



EIHA
European Industrial Hemp Association

Cannabis sativa L. as a traditional food source

16 October 2018

**Novel Foods Working Group, Brussels,
Belgium**

- President of EIHA

- Board Member

- Advisory Board

- Advisory Board



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PART 1

Introduction to the EIHA

EIHA – European Industrial Hemp Association



- ❑ The EIHA has been around for over 18 years and has a membership that extends across 25 EU member states, plus 11 additional countries including Australia, Canada, China, India, New Zealand, Russia, Thailand, Turkey, Ukraine, USA.
- ❑ Founded in 2000 informally, and formally est. in 2005
- ❑ EIHA represents the whole value chain; farmers, most major processors, manufacturers, brand owners, importers and all hemp related sectors.

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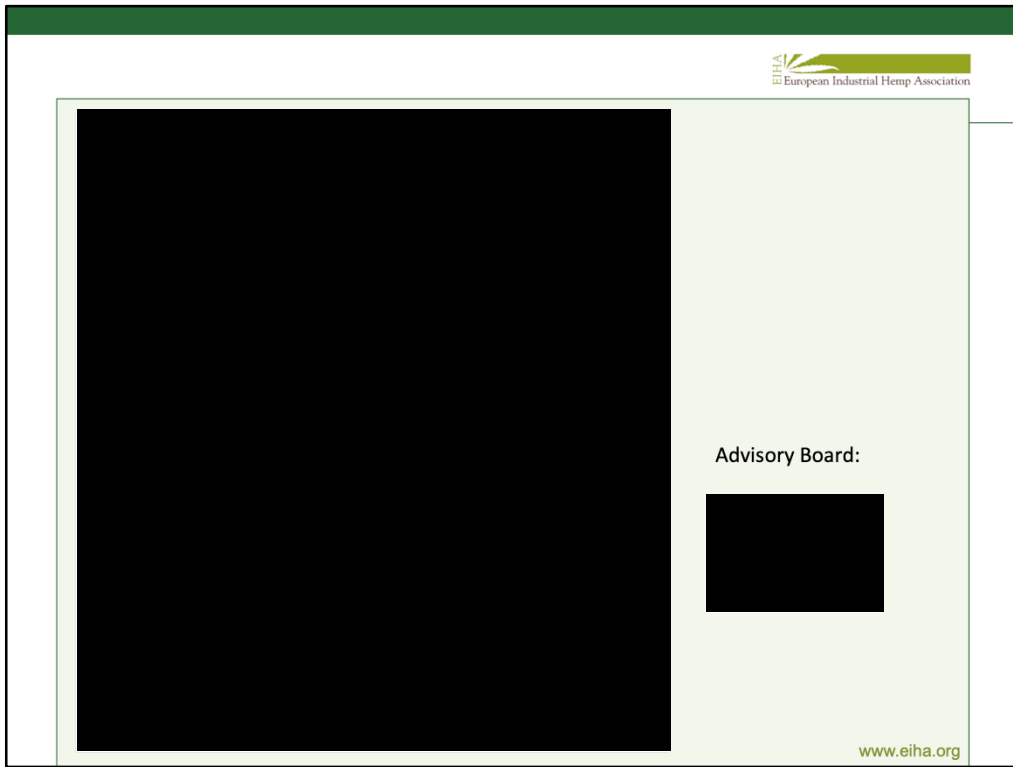
EIHA Memberships and International Collaborations



- ☐ The ASTM D37 Committee on Cannabis
- ☐ the “Expert Group on Bio-based Products” of the European Commission,
- ☐ the biomass supply Thematic Working Group of the “Bioeconomy Panel” of the European Commission,
- ☐ the Standing Committee on Agricultural Research (SCAR), working group “Sustainable Bioresources for a Growing Bioeconomy”.

- ☐ InterChanvre, France
- ☐ Hemp Industries Association (HIA), USA
- ☐ Canadian Hemp Trade Alliance (CHTA), Canada
- ☐ International Hemp Building Association (IHBA), Ireland
- ☐ British Hemp Association (BHA), UK

