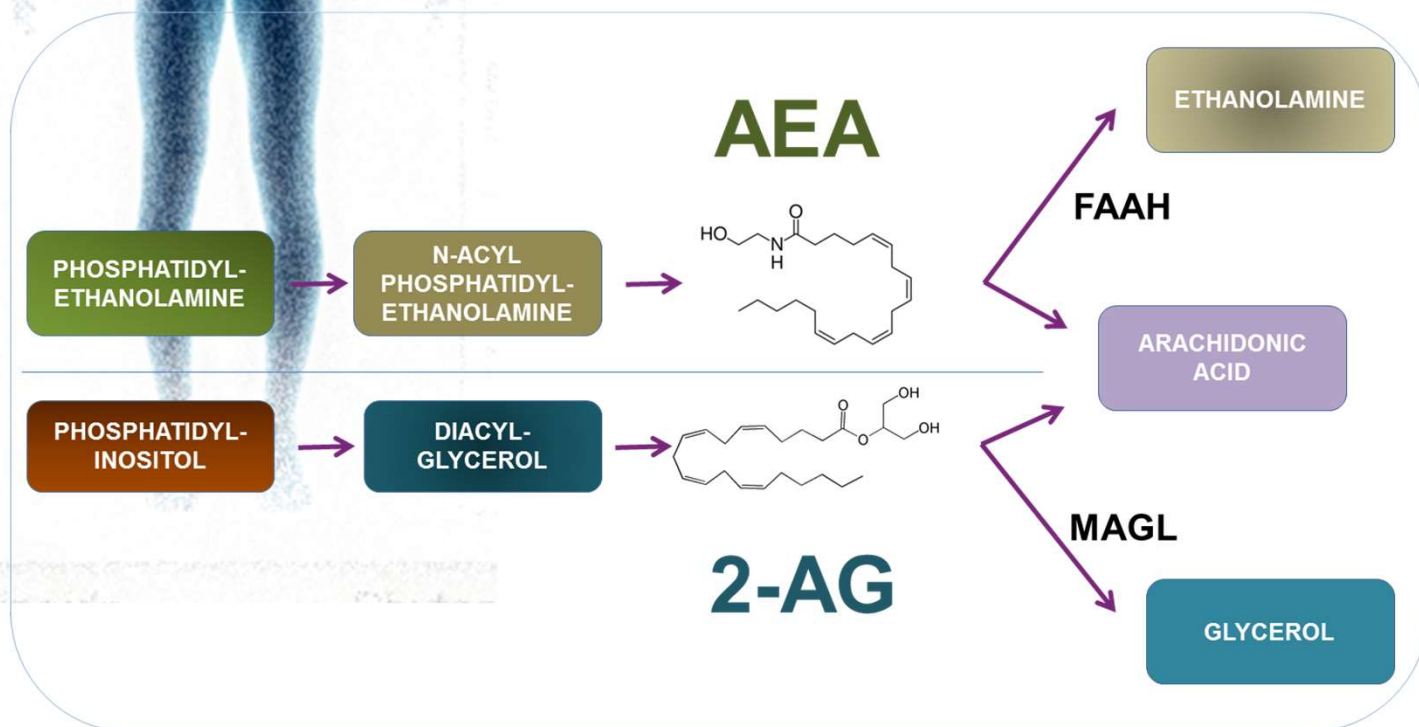
Anandamide (AEA)



2-Arachidonoyl glycerol (2-AG)

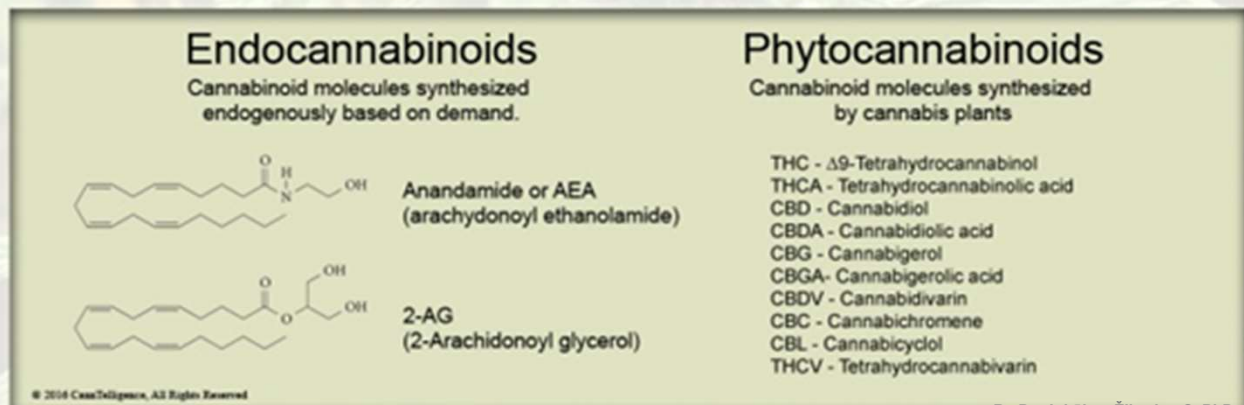
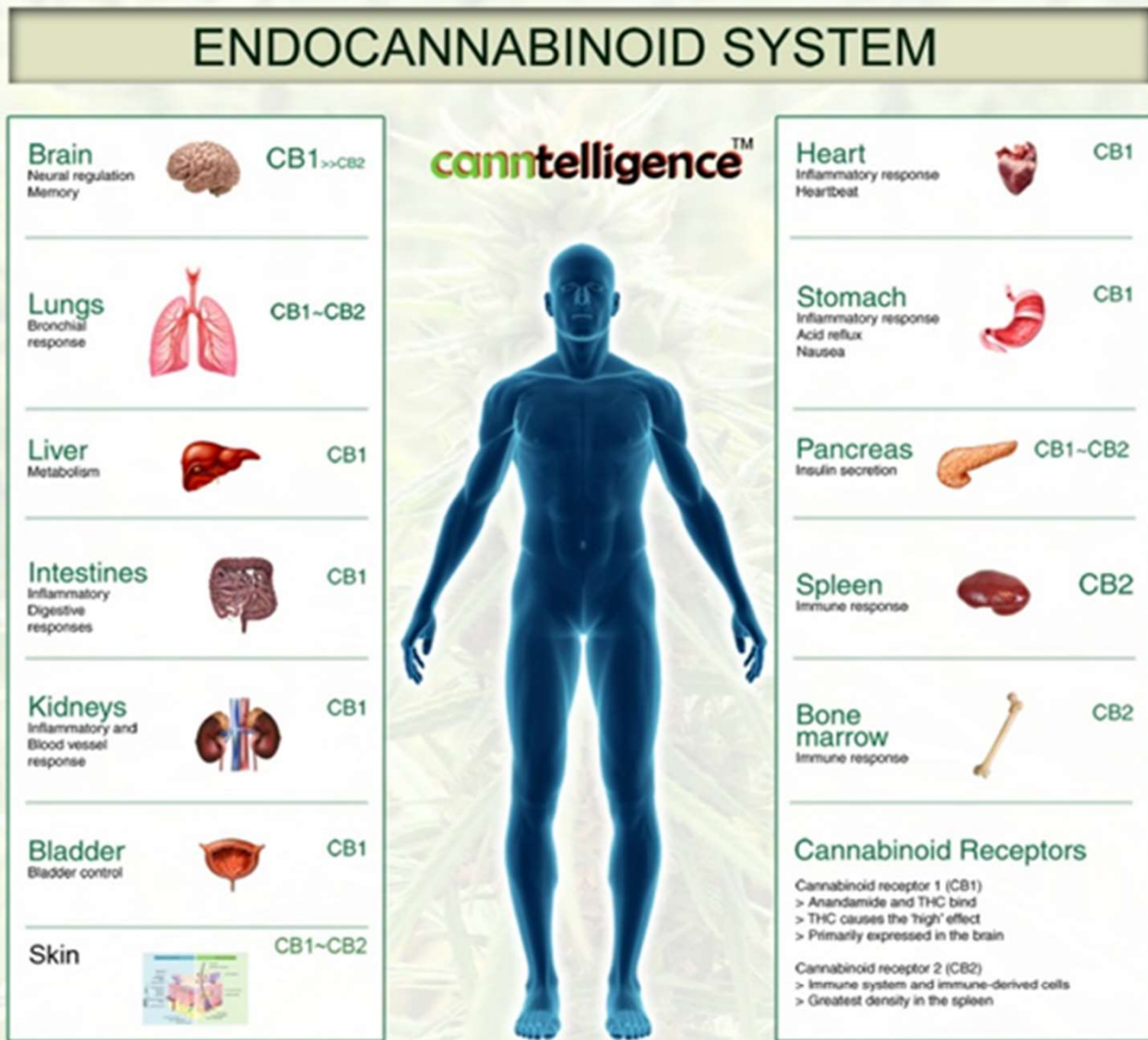


