



**KD Phyto**®

Creating Health Solutions

# INNOVATE THROUGH CANNABINOID SCIENCE



KD Phyto® provides affordable, safe, and high-quality access to inspired plant ingredients that help create health solutions.

**Your Trusted Partner from Bulk  
Ingredients to Finished Products\***

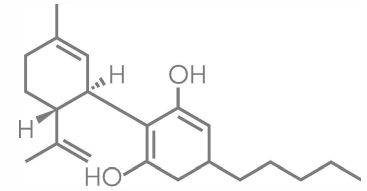
\*where legally permitted

# Isolates & Rare Cannabinoids



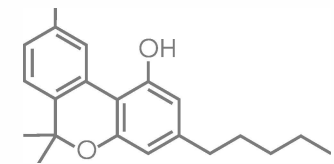
## Cannabidiol (CBD)

Our 99% CBD isolate is derived from Cannabis and is a crystalline powder. This is achieved by removing all other phytocannabinoids (including THC), producing a highly purified cannabinoid. CBD has a broad range of health and lifestyle applications making this cannabinoid a great option for innovation.



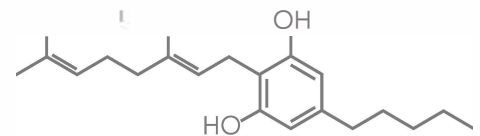
## Cannabinol (CBN)

Metabolized from tetrahydrocannabinol (THC), Cannabinol (CBN) is a cannabinoid from Cannabis. CBN binds to the CB2 receptor, which is highly active in immune cells (T-cells, B-cells, macrophages, and dendritic cells).



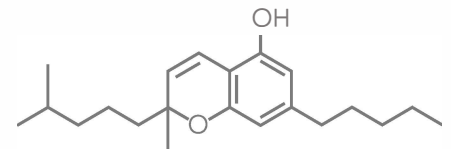
## Cannabigerol (CBG)

CBG, or cannabigerol, has been shown to bind to both CB1 and CB2 receptors, CBG isolate has shown to aide in digestion, exhibit antimicrobial and anti-inflammatory properties making it an ideal active compound in ingestible and topical and cosmetic products.



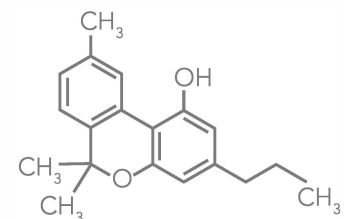
## Cannabichromene (CBC)

Cannabichromene (CBC) appears to have a range of effects on the human body including anti-inflammation, as well as anti-convulsant activity by acting on the TRPV1 and TRPA1 receptors.



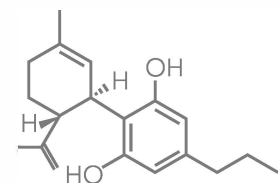
## Tetrahydrocannabivarin (THCV)

THCV, or tetrahydrocannabivarin, is a non-psychoactive phytocannabinoid and a propyl analogue of THC. THCV may be weight loss aide that increases satiety and is a agonist and antagonist of the CB1 receptor.



## Cannabidivarin (CBDV)

Cannabidivarin (CBDV) is chemically very similar to CBD, but with a structure that is shortened by two methyl groups on its side chain. CBDV had gained a lot of attention centered around its potential effect on reducing epileptic episodes.



## Specialized Cannabinoids

Specialized Cannabinoids with specific stereochemical configurations, isomers, derivatives and variable side chain lengths available upon request.

### References

**CBN** Cannabinol - an overview | ScienceDirect Topics: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9658060/>; <https://www.frontiersin.org/articles/10.3389/fphar.2021.777804/full>; <https://pubmed.ncbi.nlm.nih.gov/31158702/>; The role of CB1 in immune modulation by cannabinoids - PubMed (nih.gov) **CBG** Cannabigerol Action at Cannabinoid CB1 and CB2 Receptors and at CB1-CB2 Heteroreceptor Complexes - PMC (nih.gov); Cannabinoids and the digestive tract - PubMed (nih.gov); Anti-Bacterial Properties of Cannabigerol Toward Streptococcus mutans - PubMed (nih.gov); Novel CBG Derivatives Can Reduce Inflammation, Pain and Obesity - PubMed (nih.gov) **CBC** Anti-inflammatory properties of cannabichromene - ScienceDirect; Cannabichromene, Related Phytocannabinoids, and 5-Fluoro-cannabichromene Have Anticonvulsant Properties in a Mouse Model of Dravet Syndrome - PubMed (nih.gov); Diverse TRPV1 responses to cannabinoids - PubMed (nih.gov); The cannabinoid TRPA1 agonist cannabichromene inhibits nitric oxide production in macrophages and ameliorates murine colitis - Romano - 2013 - British Journal of Pharmacology - Wiley Online Library **THCV** <https://pubmed.ncbi.nlm.nih.gov/34242511/>; <https://jcnabrisresearch.biomedcentral.com/articles/10.1186/s42238-020-0016-7>;  $\Delta^9$ -Tetrahydrocannabivarin (THCV): a commentary on potential therapeutic benefit for the management of obesity and diabetes | Journal of Cannabis Research | Full Text (biomedcentral.com) **CBDV** Cannabidivarin (CBDV) suppresses pentylenetetrazole (PTZ)-induced increases in epilepsy-related gene expression - PubMed (nih.gov) Therapeutic potential of cannabidivarin for epilepsy and autism spectrum disorder - PubMed (nih.gov)

\*CDMO Business where these products are made to order.