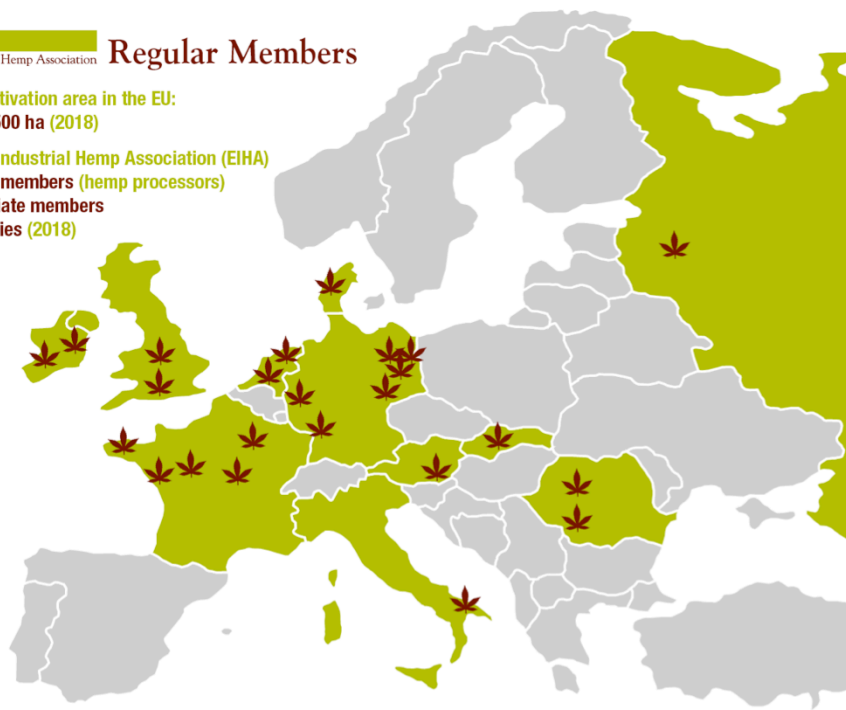
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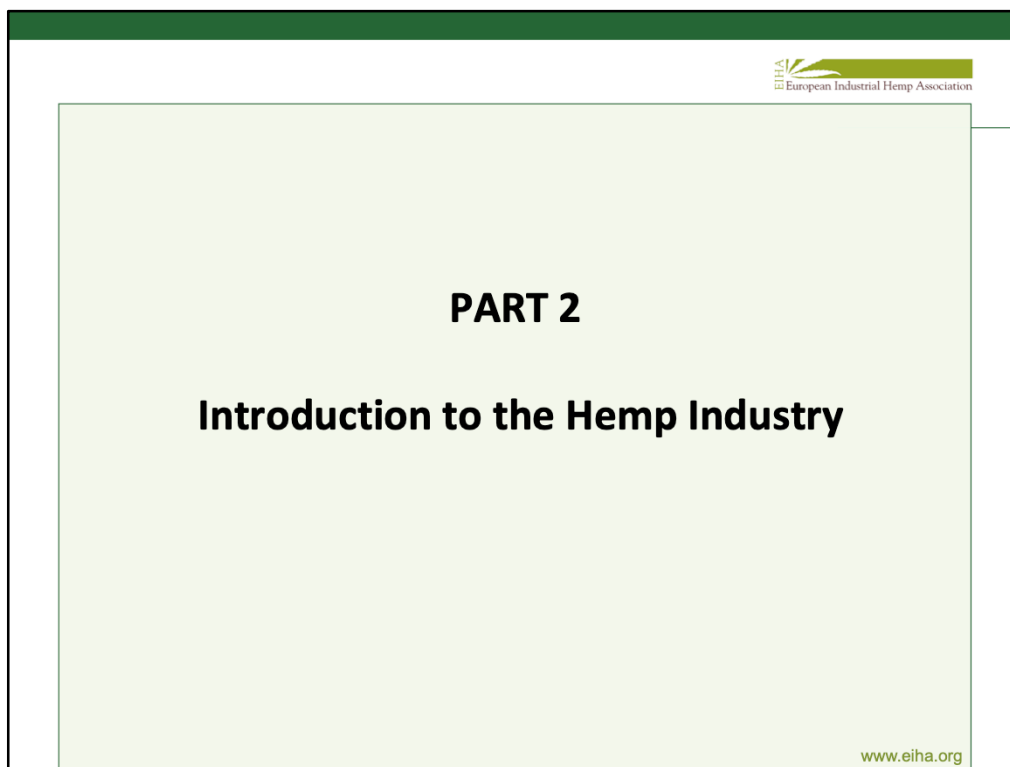
Regular Members

Total Hemp cultivation area in the EU:
more than 42,500 ha (2018)

The European Industrial Hemp Association (EIHA)
has 27 regular members (hemp processors)
and 138 associate members
from 36 countries (2018)



One regular member each in the USA, Canada and China.





In the following three minutes, I will elaborate on the three main reasons why extracts of industrial hemp are traditional, rather than novel food.

One: Hemp is a different type of genus *Cannabis* species from those used in medicinal or recreational applications.

Two: If we understand emergence of agriculture to be connected with the development of species *Homo Sapiens*, then genus *Cannabis* has been humankind's true companion ever since.

Three: Cannabidiol has been proven safe by WHO experts on drug dependence and has been a major driver behind unprecedented expansion of hemp cultivation areas worldwide.

Cannabis (plant) is the genus in the family *Cannabaceae*  EiHA European Industrial Hemp Association



Hemp
THC content less than
0.2% or 0.3% or 1.0%
depending the country's
regulatory framework.

Medicinal Cannabis

**UNODC testing
protocol**

$$\frac{[\text{THC}] + [\text{CBN}]}{[\text{CBD}]} = X$$

↓

X < 1 ✓ **Fiber type**
X > 1 ✗ **Drug type**

[THC] Area of THC in the chromatogram

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Our first argument is that while botanical taxonomies may collide, the United Nations Office on Drug and Crime sets clear rules how to distinguish between a “drug type” and a “fiber type” cannabis plants by a formula where *Cannabidiol* is a denominator. In practice, countries rather mention maximum Tetrahydrocannabinol content in hemp. In general, the EU limit is 0.2% in upper third of the plant, while 0.3% applies in Canada, USA, Czechia and Austria and 1.0% THC applies in Switzerland and Australia for hemp.

Some Historical Data on Hemp

- ☐ 6,000 BC Cannabis seeds and oil used for food in China.
- ☐ 1,000 BC approx.: Bhang, an edible preparation of cannabis has since been used in food and drink in the region of South Asia, in particular India. The buds and leaves of cannabis are ground into a paste which can be added to foods. It is still consumed nowadays, e.g. as bhang lassi.
- ☐ 1850-1915 Cannabis was widely used throughout the United States as a medicinal drug and could easily be purchased in pharmacies and general stores.
- ☐ 1860-1900 Ganjah Wallah Hasheesh Candy Co (USA) produces a maple-treacle-hashish-confect that was one of the most liked sweets in North America.
- ☐ 1928 Recreational use of Cannabis is banned in Britain.
- ☐ Extracts and tinctures were sold in pharmacies and dispensaries still in the first decades of 20th century and resembled modern-day food supplements or OTC preparations.
- ☐ 1937 U.S. Congress passed the Marijuana Tax Act which criminalized the drug and discriminated cultivation of industrial hemp.
- ☐ After World War II presence of such products has declined because of international pressure.
- ☐ 1961 Cannabis and Cannabis resin are listed in Schedule I and Schedule IV of UN Single Convention on Narcotic Drugs without any scientific evaluation. **(First independent scientific evaluation by WHO started in 2018).**
- ☐ Many countries have completely abolished cultivation of *Cannabis sativa* L. also for industrial purposes.
- ☐ However, hemp is experiencing a comeback since late 20th century and is deemed one of the most beneficial crops for the environment and human health.
- ☐ **The Hemp sector is currently the fastest growing industrial market segment world-wide.**