•Synthesis and degradation of AEA and 2-AG



THE ENDOCANNABINOID SYSTEM **BODY**

- **Cannabinoid receptors** are divided into two subtypes: **CB1** and **CB2** (cannabinoid receptor 1 and 2).
- **CB1 receptors** are predominantly expressed in the brain. They can also be found in the heart and the digestive system. 2-AG has higher affinity to CB1 receptors. CB1 receptors are the most abundant G-protein coupled receptor in the brain.
- **CB2 receptors** are mostly found in the peripheral body organs and cells that contribute to the normal function of the immune system, such as spleen, and pancreas. Recently CB2 receptors are also found in the brain, but to a lesser extent than CB1.



CANNABINOIDS AND THE BRAIN

BODY

The endocannabinoid system:
CB1 and CB2 receptor distribution in the brain

- CB1 distribution: major brain areas and their functions



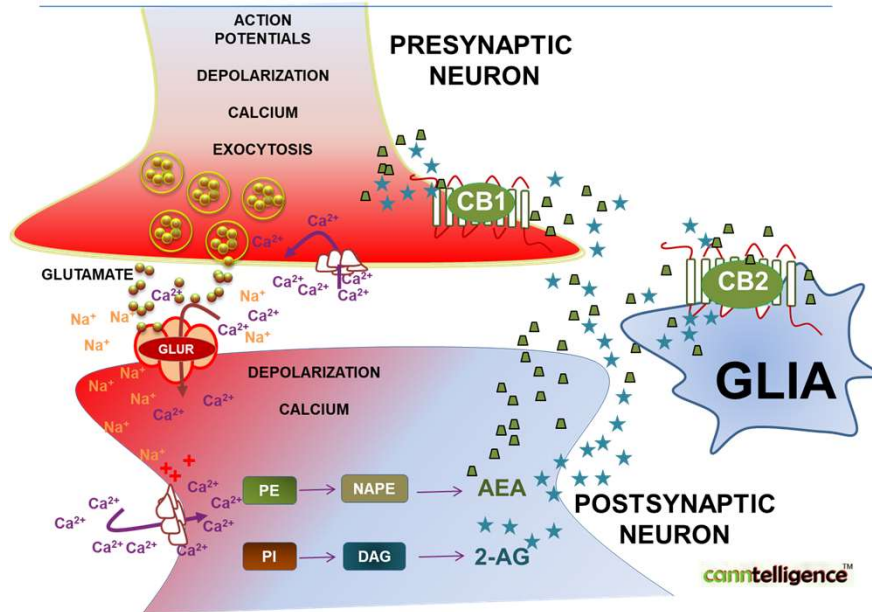
Frontal cortex

- Cognition
- Organizing & Problem solving
- Motor function
- Language
- Judgement & impulse control
- Social and sexual behavior

Hippocampus

- Memory
 - Semantic & Spatial
 - Encoding and recall
- Emotion
 - Limbic system

The endocannabinoid system:
Endocannabinoid synthesis and functions



•**Retrograde signaling** – in the brain CB1 receptors are located presynaptically. When cells become highly active or hyperactive, naturally synthesized endocannabinoids freely traverse through the postsynaptic neuronal plasma membrane *en route* to the presynaptic neurons and the surrounding glia.

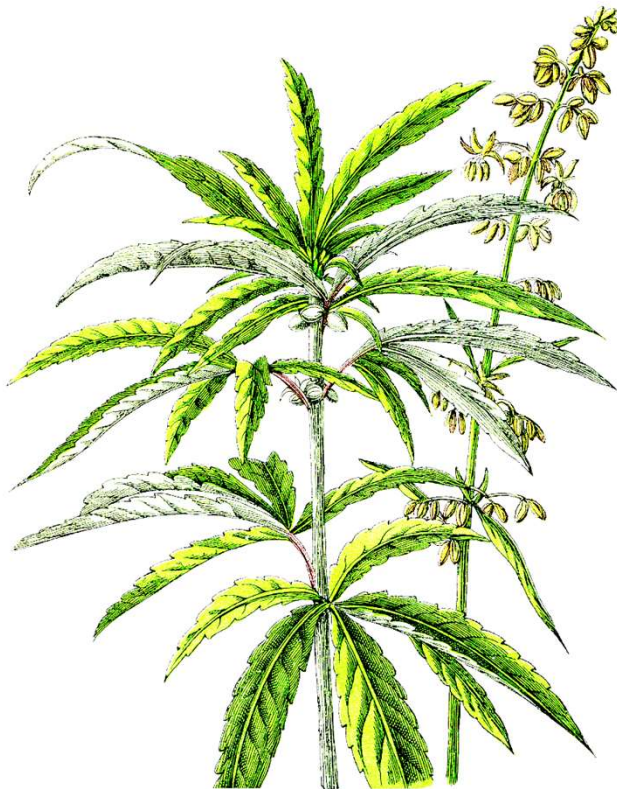
•**Agonist** – compounds activate receptors

- Full agonist is more potent than partial agonist. Synthetic cannabinoids, like synthetic Kush or spice can be much more potent and maybe even full agonists of the CB1 receptors.
- Affinity – potency of compound binding
- High affinity receptors require lower concentrations of ligands (agonists or antagonists)

Rose order:

Cannabis, hops, and hackberries

- Rose order with 9 families
- ~200+ species of flowering plants and trees
- Cannabaceae - Small family, flowering plants (angiosperms)
- Grouped into 11 genera; 3 important genera of cannabaceae
 - Celtis – hackberries is the largest genus
 - Commercially and medicinally significant genres evolutionarily most similar:
 - Cannabis (hemp)
 - Humulus (hops)



Both, hops and hemp are rich in terpene called beta caryophyllene (BCAR).

BCAR is a CB2 receptor agonist and has been shown to have anti-inflammatory and analgesic properties.