# Standardized Bulk Oils\*

## Cannabinoids

- CBD 10%, 5% Isolate
- CBG 10%, 5% Isolate
- CBN 10%, 5% Isolate
- CBC 10%, 5% Distillate
- THCV 10%, 5% Isolate - coming soon
- CBDV 10%, 5% Isolate

## Oil Base

- Omega-3 EPA/DHA lipids from fish
- Omega-3 EPA/DHA lipids from algae
- Essential fatty acids from plant-based oils
- Sunflower
- Safflower
- Grape Seed
- MCT

## Co-Actives

- Terpenes
- Flavonoids
- Adaptogens
- Vitamins
- Functional Botanicals

# Distillates & Specialty Blends

## THC free Broad-Spectrum Distillate

90%+ potent broad-spectrum CBD oil that is THC-free, yet still contains other valuable minor cannabinoids.

## CBDA Distillate

80%+ CBDA (Cannabidiolic Acid).





# Cosmetic and Personal Care Cannabinoids

We provide compliant industrial hemp ingredients that are free from THC and other undesirable plant compounds, yet naturally rich in CBD and CBG for use in personal care and cosmetic products. We support an industry that is free from animal testing.



**KD Phyto<sup>®</sup> offers the following cosmetic and personal care ingredients on an R&D or CMO basis:**

## Cannabinoid Infused with CBD, CBN, CBG, CBC, THCV or CBDV:

- Massage Oils
- Creams and other Topicals
- Hair Oils
- Shampoo
- Conditioner
- Lotions

# Active Pharmaceutical Ingredients

**Cannabidiol 99,9 %  
(CBD)**

**Delta-9-Tetrahydrocannabinol 99,9 %  
(THC)**

## Quality Specifications

- CBD with a purity between 98 - 102 % without any trace of d9-THC or any other controlled substances
- THC with a purity between 98 - 102 % without other cannabinoid impurities.

# Contract Development and Manufacturing Capabilities

- Full Organic Synthesis of Cannabinoids
- Semi-Synthesis or Conversions of Cannabinoids
- Biosynthesis of Cannabinoids
- Organometallic and cryogenic chemistries
- Transition metal catalysis and couplings
- High pressure reactions
- SMB chromatography





## Water Soluble Cannabinoids

Water soluble cannabinoids are made with a premium broad spectrum CBD oil. The oil is suspended in water through an emulsion process, whereby the CBD molecules become nano-particularized and miscible. The resulting polymer-free liquid has a clean taste and smell, an inviting color and is easily mixed into beverages and other highly aqueous products such as body sprays.

Our water-soluble cannabinoid powders are made with a high-quality broad-spectrum CBD or cannabinoid isolate (CBG, CBN, CBC, CBDV, THCV). Once they become nano-particularized through an innovative emulsion process, the cannabinoids/s are then spray-dried onto a fiber blend. This allows the produced powder to be evenly distributed throughout a large range of liquids without any undesirable bitter taste or oily mouth feel. The great flavor, and appealing color make our water-soluble cannabinoid powders an excellent option to fortify beverages and cosmetics.

## Ingestible Formats Available



### Gummies

Our gummies are formulated with the highest quality cannabinoids (CBD, CBG, CBC, THCV) and are offered in several effective strengths and great flavors. The gummies can also be custom formulated with co-actives such as terpenes, flavonoids, vitamins and minerals.



### Softgels

Consumer use of softgels is on the increase as it's a convenient and affordable way to add health related compounds to their daily regimen. Our softgels feature Broad-Spectrum CBD, blended with terpenes and essential oils, as well as carrier oils that support absorption.



### Chocolates

What better way to incorporate cannabinoids into the diet than to add it to chocolate. Containing broad spectrum CBD or other cannabinoids, and packaged to retain freshness, there is no wonder these are a hit with consumers.



### Flavored Tinctures

Our tinctures are custom formulated to promote better sleep, calmness, energy, and recovery. Delicious flavors are used to suit your palate, such as lemon, orange, chocolate, and more.

### Legal Compliance

Due to Novel Foods Regulations in Europe; these products are available only where legally accepted. Evaluation of each individual case will be assessed by our Quality Department before commencing production.

# Your trusted Partner

## Our Offer

### Isolates & Rare Cannabinoids & Standardized Oils

CBD Isolate  
CBG Isolate  
CBN Isolate  
CBC Distillate  
THCV Isolate  
CBDV Isolate

### Distillate & Specialty Blends

THC-Free Broad Spectrum  
CBDA Distillate

### Ingestible Formats\*

Custom Tinctures, Gummies,  
Soft Gels and Chocolate

### Standardized Bulk Oils (CDMO)

Cannabinoids, Oil base, Co-actives

### Water Soluble Cannabinoids

Water Soluble CBD Liquid Emulsions  
Water Soluble CBD, CBG, CBN, CBC,  
CBDV, THCV powders

### Active Pharmaceutical Ingredients

CBD, THC

### Cosmetic and Personal Care (R&D, CMO)

Crèmes, Lotions, Shower Gels, Hair Serums

### Contract Development and Manufacturing Capabilities

Synthesis, Semi-Synthesis, Biosynthesis,  
Purifications

## Get Educated with KD Phyto®

The KD Phyto® Cannabis Online Education Program was created by Dr. Andrea Holmes, Chief Scientific Officer of KD Pharma Group™, to meet the needs of those who want to increase their understanding of the cannabis industry, health and wellness applications, cannabis processing, products and formulation, science and medicine, medical cannabis, and emerging industry trends. Register in our website to listen, learn and ask questions.

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**KD Phyto®**  
Creating Health Solutions

How may we be of service?  
For details on how your brand can benefit  
from KD Phyto® contact us at:  
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