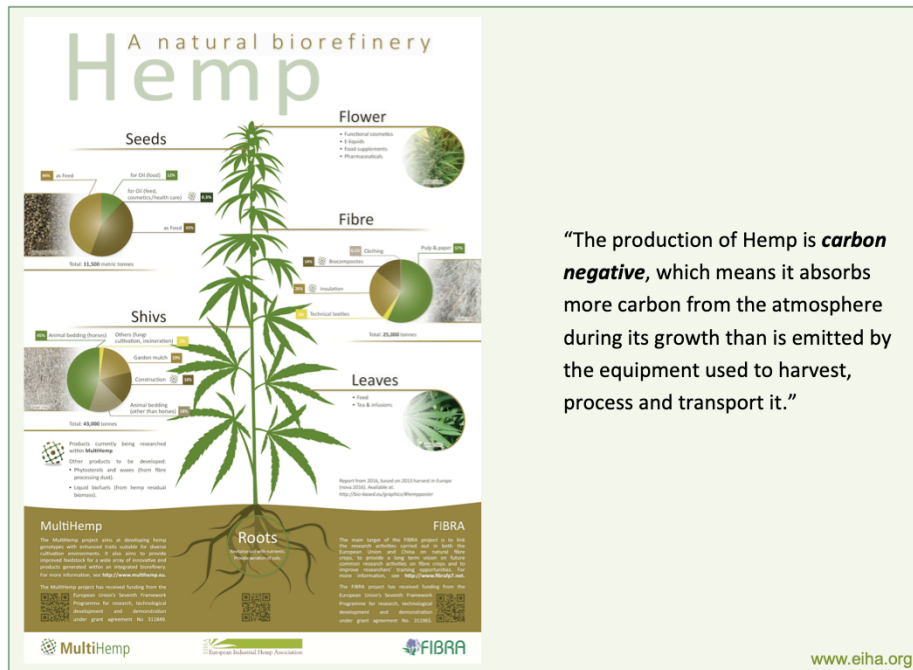
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Concerning our second argument:

Hemp is a true biorefinery: providing renewable and carbon-neutral, sometimes even carbon-negative intermediates. Examples are fiber for insulation, for plastic composites and fine papers, woody core for hemp concrete and animal bedding, seeds and foliage for foods and whole plant for feed silage.


With a widespread use of hemp in European area since middle-ages, it would be extremely bold to argue that most parts of the hemp plant had not been used as food or in food. Hemp extracts and tinctures were indeed made and sold in products which would be called nowadays “supplements” up to 80 years ago.

Hemp is a most useful plant



“The production of Hemp is **carbon negative**, which means it absorbs more carbon from the atmosphere during its growth than is emitted by the equipment used to harvest, process and transport it.”

Opportunity Overview



- ❑ Globally hemp has been recognised for hundreds of year as an extremely versatile, robust and environmentally friendly plant. Countries such as Canada have built a major industry around the cultivation and processing of the plant; delivering considerable societal and economic benefits to people and communities.
- ❑ Europe has a unique opportunity to establish a leading position within one of the most important and rapidly growing agricultural and industrial markets that has emerged for decades.

10,000+ environmentally responsible products & applications including
Bio-plastics, construction, food and beverages, food supplements, textiles, paper products, composites, bio-fuel, and graphene substitutes.

Major environmental benefits
Carbon sequestration, enhanced biodiversity, land reclamation and phytoremediation, (nearly) no need for pesticides.

Profitable cash crop for farmers
Multi billion Euros downstream markets.

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Hemp was called a Billion Dollar Crop in 1930's already. However, severe discrimination in the second half of the 20th century happened when many countries applied international anti-drug conventions in the unnecessarily strict way to hemp.

Hemp has almost disappeared from our daily life and from our kitchen cabinets. Luckily, countries like France and Lithuania, with highest acreage in Europe, have been a leading example of its ongoing use. Other evidence is at hand proving use of hemp green parts in applications such as beer brewing and teas which we will show later.

Environment and Agriculture

- ❑ **Protects the environment:** Hemp can be grown without the use of herbicides, pesticides or fungicides. Hemp is suitable for cultivation near surface water. Hemp is in the top 5 out of 23 crops for biodiversity friendliness, performing better than all major crops such as wheat, maize or rapeseed (Montford and Small, 1999)
- ❑ **Excellent carbon sequestration:** One hectare of industrial hemp can absorb 15 tonnes of CO₂ per hectare. Hemp's rapid growth makes it one of the fastest CO₂-to-biomass conversion tools available, more efficient than agro-forestry.
- ❑ **Restores soil health:** Due to its vigorous growth, hemp is known to be a pioneer plant that can be used for land reclamation and indeed phytoremediation; 'cleaning' land polluted by heavy metals. Hemp is a valuable preceding crop in rotations. After cultivation the soil is left in optimum condition

The EU Reform of Common Agricultural Policy (CAP) provides a historic opportunity to re-establish large scale hemp farming as it meets all environmental criteria and will be a valuable cash crop to European farmers.