CANNABIS AND PHYTOCANNABINOIDS

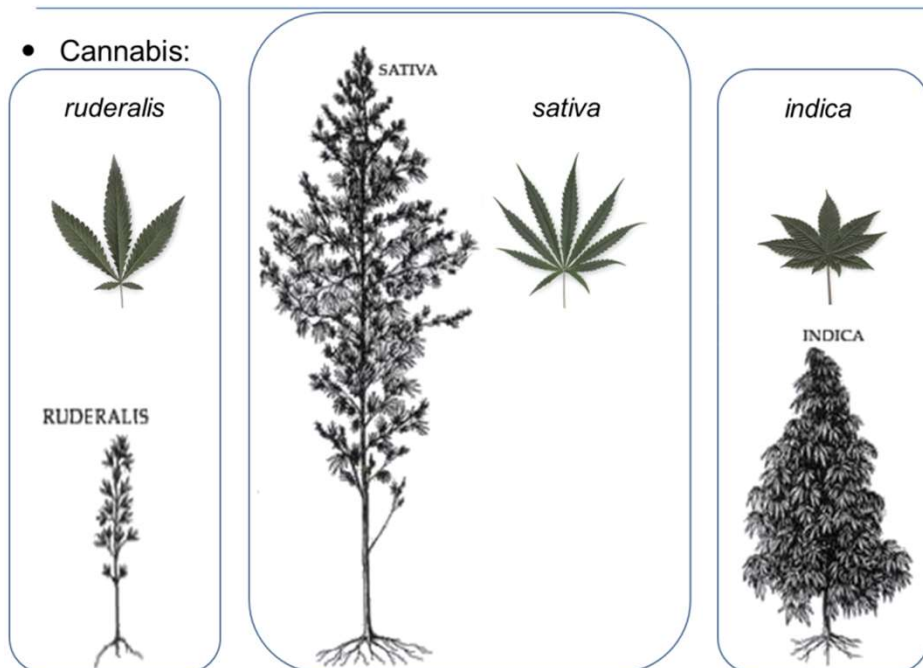
PLANT

• **Cannabis (hemp)** is one of the oldest domesticated plants, used for fiber and medical purposes. Cannabis originated in South Central Asia and is largely divided into two main species *cannabis sativa* and *cannabis indica*. There are thousands of different cannabis strains.

• ***Cannabis sativa*** is associated with cerebral and invigorating effects. Sativas contain lower amounts of tetrahydrocannabinol (THC) and higher amounts of cannabidiol (CBD).

• ***Cannabis indica*** is known to have stronger physiological effects on the body and be more sedative.

• **Hybrid strains** are genetic crosses of sativas and indicas to perpetuate the best features of the two species.



• **Medical Cannabis** refers to the use of diverse cannabis products in an alternative treatment of a wide variety of symptoms and diseases. Medical marijuana strains contain between 0.3-25% of THC.

• **Medicinal properties** refers to the ability of cannabis and isolated cannabinoids to help with an array of symptoms and disorders ranging from chronic pain, epilepsy to cancer to autoimmune disorders.

• **Hemp** – strains of cannabis sativa that have many applications, including industrial and medical uses. According to the regulations in many countries, hemp plants contain 0.3% THC or below. 0.3% THC limit is considered safe and takes into the account high risk population.



CANNABIS AND PHYTOCANNABINOIDS

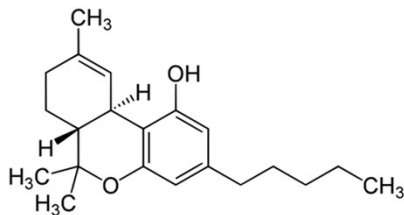
PLANT

• **Phytocannabinoids** - cannabinoids that are found in cannabis, but also in other plants, like flax. Phytocannabinoids interact with the endocannabinoid and other physiological systems in human brains and bodies. There are over 115 phytocannabinoids found in cannabis plants.

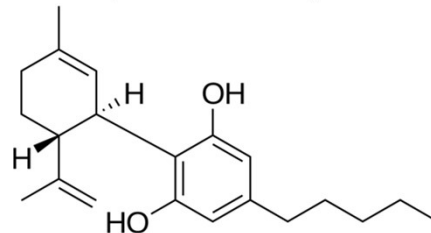
• **THC** - tetrahydrocannabinol is cannabinoid that is unique to cannabis plant. It has known intoxicating properties, as well as medicinal properties.

• **CBD** - cannabidiol is the second most prevalent cannabinoid in cannabis plant. Unlike THC, CBD does not have intoxicating properties and is the dominant cannabinoid found in hemp plants.

• THC (tetrahydrocannabinol)



• CBD (cannabidiol)



• **THC binds CB1 receptors** by fitting into it like a key into a lock. THC binding to CB1 causes euphoric (intoxicating) effects. THC also targets other receptors, like

• **CBD also binds CB1 receptors**, but in a different location and has taming effects, especially on the negative side effects of THC. However, CBD prefers to bind to other receptors, like serotonin 5HT receptor, instead of CB1.

• **Acidic cannabinoids** are acidic forms of cannabinoids like THC and CBD, known as THCA and CBDA. Over 90% of cannabinoids naturally synthesized by cannabis plants are acidic. THCA is the precursor of THC and has no intoxicating properties until it is heated or decarboxylated. Extracts prepared using low temperatures or 'raw' cannabis formulations contain acidic phytocannabinoids.

• **Decarboxylation** is a process of turning acidic cannabinoids into neutral forms, like transforming THCA to THC via heating.

• **Full spectrum** hemp or cannabis extracts refers to the whole plant extract, whereby mostly the tops of the plants are used to preserve the full spectrum of phytocannabinoids, terpenes, and other important molecules. Whole plant hemp extracts are usually dominated by CBDs.

• **Terpenes** - volatile odor molecules that give different cannabis strains distinct aromas. Terpenes have known physiological and psychological effects and are also inhaled at lower temperatures than the phytocannabinoids.

• **Medical cannabis and cannabinoid consumption.** Inhalation delivers phytocannabinoid vapor or smoke into the lungs and small blood vessels that distribute it throughout the body. Ingesting cannabis is the second most used way, either by application of oils and concentrates sublingually, in a buccal (cheek) way, or chewing. Suppositories deliver cannabis formulations into vaginal and anal cavities. Topical cannabis preparations are applied externally on the skin, nails, wounds and cuts.

• **1 in 8 or 13% of US adults use cannabis.** This number is almost double of what was reported in 2013 at 7%. Gallup Poll 2016.

CANNABIS AND PHYTOCANNABINOIDS

PLANT

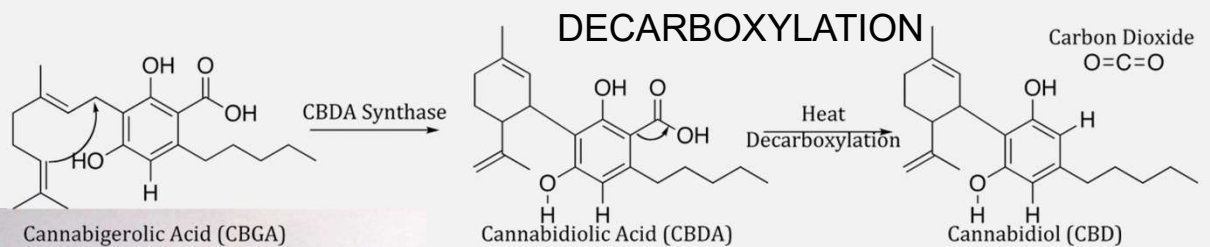
The cannabis plant is thought to have over 1000 molecules⁷, hundreds of them with known biological activities. The genetic code of cannabis is limited to producing a maximum of 35-40% of phytocannabinoids. Aromatic terpenes^{8,9}, which give cannabis its distinct and specific smells, can constitute several percentages of the total plant flower mass.

Cannabis terpenes are unique in several ways: 1) unlike most herbs, cannabis strains are genetically highly diverse and express distinct terpenes; 2) cannabis is mostly consumed by smoking and vaporization, whereby millions of consumers are inhaling different terpenes; 3) some of the cannabis terpenes and phytocannabinoids have complementary biological activities, allowing them to form functional synergies.

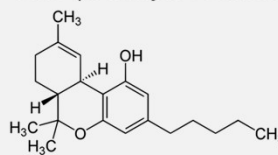
During the growth cycle, concentrations of different cannabinoids and terpenes fluctuate¹⁰. Terpene production increases in response to stress, like a drastic change in temperature or wind. Terpenes protect cannabis from unwanted pests and intruders. Thus, the cannabis plant has its own complex chemical entourage of molecular interactions, some facilitating, and synergistic, and others containing detracting biological effects.