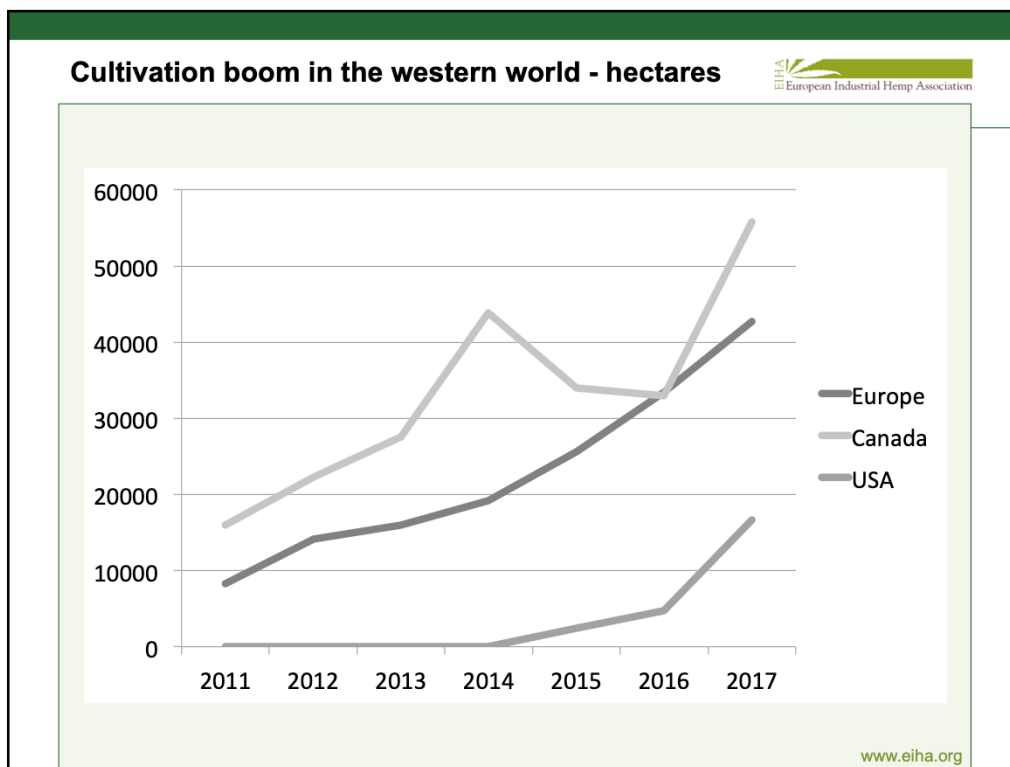
The Fastest Growing Industry Sector Worldwide



- ☐ Hemp cultivation and processing will offer substantial job creation, especially for rural economies.
- ☐ At the same time cultivating hemp contributes to substantial carbon sequestration and soil health restoration.
- ☐ The regulated, permitted use of the flower and whole plant is essential to attract investment into research and the development of main stream environmentally responsible products, such as biodegradable plastics and further uses for composite and construction materials.
- ☐ CBD represents the most profitable by-product of the hemp plant.
- ☐ Europe's farmers and hemp industry are well regulated, experienced and ideally placed to financially benefit from the fasted growing industry in today's market.
- ☐ For Hemp to become a mainstream viable cash crop, a clear regulatory framework needs to be established.

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Last but not least, our third approach shows that CBD-containing extracts actually promote individual as well as public health and welfare. The safety profile will be discussed by Dr. Bernhard Beitzke, Catherine Wilson will demonstrate a plethora of evidence of traditional usage of ready-to-eat products with CBD concentrations considered natural within EU perspective. In conclusion, we will present our regulatory guidance proposal for hemp extracts containing Cannabidiol on the traditional food market.



Unprecedented demand makes hemp one of the most rapidly growing market segment this century.

This can be demonstrated by increase in cultivation areas in the western world, however small compared to other agricultural commodities.

Hemp foods are recognized as health promoting. General consumer patterns have shifted towards a healthier diet whilst at the same time people wanting more environmentally friendly products.

This provides an excellent opportunity to reinstate hemp in good faith acknowledging its traditional use.

PART 3

Hemp CBD Extracts are a Traditional Food

Hemp CBD Extracts are a Traditional Food

- ☐ Extracts and tinctures were sold in pharmacies still in the first decades of 20th century and resembled modern-day food supplements or OTC preparations.
- ☐ [redacted] (Germany) have produced hemp extracts since 1994, also for the use in food.
- ☐ Hemp flowers and hemp extracts have been used for brewing “hemp beers” since 1996. e.g. Cannabia® has been sold since 1996 by [redacted], and [redacted] AG produced a hemp beer since 1996 with high demand from the very beginning.
- ☐ Letter of the European Commission, dated 03.02.1998, to [redacted] confirms “that hemp flowers used for the production of beer-like beverages are considered to be food ingredients and not additives since they are used in the same manner as hop flowers. Secondly it was decided that foods containing parts of the hemp plant do not fall under the scope of the Regulation (EC) 258/97.”
- ☐ Letter of the European Commission to [redacted], dated 03.03.1998, confirming that the Standing Committee on Food agreed on 18.12.1997 that “food containing parts of the hemp plant do not fall under Regulation (EC) No. 258/97 on Novel Food and Novel Food Ingredients.”
- ☐ Letter of National Institute of Public Health to [redacted] s.r.o. dated August 12, 2015 “*Cannabis sativa* belongs to the category of traditional plant constituents of food supplements.”

Historical Use of Botanical Hemp / Extract as Food (1)

The [redacted] website ([www.\[redacted\]](http://www.[redacted])) states under "History" that hemp and hemp extracts have been produced since 1994 and the hemp extract has been used in food stuffs.



History

[redacted] Natural Products has tested itself in the production of 100% natural aromas and essential oils since 1989. After extensive work and successful handling of different natural products, the company decided to spend time on the most valuable, but untested raw material: hemp. Since 1994 we have produced and distributed hemp products at our manufactory. Cannabis is unique effective, rich and easy to grow. From beginning we have focused on the production of high quality hemp oil and hemp extract to use in foodstuff. The long-term experiences while handling this raw material distinguish our company and our first-class products.

Since 1996 we have been concerned intensively with the difficult cultivation and the production of hemp. For almost 20 years we were allowed to implement the harvest of hemp for fiber as well as the distribution of officially certificated hemp seeds for farmers. Thereby, the legal gaining of hemp extract have always been top priority on a contractual basis. We exclusively produce the extract as a flavor and use it in our precious products.

Historical Use of Botanical Hemp / Extract as Food (2)

The entry on *Cannabis sativa* in the EU Novel Food catalogue still in Jan 2017 states
"....Leaves are added to soups in southeast Asia."

Bhang (buds and leaves) ground into a paste have been added to drinks and foods since 1,000 BC.

"This product was on the market as a food or food ingredient and consumed to a significant degree before 15 May 1997....."

The Hemp plant contains CBD, CBDA, traces of other cannabinoids including THC and this proves that cannabinoid-containing parts of the hemp plant have been used as a traditional food.

Cannabis sativa

Common Names

Kapepe (sējas) (LV), Hampa (SE), Hemp (EN), marijuana (PT), hamp (DK), Hanf (DE), hennep (NL), chanvre (FR), cânhamo (PT), konopie siewne (PL), harilik kanep (ET), konoplí seté (CZ), Marihuana (ES), indiai kender (HU), ινδική κάνναβις (EL), navadna ali industrijska konoplja (SL), hampu (FI)

Common Names

Without prejudice to other legal requirements concerning the consumption of hemp (*Cannabis sativa*) and hemp products, Regulation (EC) No 258/97 is not applicable to most foods and food ingredients from this plant.

It is an annual herb, usually erect belonging to the Cannabaceae Family. Native to Central Asia and long cultivated in Asia, Europe and China. It's a multiple-use plant, furnishing fiber, oil, medicine and narcotics. Fibers are best produced from male plants. Leaves are added to soups southeast Asia. Most varieties contain cannabiniol and cannabiniin. **See also Cannabidiol**

Status



What does it mean?

Historical Use of Botanical Hemp / Extract as Food (3)



Lachenmeier (2004, 2005) mentions in his publication that hemp leaves and hemp flowers have been and are used for teas in Germany and other European countries, and that the food character (not recreational purpose) prevails.

Official use of hemp leaves for making teas can also be demonstrated on a case of Slovak Republic below:

SLOVAKIA - DECREE 09/2015 Z.z. of Ministry of Agriculture and Rural Development of Slovak Republic, of December 4, 2015, on spices, table salt, dehydrated food, soup preparations and on aromas

contains item konopa siata - *Cannabis sativa* L. - leaf, seed

in Annex III, Table 1:

LIST OF PLANTS AND THEIR PARTS SUITABLE FOR PRODUCTION OF TEAS

without recommending any restrictions on the amount [of herb] used.

Lachenmeier, D.W., Walch, S.G. Current Status of THC in German Hemp Food Products, *J. Ind. Hemp* 10(2) 2005, 5-17.
Lachenmeier, D.W., Kroener, L., Musshoof, F., Madea, B.: Determination of cannabinoids in hemp food products by use of headspace solid-phase microextraction and gas chromatography-mass spectrometry, *Anal. Bioanal. Chem.* (2004), 378, 183-189.

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Historical Use of Botanical Hemp / Extract as Food (4)



EUROPEAN COMMISSION
DIRECTORATE-GENERAL II
INDUSTRY
Industrial Affairs (I): Consumer goods industries
Foodstuffs - Legislation, scientific and technical aspects
Head of Unit

Brussels,
DGIII/I/OS&A D(98)

03-02-1998 001908

Subject: Your request for information about the opinion of the Standing Committee for Foodstuffs concerning hemp products.

Dear Mr. [redacted]

According to your request of 26 January 1998, we can inform you that the Standing Committee for Foodstuffs agreed on 18 December 1997 that hemp flowers used for the production of beer-like beverages are considered to be food ingredients and not additives since they are used in the same manner as hop flowers.

Secondly, it was decided that foods containing parts of the hemp plant do not fall under the scope of the Regulation (EC) 258/97.

Yours sincerely,

E. GAERNER



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X.400: G@Georg.Schreibler.I-25 Internet: georg.schreibler@dpi.cer.be

Use of hemp flowers and CO₂ hemp plant extracts since 1996 for brewing "hemp beers" may be demonstrated by, for example, Cannabia® which has been marketed since 1996 by [redacted], and which

was also sold in kegs.

The first Swiss hemp beer was brewed by Brewery [redacted] since 1996 and the demand was high from the very beginning.

In this context the letter of European Commission, dated 03.02.1998, to Mr

[redacted] is important "that hemp flowers used for the production of beer-like beverages are considered to be food ingredients and not additives since they are used in the same manner as hop flowers."

While cannabinoids cannot be extracted well into water, it is to be expected that a certain part of cannabinoids is extracted into a 4-8% alcoholic brew.

Historical Use of Botanical Hemp / Extract as Food (5)


EUROPÄISCHE KOMMISSION
 GENERALDIREKTION II
 INDUSTRIE
 Gewerbliche Wirtschaft III: Verbrauchgüterindustrie
 Nahrungsmittel - Richtvorschriften, wissenschaftliche und technische Aspekte
 Brüssel, den 03-03-1998 004243
 DG II/E1 AK/AK D/98

Betrifft: Ihre Anfrage bezüglich Pflanzenteile von *Cannabis sativa*
Bezug: Ihre Telefaxnachricht vom 16. Februar 1998

Sehr geehrter Herr [REDACTED]

bezüglich Ihrer o.a. Anfrage kann ich Ihnen mitteilen, daß der Ständige
 Lebensmittelausschuß sich am 18. Dezember mit der Frage der Verwendung von Hanf in
 Lebensmitteln befaßt hat. Es wurde Übereinkunft erzielt, daß Lebensmittel, die Teile der
 Hanfpflanze enthalten, nicht unter die Verordnung (EG) Nr. 258/97 des Europäischen
 Parlaments und des Rates über neuartige Lebensmittel und neuartige Lebensmittelzutaten
 fallen.