The chemical output of the cannabis strains are a result of the genetics, growth cycle, grow medium (soil, water (hydroponic), and air (aerobic)) conditions, or the overall micro or macro environment of the plant, and its maturity level. In its natural state, over 90% of cannabinoids in plants are expressed as acidic cannabinoids, such as THCA, CBDA, and CBGA. Acidic cannabinoids, such as THCA are non-intoxicating. By this virtue, the cannabis plant is not intoxicating and for THCA to decarboxylate into THC, heat is required.

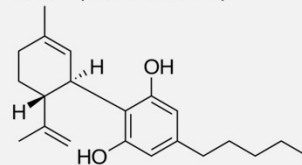
Cold or raw cannabis extractions contain acidic cannabinoids, like THCA and CBDA. Acidic cannabinoids are emerging as effective anti-tumorigenic, antiemetic and anxiolytic compounds^{11,12}. When used in combination, acidic and neutral cannabinoids are often therapeutically more effective.



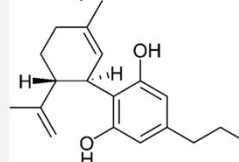
- THC (tetrahydrocannabinol)



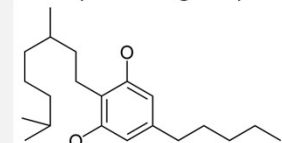
- CBD (cannabidiol)



- CBDV (cannabidivarin)



- CBG (cannabigerol)



WHAT IS

OIL

HEMP OIL?

Almost every part of the hemp plant can be used for nutritional and supplement purposes.

Hemp Seed Oil – oil pressed from hemp seeds. It is rich in omega amino acids 3 and 6 and is one of the healthiest oils to consume in you everyday meals.



Full Spectrum Hemp Oil – essential oil of hemp that is produced from seeds, stalk, and aerial legal parts of the plant. Full spectrum means that it contains many beneficial molecules, like CBD, other phytocannabinoids, flavonoids, chlorophyll, plant waxes, and aromatic terpenes.



PCR Oil – Phytocannabinoid Rich Oil – oil that contains one dominant cannabinoid, like CBD that has been isolated together with the dominant set of terpenes.

CBD Oil – CBD can be isolated (separated) from the plant material using filtration, distillation, and extraction processes. When powder form CBD isolate is used, it is often dissolved in hemp seed oil, or coconut (fractionated, like MCT) oil, or other 'carrier' oils.



EACH OIL HAS ITS PURPOSE!

DOSAGES AND CANNABIS PRODUCTS

CBD has been used effectively anywhere from 5mg for mild conditions and sensitive individuals and up to several hundred milligrams per day in extreme, intractable cases.

When dosing cannabis-based products, it is important to pay attention to at least the following points:

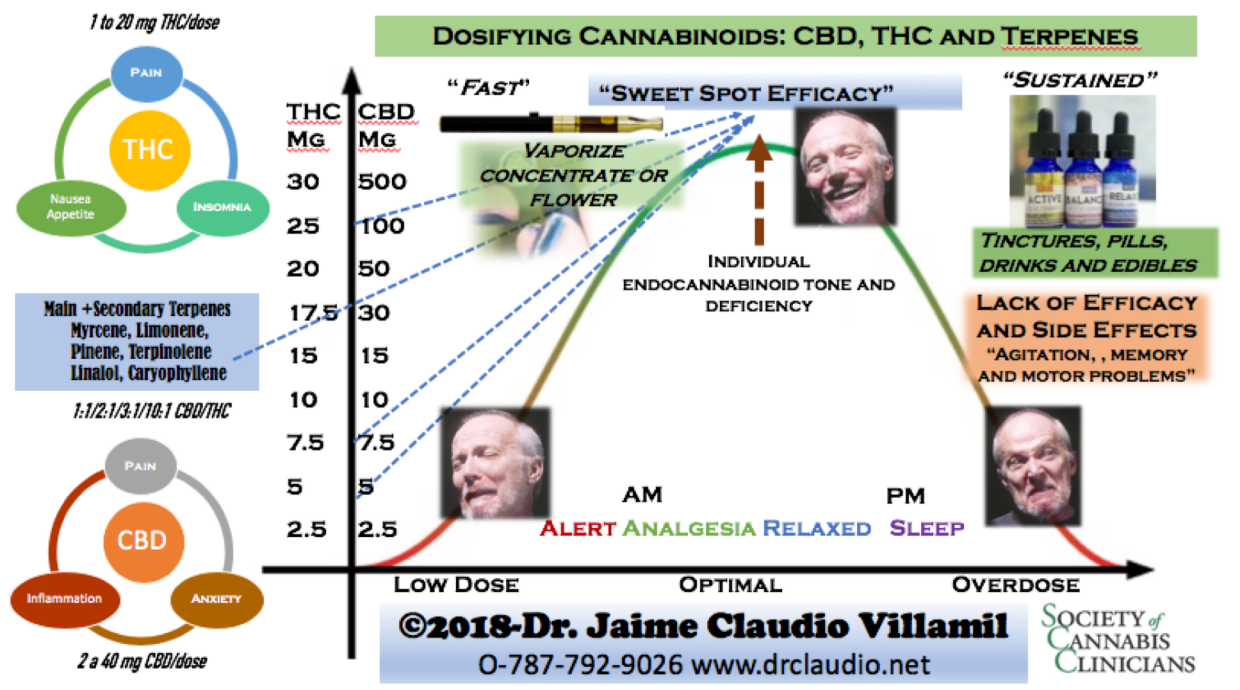
- I. Concentrations of the dominant cannabinoids**
- II. Ratios of the dominant cannabinoids (1:20 or 1:8)**
- III. Carrier oil (hemp seed oil, olive oil , MCT oil)**
- IV. Concentrations of the dominant terpenes**



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FLORANCE



HEMP OIL



The dose of cannabis that is required to achieve therapeutic effects and avoid adverse effects is difficult to estimate and is affected by many variables. However, higher doses of THC (in the absence of CBD) are associated with an increased risk of experiencing adverse or harmful effects. Due to the complex and homeostatic nature of the endocannabinoid system that we are impacting, it is essential to be aware of the biphasic effect, where in a very individualized way, the therapeutic window is achieved by increasing up to an optimal dose, and then reducing or eliminating it in the presence of a very high dose.

This "sweet spot" is very personal and idiosyncratic in each patient and requires titration and experimentation with dosage, cannabis formulation and synergy with various methods of administration (ie tinctures-long term-6-8 hrs versus flower vaporization, rapid effect that lasts 2 hours.) This is only achieved in a responsible patient-doctor-dispensary relationship. Sometimes it requires only 2 to 3 adjustments but other times it is challenging because the patient does not achieve favorable relief and / or the adverse effects prevent achieving an effective dose.

In addition, we estimate that it will be equally important to modulate the final terpene entourage effect of the most abundant terpenes in the extract or flower of the plant strain. Five of the most abundant, among the 200 that can be found in the cannabis plant are: alpha-pinene, limonene, myrcene, linalool and beta-caryophyllene. Alpha-pinene, which is also found in the pine tree, can help with concentration and short-term memory. Limonene, which is also found in lemon, can stimulate mood and have an anti-depressive effect. The myrcene found in the hops plant used in the production of beer has sedative and muscle relaxation effect. Varieties of cannabis with high content of THC and myrcene, produce the well-known "couch-lock", where the user feels that he can hardly move from where he is sitting. Linalool, which is also found in lavender, has sedative and analgesic effects. Finally, beta-caryophyllene, also found in black pepper, has an anti-inflammatory and energizing effect.