Mit freundlichen Grüßen


 E. Gaerner
 Abteilungsleiter



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 Fernschreiber: COMEUL B 21877, Telegrammadresse: COMEUL Brussel

continued:

"Secondly it was decided that foods
 containing parts of the hemp plant do not fall
 under the scope of the Regulation (EC)
 258/97."

Letter of the European Commission to Mr
 [REDACTED], dated 03.03.1998, saying the
 Standing Committee on Food agreed on
 18.12.1997 that food containing parts of the
 hemp plant do not fall under Regulation (EC)
 No. 258/97 on Novel Food and Novel
 Food Ingredients."

Historical Use of Botanical Hemp / Extract as Food (6)

STATE HEALTH INSTITUTE
Šrobárova 48
Praha 10
100 42

National Institute of Public Health
Czech Republic

Your letter of:
Day: 12 May 2015
Our Sign:

Letter to
ref. dated
12/08/2015

Date: 12 August 2015

Subject: **TECHNICAL EXPERTISE** on health safety of preparations

SUBJECT OF REQUEST:

You have requested us to give an expert's opinion on health safety of the following preparations:

"Based on the submitted documentation, **the main ingredient of the preparations is the extract of hemp (*Cannabis sativa*)**."

TECHNICAL EXPERTISE:

Based on the submitted documentation, the main ingredient of the preparations is the extract of hemp (*Cannabis Sativa*). *Cannabis sativa* belongs to the category of traditional plant constituents of food supplements. Your preparations contain the extract of this constituent made by common physical and chemical methods, as described in your manufacturing technology. According to the description of manufacturing technology, it is an extract of *Cannabis sativa* which does not contain THC, and may contain, among others, a constituent named cannabidiol – CBD. In case it is proven that it is not a *cannabis sativa* extract containing a mixture of the extracted substances, but pure cannabidiol CBD, it will be necessary to assess this constituent as a potential food ingredient of a new type and its introduction into the market is subject to EU Regulation No 258/1997.

"*Cannabis sativa* belongs to the category of **traditional plant constituents of food supplements**."

SUMMARY:

To summarise, we classify the preparations as food supplements supposing that the constituent called "cannabis sativa bud extract" does not contain THC and it is not pure cannabidiol (CBD). The health claims in the text of the label must be corrected in compliance with the applicable legislation, namely with EU Regulation No 432/2012.

"...it will be **necessary** to assess [pure cannabidiol] as a **potential novel food** ingredient in accordance with Regulation EC/258/1997".

"we classify preparation as **food supplements**".

PART 4

Safety Profile of CBD and Hemp Extracts

Summary – Safety of Use

Confidential – Unpublished Data

- ❑ “There are **no** case reports of **abuse** or **dependence** relating to the use of pure CBD.”

“**No public health problems** have been associated with CBD use.”

(Excerpts from a letter of WHO Director General to Secretary-General of the United Nations, July 23, 2018)

Toxicity profile of CBD - Details

- ☐ “CBD exhibits very low toxicity in humans and other species...”
Rosenkrantz et al.(1981) showed that an oral dose 20-50 times larger than the intravenous route [212 mg/kg b.w. rhesus monkeys] is required to initiate severe intoxication. “CBD does not cause relevant CNS alterations.”
(Scuderi, C. et al., Cannabidiol in Medicine: A Review of its Therapeutic Potential in CNS Disorders, Phytother. Res. 23, 597-602 (2009))
- ☐ “Chronic intake and high doses of up to 1500 mg Cannabidiol per day are well tolerated.”
(Votes of the BfArM Expert Committee, 75th Meeting, 19.01.2016; and cit. ref in Bergamaschi et al.: Safety and Side Effects of Cannabidiol, a Cannabis sativa Constituent, Current Drug Safety, 2011, 6)

Confidential – Unpublished Data

Hemp Seeds and Oil - Safety of Use

"Hemp seeds possess an extremely high nutritional value due to a high content of unsaturated fatty acids (about 80% of fatty acids) and proteins (about 25%). It is not to be ruled out that other minor components, such as terpenes and cannabinoids, could contribute to the surprising beneficial effects of hemp seeds."

- WHO Expert Committee on Drug Dependence Pre-Review, Extracts and tinctures of cannabis, Section 1: Chemistry, WHO, 2018 page 21

"Hemp seed oils are widely sold for human food and, depending on national regulatory, appropriate label with chemical composition should be reported."

- WHO Expert Committee on Drug Dependence Pre-Review, Extracts and tinctures of cannabis, Section 1: Chemistry, WHO, 2018 page 23.

"Hemp seed oils are unlikely to have any significant toxicity and are accepted as foods and animal feed in many countries around the world with strict caps on low concentrations of Δ^9 -THC (e.g. 10 μg of Δ^9 -THC/gram of hemp seeds (10 ppm))"

- WHO Expert Committee on Drug Dependence Pre-Review, Extracts and tinctures of cannabis, Section 3: Toxicology, WHO, 2018, page 8.

"Hemp seed oil contains traces of CBD and CBDA as well, the ratio of which may be used to determine the freshness of the oil."

Citti et al., Analysis of Cannabinoids in commercial hemp seed oils and decarboxylation kinetics studies of cannabidiolic acid (CBDA), J. Pharm. Biomed. Anal. 149 (2018) 532-40.

WHO on CBD and Extracts

“There are **no** case reports of **abuse** or **dependence** relating to the use of pure CBD. **No** public **health** problems have been associated with CBD use.”