Cannabis and human entourage

OIL

Ultimately, it is the interaction between the human biological systems and the cannabis product composition that determines the most effective treatment. There are many uses of each part of the cannabis plant: from roots to trichome-covered flower tops. The overwhelming majority of legal medicinal and adult-use markets are focused on THC, and, only as of lately, on CBD, terpenes, and other phytocannabinoids and molecules. Medicinal cannabis markets should be prepared to commercialize other phytocannabinoids, apart from THC and CBD. In fact, seasoned distributors and forward looking companies are already showing significant interest and see additional value in rare cannabis strains that are high in CBG (cannabigerol), CBDV (cannabidivarin), CBC (cannabichromene), THCV (tetrahydrocannabidivarin), and other phytocannabinoids and certain terpenes. Likewise, these plant-based cannabinoid isolates also come at a high premium, where CBG can be three times the price of CBD. Consumers will catch on to these new cannabinoids and recognize their distinct benefits over the next couple of years.

When speaking of the cannabis entourage effect, the starting point is to understand the most predominant plant components. Almost everyone starts by appreciating that cannabis contains a number of major and minor cannabinoids. Major cannabinoid THC is intoxicating and when used irresponsibly or at very high concentrations, it can lead to anxiety and panic attacks, and increase the risk of heart arrhythmias and attacks. However, when THC consumption is balanced with CBD and other elements in the plant¹³, CBD, for example, has ability to reduce anxiety and panic¹⁴, taming negative effects of THC. This happens, because CBD affects CB1 receptors in the brain, thus controlling effects of THC on that receptor. In addition, CBD has higher binding affinity to serotonin receptors than to CB receptors and serotonin signaling is crucial for controlling anxiety. In this way, synergistic effects of cannabinoids can affect our bodies via the same receptor or pathway, or by engaging distinct, complementary body systems.

Synergistic entourage interactions also depend on the phytocannabinoid-terpene interactions, because some of the terpenes target CB receptors and other overlapping targets of the cannabinoids. Some entourage of molecules may also act in an antagonistic, or even a negative fashion. Many future observational and clinical studies will delineate

how aromatic terpenes, such as limonene, pinene, or geraniol, to mention a few, interact with the cannabinoids to create the most effective, individualized medical cannabis treatments^{9,15,16}. An individual approach to cannabis products is very important, because cannabinoids and terpenes get metabolized at different rates and each individual's tone of the endocannabinoid system varies. In this respect,

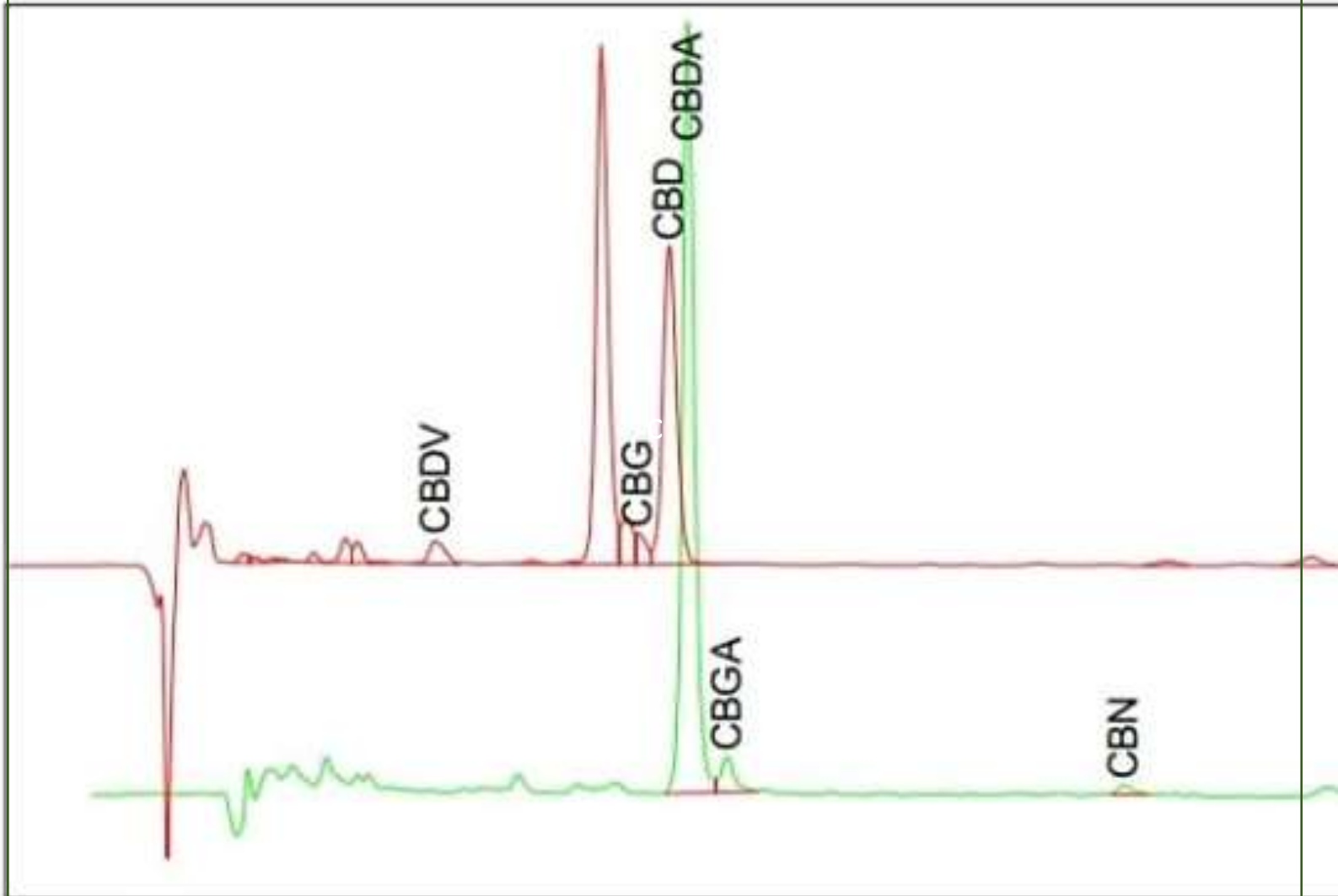
drug-to-drug interactions of the existing medications and known cannabis component activity must be carefully evaluated. Thus, healthcare practitioners are guided by this rule when recommending medical cannabis products:

“Start low, go slow”. Start with low concentrations of active ingredients and observe the effect slowly, before increasing the doses.

“Start low, go slow”.

OIL

TEST RESULTS AND WHAT TO LOOK FOR



FOR YOUR INDIVIDUALIZED PRODUCT NEEDS
CONTACT US AT:

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TEST RESULTS AND WHAT TO LOOK FOR

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Two most common technique to measure cannabinoid and terpene concentrations are using gas chromatography (GC) or high performance liquid chromatography (HPLC).

The main difference between the two techniques is that GC will use heat on the cannabis specimen and thus will not be able to detect acidic cannabinoids. Because acidic CBDA will get decarboxylated into CBD during the heating and testing process.

It is not trivial to have reliable analytical test results and it is wise for the companies to have at least two third party test results for each extract.

FLORANCE CONCENTRATION EXAMPLE

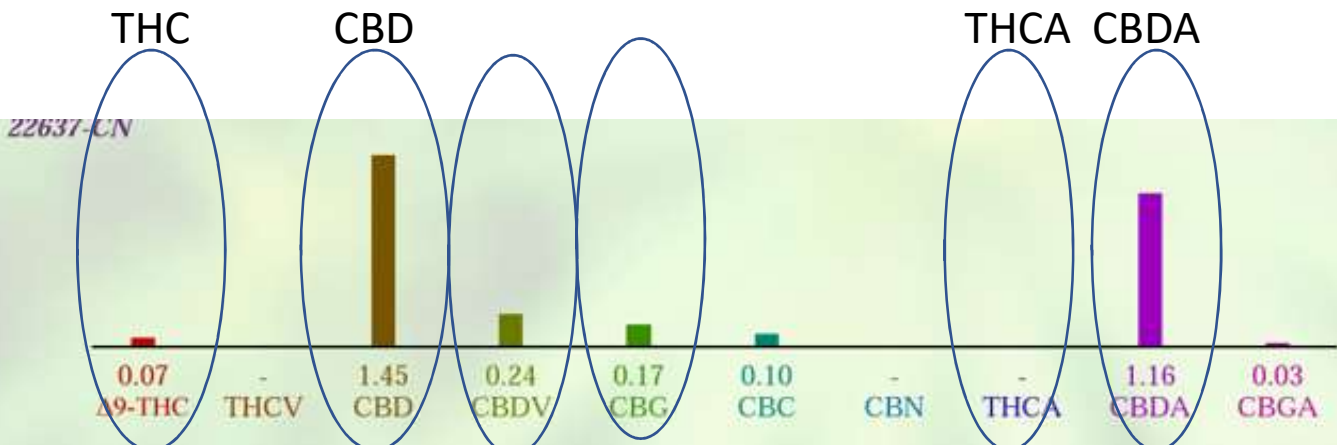
(hemp seed oil infused with hemp extract)

CBD	1.45%
CBDA	1.16%
THC	0.07%
THCA	ND – non detected
CBDV	0.24%
CBG	0.17%

FLORANCE RATIOS EXAMPLE

CBD (1.45%) and CBDA (1.16%)
1.25:1

CBD/A (1.45%+1.16%) and THC 0.07%
37:1



ID	Weight %	Conc.
Δ9-THC	0.07 wt %	0.69 mg/g
THCV	-	-
CBD	1.45 wt %	14.49 mg/g
CBDV	0.24 wt %	2.44 mg/g
CBG	0.17 wt %	1.67 mg/g
CBC	0.10 wt %	1.01 mg/g
CBN	-	-
THCA	0.00 wt %	0.01 mg/g
CBDA	1.16 wt %	11.58 mg/g
CBGA	0.03 wt %	0.33 mg/g
Total	3.22 wt%	32.23 mg/g
Max THC	0.07 wt%	0.71 mg/g
Max CBD	2.46 wt%	24.65 mg/g





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HEMP OIL 150

USER'S GUIDE

NUTRITION FACTS

Serving Size: 10 drops
Servings Per Container: 20

Amount Per Serving	%DV
Raw Botanical Hemp Blend	
Cannabidiol (CBD†):	1.5% ~7.5mg*

† Naturally occurring constituent of the hemp (*cannabis sativa*) plant
* Daily Value not established

Ingredients: Botanical Hemp Blend in Hemp Seed Oil

Made in Lithuania (EU)
Distributed by
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FLORANCE™ 150 USER'S GUIDE

Total CBD	Volume (ml)	Percent CBD	mg/ml
150	10	1.5%	15 mg/ml



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Desired Amount (mg)	2.5 mg	5 mg	10 mg	15 mg	30 mg	50 mg
Needed Volume	0.16 ml	0.33 ml	0.66 ml	1 ml	2 ml	3.33 ml
FLORANCE™ Drops Aprox.	3 drops	7 drops	13 drops	20 drops	40 drops	66 drops

FLORANCE™						
Desired amount (mg/kg)	Body Weight (kg)	Dose	Volume (ml)	FLORANCE™ Drops Aprox.	Instructions	Caution
1 mg/kg	5 kg	5mg	0.33 ml	7 drops	Shake well before use.	Please see your healthcare provider when starting a new diet or supplements.
2 mg/kg	5kg	10mg	0.66 ml	13 drops		
1 mg/kg	10kg	10mg	0.66 ml	13 drops	Place under tongue for 60 seconds. Swallow	
2mg/kg FLORANCE™	10kg	20mg	1.33 ml	27 drops		



FLORANCE™

HEMP OIL 250

USER'S GUIDE

NUTRITION FACTS

Serving Size: 10 drops
Servings Per Container: 20

Amount Per Serving	%DV
Raw Botanical Hemp Blend	
Cannabidiol (CBD†):	2.5% ~12.5mg*

† Naturally occurring constituent of the hemp (*cannabis sativa*) plant

* Daily Value not established

Ingredients: Botanical Hemp Blend in Hemp Seed Oil

Made in Lithuania (EU)

Distributed by

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FLORANCE™ 250 USER'S GUIDE

Total CBD	Volume (ml)	Percent CBD	mg/ml
250	10	2.5%	25 mg/ml



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Desired Amount (mg)	5 mg	10 mg	15 mg	20 mg	25 mg	50 mg
Needed Volume	0.2 ml	0.4 ml	0.6 ml	0.8 ml	1 ml	2 ml
FLORANCE™ Drops Aprox.	4 drops	8 drops	12 drops	16 drops	20 drops	40 drops
FLORANCE™						
Desired amount (mg/kg)	Body Weight (kg)	Dose	Volume (ml)	FLORANCE™ Drops Aprox.	Instructions	Caution
1 mg/kg	5 kg	5mg	0.2 ml	4 drops	Shake well before use. Place under tongue for 60 seconds. Swallow	Please see your healthcare provider when starting a new diet or supplements.
2 mg/kg	5kg	10mg	0.4 ml	8 drops		
2 mg/kg	10kg	20mg	0.8 ml	16 drops		
5mg/kg FLORANCE™	10kg	50mg	2 ml	40 drops		

OIL



FLORANCE™

HEMP OIL 1000

USER'S GUIDE

FLORANCE™ 1000 USER'S GUIDE

Total CBD	Volume (ml)	Percent CBD	mg/ml
1000	30	3.4%	34 mg/ml



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Desired Amount (mg)	5 mg	10 mg	20 mg	30 mg	50 mg	100 mg
Needed Volume	0.15 ml	0.3 ml	0.6 ml	0.9 ml	1.5 ml	3 ml
FLORANCE™ Drops Aprox.	3 drops	6 drops	12 drops	18 drops	30 drops	60 drops
FLORANCE™						
Desired amount (mg/kg)	Body Weight (kg)	Dose	Volume (ml)	FLORANCE™ Drops Aprox.	Instructions	Caution
1 mg/kg	5 kg	5mg	0.15 ml	3 drops	Shake well before use. Place under tongue for 60 seconds. Swallow	Please see your healthcare provider when starting a new diet or supplements.
2 mg/kg	5kg	10mg	0.3 ml	6 drops		
2 mg/kg	10kg	20mg	0.6 ml	12 drops		
5mg/kg FLORANCE™	10kg	50mg	1.5 ml	30 drops		

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OIL



FLORANCE™

HEMP OIL 1500

USER'S GUIDE



NUTRITION FACTS
 Serving Size: 10 drops
 Servings Per Container: 60

Amount Per Serving	%DV
Botanical Hemp Blend	
Cannabidiol (CBD):	5%
~25mg†	
† Naturally occurring constituent of the hemp (cannabis sativa) plant	
* Daily Value not established	

Ingredients: Botanical Hemp Blend, Hemp Seed Oil

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FLORANCE™ 1500 USER'S GUIDE

Total CBD	Volume (ml)	Percent CBD	mg/ml
1500	30	5%	50 mg/ml



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WITH SCIENCE • WITH NATURE • WITH LOVE