“CBD has been found to be generally **well tolerated** with a **good safety profile**. Adverse effects of CBD include loss of appetite, diarrhoea, and fatigue.”

“The [Expert] Committee [on Drug Dependence] recommended that preparations considered to be **pure CBD should not be scheduled**.”

“The Committee noted that the category “**extract** and tinctures of cannabis” encompasses a variety of very diverse formulations with varying ratios of cannabis components, in particular THC, and with or **without psychoactive properties**.”

-Excerpts from a letter of WHO Director General to Secretary-General of the United Nations, July 23, 2018

Clarifying Confusions in WHO Reviews

Extract of <i>cannabis</i>	<i>Cannabis sativa</i> , ext. (Hemp Extract)	<i>Cannabidiol</i>	Hempseed/ Hemp oil	Hemp Essential oil
CAS-No.: 6465-30-1	CAS-No.: 89958-21-4	CAS-No.: 13956-29-1	CAS-No.: 8016-24-8	CAS-No.: none partic.
HS Code: N/A	HS Code: 1302.19	HS Code: 2907.29	HS Code: 1515.90	HS Code: 3301.90
IDS Code: NC008	IDS Code: N/A	IDS Code: N/A	IDS Code: N/A	IDS Code: N/A

For Extract of *Cannabis* WHO uses a much too broad definition, that comprises the whole plant *Cannabis sativa*. For instance, it is to be noted that CAS-No. 89958-21-4 is not the CAS-No. of Cannabis extract but it is the CAS-No. of "Cannabis sativa, ext.", as listed in the European Inventory of Chemicals:

<https://echa.europa.eu/de/information-on-chemicals/ec-inventory>

Therefore, this CAS-No. is that of an extract from the whole plant *Cannabis sativa*, and not from *cannabis* as such.

Extract of *cannabis* itself has CAS-No 6465-30-1. The International Narcotics Control Board (INCB) acknowledges it in its last version of the "yellow" List of Narcotic Drugs under International Control (see July 2017 edition): under the entry IDS Code NC008, *Cannabis* ("the flowering or fruiting tops of the cannabis plant (resin not extracted)") is listed together with the CAS-No. 6465-30-1. This is what the WHO should have used!

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PART 5

Proposal on Regulatory Framework for CBD-containing Extracts

Why are Hemp CBD Extracts Beneficial to Health ?

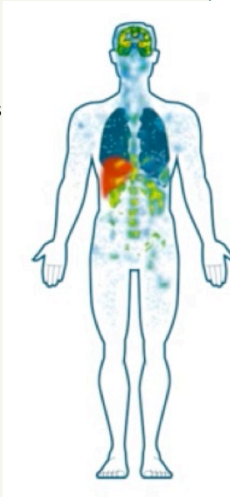
Perhaps the most important botanical food in recent decades.

- ❑ Cannabidiol or CBD was first isolated by a team of chemists at the University of Illinois back in 1940 (Adams).
- ❑ Its structure was elucidated in 1963 (Mechoulam et al.).
- ❑ CBD is the most abundant cannabinoid present in industrial hemp and is non-psychoactive and non-intoxicating, neither is CBDA.

Hemp CBD extracts provide important substances* with physiological effect to our body, attributes could potentially include:

- ❑ contribute to the protection of cells from oxidative stress (as for example, Vitamin C , Vitamin E or Olive Oil Polyphenols)
(see Hampson et al. Proc. Natl. Acad. Sci. USA, 95, 8268-73, 1988)
- ❑ contribute to the normal functioning of the nervous system
- ❑ contributes to the normal function of the immune system

*Cannabinoids, (poly)unsaturated fatty acids (as triglycerides), terpenes, bioflavonoids, phytosterols, chlorophyll (w/o limitation, depending on process of preparation, inter alia)



Finding Recommended Daily Intake for Food Use

Apply Homeostasis approach:

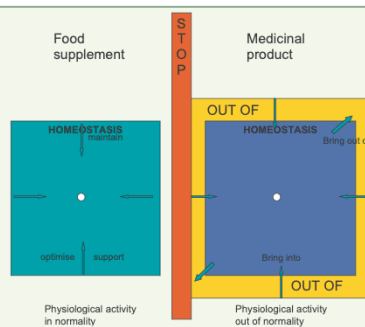
Food Supplements		Medicinal Products
Maintain	vs	Restore
Support	vs	Correct
Optimize	vs	Modify

Apply proper recommended daily intake:

Based on the available high quality clinical studies the minimum dosage to induce a well defined therapeutic effect on a well defined pathology is then derived. This is called the minimum therapeutic dosage. In case of new clinical evidence, it is possible that this dosage has to be reviewed.

To fix the maximum amount for food supplements, from the minimal therapeutic dosage one goes down 10% due to analytical uncertainties plus an extra 10% (minimum) to make the distance. Whenever the observed effect change is strong with small dosage changes, an extra % is brought in to increase the distance with the minimal therapeutic dosage. However, this has to be done carefully as to avoid the product has no longer any physiological effect which then should come in conflict with the requirements of the Food Supplement directive.

- Homeostasis..., Public Health Committee, Council of Europe, 07.02.2008



Minimum therapeutic dose of CBD

= 200 mg / day

Minus 10% analytical uncertainties

= 180 mg / day

Minus 10% to make the distance =

= 160 mg / day =

= maximum daily intake of

"CBD equivalent" in food /
supplements for an average adult

Preparation: Extraction Methods

Hemp extracts are prepared by using extraction solvents allowed for food.

Attachment I of Directive 2009/32/EC gives us a clear understanding on extraction solvents used in the production of foodstuffs and which solvents may be used in processing foods:

Propane
Butane
Ethyl acetate
Ethanol
Carbon dioxide
Acetone
Nitrous oxide

- ☐ Therefore solvent extraction processes (including CO₂) are approved for food stuffs.
- ☐ The use of Ethanol or Carbon dioxide was already allowed for all uses before 1997 under Council Directive 88/344 EEC.
- ☐ The solvent extraction process is a traditional food preparation process.