Desired Amount (mg)	5 mg	10 mg	20 mg	30 mg	50 mg	100 mg
Needed Volume	0.1 ml	0.2 ml	0.4 ml	0.6 ml	1 ml	2 ml
FLORANCE™ Drops Approx.	2 drops	4 drops	8 drops	12 drops	20 drops	40 drops
FLORANCE™						
Desired amount (mg/kg)	Body Weight (kg)	Dose	Volume (ml)	FLORANCE™ Drops Approx.	Instructions	Caution
1 mg/kg	5 kg	5mg	0.1 ml	2 drops	Shake well before use. Place under tongue for 60 seconds. Swallow	Please see your healthcare provider when starting a new diet or supplements.
2 mg/kg	5kg	10mg	0.2 ml	4 drops		
2 mg/kg	10kg	20mg	0.4 ml	8 drops		
5mg/kg FLORANCE™	10kg	50mg	1 ml	20 drops		

www.FloranceWorld.com



FLORANCE™ HEMP OIL 3000 USER'S GUIDE

FLORANCE™ 3000 USER'S GUIDE

Total CBD	Volume (ml)	Percent CBD	mg/ml
3000	30	10%	100mg/ml



FLORANCE
WITH SCIENCE • WITH NATURE • WITH LOVE

Desired Amount (mg)	5 mg	10 mg	20 mg	50 mg	100 mg	200 mg
Needed Volume	0.05 ml	0.1 ml	0.2 ml	0.5 ml	1 ml	2 ml
FLORANCE™ Drops Approx.	1 drop	2 drops	4 drops	10 drops	20 drops	40 drops
FLORANCE™						
Desired amount (mg/kg)	Body Weight (kg)	Dose	Volume (ml)	FLORANCE™ Drops Approx.	Instructions	Caution
1 mg/kg	5 kg	5mg	0.05 ml	1 drop	Shake well before use. Place under tongue for 60 seconds. Swallow	Please see your healthcare provider when starting a new diet or supplements.
2 mg/kg	5kg	10mg	0.1 ml	2 drops		
2 mg/kg	10kg	20mg	0.2 ml	4 drops		
5mg/kg FLORANCE™	10kg	50mg	0.5 ml	10 drops		

FLORANCE™

CAPSULES

RAW HEMP OIL SOFT GELS

15mg CBD/soft gel

- ***Your Health to the Max***
- ***Nanoparticle Technology***
- ***Digestion***
- ***Lower Back***
- ***Immunity***
- ***Relief***



FLORANCE™ Hemp CBD Soft Gels are the deluxe quality, vegetarian friendly soft gel capsules. The soft gels contain pure, full spectrum hemp CBD. Each capsule contains 15mg of CBD and other naturally occurring phytocannabinoids and terpenes.

Soft gels are highly effective and are targeting the body from waste down and the digestive system.

Advanced Technology for Ultimate Health.

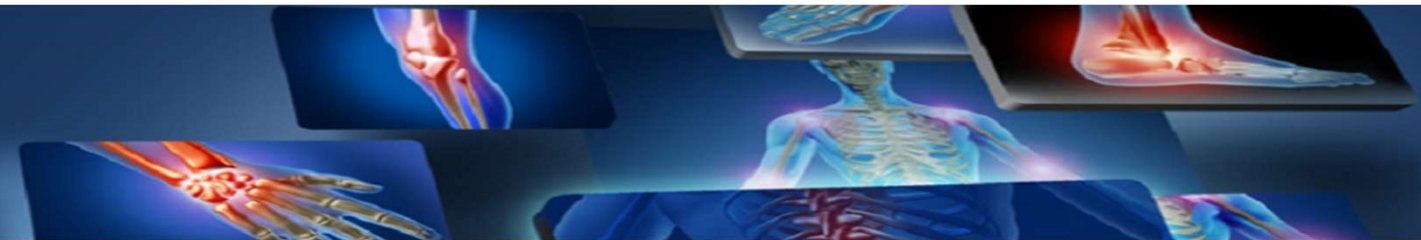
- Non-psychoactive (non-intoxicating)
- Supercritical cold CO₂ extraction
- Hand-selected, organically grown deluxe hemp.



- Neurodegenerative disease** - a condition that results in the progressive loss or death of nerve cells in the brain and spinal cord.
- Epilepsy.** According to the International League Against Epilepsy, this is what a person is considered to have epilepsy if they meet any of the following conditions: At least two unprovoked (or reflex) seizures occurring greater than 24 hours apart; One unprovoked (or reflex) seizure and a probability of further seizures similar to the general recurrence risk (at least 60%) after two unprovoked seizures, occurring over the next 10 years; Diagnosis of an epilepsy syndrome. Epilepsy is considered to be resolved for individuals who had an age-dependent epilepsy [1, 2]the last 10 years, with no seizure medicines for the last 5 years.
- Dravet syndrome** is a form of intractable childhood epilepsy, most often associated with the mutation in voltage-gated sodium channels (Dravet Syndrome Foundation).
- Alzheimer's disease (AD)** is the most common form of dementia in patients over the age of 65 that manifests as a progressive degenerative disorder in the central nervous system. AD is predominantly associated with a progressive decline in cognitive abilities that first manifests as word finding difficulties and impairments in short-term memory. In addition to gross cortical atrophy, the pathological hallmarks used to definitively identify Alzheimer's disease include the presence of insoluble extracellular amyloid protein and intracellular neurofibrillary tangles. (Alzheimer's Association).
- Repeated brain injury and dementia.** Traumatic brain injuries (TBI) range from mild (concussions) to severe (penetrating) physical damage.. Repeated brain injuries are most common amongst athletes and soldiers[3]·{Raymont, 2011 #525}[4]. Dementias related to head injuries are becoming an important health concern. It is equally as relevant to the civilian population, like contact sport athletes. Multiple head injuries are known to substantially increase the risk for development of AD, chronic traumatic encephalopathy, and associated dementias[5-8]
- Chronic Traumatic Encephalopathy (CTE)** is a neurological neurodegenerative disease with a delayed onset that develops in response to repeated mild traumatic brain injury or concussion and has signatures of dementia and Alzheimer's disease.
- Migraine** is a neurological condition that causes from mild to severe head pain, nausea and vomiting, and disturbances in vision and or speech. It can last for hours or days and cab be mentally and physically debilitating.
- Neuroinflammation** is the protective immune system response to physical damage or viral infection of the brain. Neuroinflammation is common in neurodegenerative diseases (Chen, 2016) and occurs in response to traumatic brain injury.
- Neuroprotection** is a mechanism by which the brain can protect itself from an ongoing insult, like repeated concussions. Neuroprotective mechanisms in the brain prevent the loss of nerve cells (neurons) and their connections, called synapses.

APPENDIX I

- **Inflammation** - the succession of beneficial changes which occurs within a living tissue when the tissue is injured and the immune system is engaged. Redness, heat, swelling, pain are all signs of inflammation. Prostaglandins are key mediators of the inflammatory response and they are formed when arachidonic acid is released by the cells.
- **Edema or swelling** results from increased passage of fluid from dilated and permeable blood vessels into the surrounding tissues, infiltration of cells into the damaged area, and, in prolonged inflammatory responses, deposition of connective tissue.
- **Rheumatoid arthritis** is a chronic inflammatory joint disease, which can cause cartilage and bone damage, chronic pain, as well as disability.
- **Gout** is a chronic disease of deposition of monosodium urate crystals, which form in the presence of increased urate concentrations. This causes pain and inflammation in joints.
- **Fibromyalgia** is a widespread pain in muscles and soft tissue and is associated with fatigue, sleep problems, and mood changes.
- **Crohn's disease** is a chronic inflammatory disease of the gastrointestinal tract. Crohn's disease can stem from combination of genetic susceptibility, environmental factors, and altered gut microbiota, leading to dysregulated innate and adaptive immune responses.



[9-23]

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APPENDIX I

Industrial hemp – Low THC Cannabis

Industrial hemp is a type of cannabis sativa l. plant that contains .3% THC or below, the only known psychotropic phytocannabinoid (cannabinoid found in a plant). 0.3% THC is an arbitrary limit set by the regulations. Many hemp strains grown naturally can develop 1% or higher THC levels. Hemp is widely cultivated in many countries across the globe for industrial, nutritional and medicinal uses. In the US, 30 states have introduced legislation that allows for hemp cultivation, and 20 states have passed such legislation (R. Johnson, 2015). The global hemp market is estimated to consist of 25,000 products in various uses such as food, agriculture, and personal care. Hemp can also be used as a rotational crop and is less environmentally damaging than other crops (R. Johnson, 2015; Hemp as an Agricultural Commodity, Congressional Research Service Report). All Florance products are made from legal hemp and do not exceed locally regulated limits of THC in food in EU and USA.