Extract Preparation: Processing

Traditional food preparation processes are used for hemp extracts.

After *extraction* of plant matter a further removal of unwanted residuals such as waxes may be done by *Refrigeration/Freezing*, and removal of other contaminants may be done by *Distillation/rectification* which are considered traditional food preparation processes as per **Annex II of Regulation (EC) No. 1334/2008**.

ANNEX II

List of traditional food preparation processes

Chopping	Coating
Heating, cooking, baking, frying (up to 240 °C at atmospheric pressure) and pressure cooking (up to 120 °C)	Cooling
Cutting	Distillation/rectification
Drying	Emulsification
Evaporation	Extraction, incl. solvent extraction in accordance with Directive 88/344/EEC
Fermentation	Filtration
Grinding	
Infusion	Maceration
Microbiological processes	Mixing
Peeling	Percolation
Pressing	Refrigeration/Freezing
Roasting/Grilling	Squeezing
Steeping	

EIHA's Three-tier Regulatory Proposal




Scientific literature shows that pharmacological activity for a wide variety of effects of CBD in clinical studies is not observed under approx. 200 mg oral/d for an average adult.

(Devinsky et al., 2014; dos Santos et al., 2014; Food Standards Australia P1042; Friedman et al., 2015; Hill et al., 2012; Iffland et al., 2016; Schubart et al., 2013)

Proposed use of *Cannabidiol* and/or CBD-rich hemp extracts based on **daily oral dose of CBD equivalent** for an average adult.

Daily dose per average adult	Proposed use
Over 200 mg	As active ingredient in medicinal products with or without prescription.
Between 20 – 160 mg	Should be freely available as food supplements (such as valerian or hop pills, silymarin, glucosamine or Ginkgo Biloba). Extract to be standardised to CBD content.
Less than 20 mg	Should be allowed in food products without any restrictions.

What levels of CBD do hemp and extracts contain?

- ☐ Total-CBD-content in raw biomass of EU-registered varieties is between **1 and 5 %** depending the variety and climate. This is the **naturally occurring level of total CBD**. This has been obviously used traditionally for hemp beer brewing, teas, etc.
- ☐ In preparing an extract, this level is, of course, increased by loss of insoluble plant matter.
- ☐ This raw extract is usually not sold to the consumer (it is an isolated intermediate).
- ☐ This intermediate is optionally purified by traditional food preparation processes and then diluted with some edible oil to get it standardised to a max. 5 % CBD formulation
(See for example traditional extract from  which was a CO₂-extract with CBD and CBDA in it since 1994).
- ☐ Such an diluted extract with up to 5% total-CBD may be sold as food ingredient or food supplement with all necessary labelling and consumer information as required by Regulation (EU) No 1169/2011 or Directive 2002/46/EC, respectively.

What about the Daily Dose of CBD ?



Based on a 5% extract dilution, a person would need to take 30 drops to consume 50 mg of CBD.

That would equal approximately one full standard-size dropper (pipette) of a 10 ml bottle.

% w/w CBD in Tincture Oil	1ml = 30 drops
5%	50 mg
10%	100 mg
15%	150 mg

Novel Food Catalogue – Cannabidiol and Cannabis sativa L

Current status (of entries) on 16 October 2018

Cannabidiol	Cannabis sativa L
<p>Common Names</p> <p>Extracts of Cannabis sativa L in which cannabidiol (CBD) levels are higher than the CBD levels in the source Cannabis sativa L are novel in food. Cannabidiol (CBD) is one of the cannabinoids in Cannabis sativa plant. In the European Union, the cultivation of Cannabis sativa L varieties is granted provided they are registered in the EU's 'Common Catalogue of Varieties of Agricultural Plant Species' and the tetrahydrocannabinol (THC) content does not exceed 0.2 % of the plant.</p> <p>Status</p> <p> What does it mean?</p>	<p>Common Names</p> <p>Kapepe (sljask) (LV), Hamoa (SE), Hemp (EN), marijuana (PT), hamp (DK), Hanf (DE), hennep (NL), chanvre (FR), cânhamo (PT), konopie siewne (PL), harilik kanep (ET), konopl seté (CZ), Marihuana (ES), indiai kender (HU), nđıkıj kđvvođıç (EL), navadna ali industrijska konoplja (SL), hampu (FI)</p> <p>Common Names</p> <p>In the European Union, the cultivation of Cannabis sativa L varieties is granted provided they are registered in the EU's 'Common Catalogue of Varieties of Agricultural Plant Species' and the tetrahydrocannabinol (THC) content does not exceed 0.2 % of the plant. Without prejudice to other legal requirements concerning the consumption of hemp (Cannabis sativa) and hemp products, Regulation (EU) 2015/2283 on novel foods is not applicable to most foods and food ingredients from this plant*. Other specific national legislation may restrict the placing on the market of this product as a food or food ingredient in some Member States. Therefore, it is recommended to check with the national competent authorities</p> <p>Status</p> <p> What does it mean?</p>

The naturally occurring level of total CBD in the source Cannabis sativa L. (EU-registered varieties) is between 1 and 5 % depending the variety and climate.

EIHA hereby asks the European Commission to recognise that
**green parts of the hemp plant
and hemp extracts and their tinctures**

with up to 5% CBD
are traditional food in EU.

EIHA would also like to make available our
extensive stakeholder knowledge and scientific expertise
in the development of an operational framework that satisfies both
industry and compliance & regulatory requirements.

Thank you !

Questions & Answers

Expert Panel and area of expertise:

██████████ President – Farming & Retail

██████████ Board – Extraction Processes

██████████ Advisory Board – Chemist / Biochemist

██████████ Advisory Board – Retail & Compliance