High THC Cannabis – Medical Cannabis

Medical cannabis or medical marijuana refers to the use of various types of *cannabis sativa*, *indica*, and hybrid plants that typically contain about 7-15% of intoxicating THC. Medical cannabis is regulated in over 25 US states and many countries across the world allow the use of medical cannabis, including for children. Each US state and country that regulates cannabis has distinct law that regulates the grow extraction and distribution process of medical cannabis. In addition, percentage of THC and its therapeutic value varies greatly, depending on the patient and the target problem. Thus, ideally it should be qualified recommending physician that deduces the most effective dose and concentration of THC and other major phytocannabinoids with known medicinal properties, like cannabidiol (CBD).

Synthetic ‘Marijuana’ is Not Cannabis!

National Institute of Drug Abuse defines Synthetic marijuana as “new psychoactive substances” (NPS). NPS are unregulated psychoactive (mind-altering) substances that have become newly available on the market and are intended to copy the effects of illegal drugs.” Synthetic cannabinoids sold in many head shops, like Spice or Kush are dangerous, even lethal. These synthetic substances do not occur naturally in cannabis plant and are usually presented to the consumer sprinkled over some plant matter or in a vaporizer form. In Houston, Texas in 2017 there are dozens of deaths that resulted from synthetic marijuana overdoses. In contrast, to date, there are no reported death cases from natural cannabis. The synthetic substances do not affect the brain in the same way as does cannabis plants or natural THC.

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LOW THC CANNABIS

INDUSTRIAL HEMP

- Cannabis sativa
- Ruderalis
- 0.2% (0.3% THC)
- 0.5-1% THC

HIGH THC CANNABIS

MEDICAL/RECREATIONAL

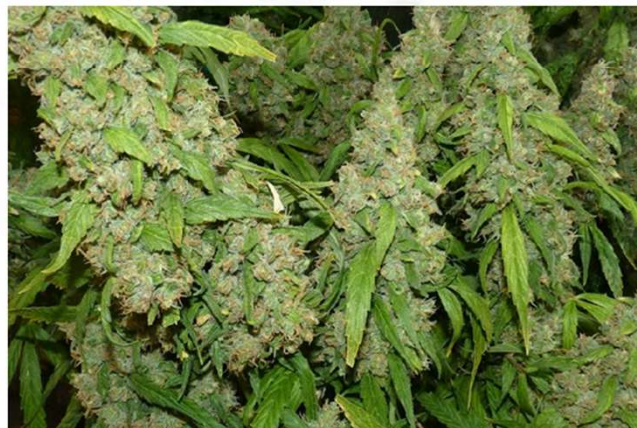
- Sativa
- Indica
- Hybrids
- 5-35% THC

SYNTHETIC ‘STREET’ CANNABINOIDS / MARIJUANA

is
NOT CANNABIS
DANGEROUS!



2-5 meters



.25-3 meters

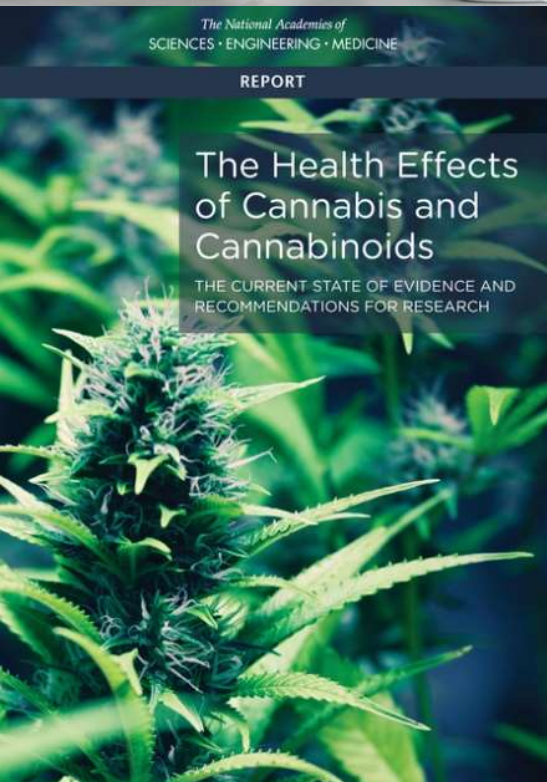


Synthetic/Fake

APPENDIX I

History of medical cannabis therapies: Synthetic THC and cannabis plant-based medications

	Tetrahydro-Cannabinol	Synthetic Δ^9 -THC	Synthetic Δ^9 -THC	Plant-based Δ^9 -THC & CBD	Plant-based CBD
	THC	NABILONE (Cesamet™)	Dronabinol (Marinol™)	Nabiximols (Sativex™)	Cannabidiol (Epidiolex™)
	1964	1981	1985	2005	2016
Receptor	CB1	CB1	CB1	CB1 5-HT TRPV1 Cox-2	5-HT TRPV1 Glycine? Cox-2?
Function	Agonist	Agonist	Agonist	Modulator	Modulator



There is conclusive or substantial evidence that cannabis or cannabinoids are effective:

- For the treatment of chronic pain in adults (cannabis) (4-1)
- As antiemetics in the treatment of chemotherapy-induced nausea and vomiting (oral cannabinoids) (4-3)
- For improving patient-reported multiple sclerosis spasticity symptoms (oral cannabinoids) (4-7a)

There is moderate evidence that cannabis or cannabinoids are effective for:

- Improving short-term sleep outcomes in individuals with sleep disturbance associated with obstructive sleep apnea syndrome, fibromyalgia, chronic pain, and multiple sclerosis (cannabinoids, primarily nabiximols) (4-19)

ON OPIATES & CANNABINOIDS

APPENDIX I

Opioids - are a class of drugs that include the illegal drug [heroin](#) as well as powerful [pain relievers](#) available legally by prescription, such as oxycodone (OxyContin®), hydrocodone (Vicodin®), codeine, morphine, fentanyl, and many others. These drugs are chemically related and interact with opioid receptors on nerve cells in the body and brain to alter the perception of pain.

<https://www.drugabuse.gov/drugs-abuse/opioids>

Opiate receptors targeted by pharmaceutical opioids are located in the brain regions that control breathing - the reason for death during opioid overdose. Cannabinoid receptors are instead located in the nearby area of the brain that positively controls nausea and vomiting, but are not expressed in the breathing centers. Centers for Disease Control and Prevention (CDC). (2011). *MWR.Morbidity and Mortality Weekly Report*

73.8% of all prescription overdose deaths were due to opioid pain relievers (OPR) (a study published by the CDC). OPR sales quadrupled between 1999 and 2010 and cost health insurers 72.4 billion annually in health care costs (CDC 2011).

Over 52% of retired NFL football players interviewed reported using prescription opioids (Cottler, 2011).

Cannabinoids target CB and TRPV1 receptors - unlike opioids, cannabinoids regulate perception of pain via CB1 and TRPV1 receptors. TRPV1 (transient receptor potential vanilloid 1) receptor regulates pain in the sensory nerve endings.

10x more effective - cannabis was shown to be 10 time more effective at treating nerve pain than morphine.

Addiction - compulsive drug use despite harmful consequences. Characterized by an inability to stop using a drug; failure to meet work, social, or family obligations; and, sometimes (depending on the drug), tolerance and withdrawal [2].

Physical dependence - when the body adapts to the drug, requiring more of it to achieve a certain effect (tolerance) and eliciting drug-specific physical or mental symptoms if drug use is abruptly ceased (withdrawal). Physical dependence is often the precursor to addiction, but it does not necessarily indicate addiction [2].

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