

Because you care
about CONSUMERS' HEALTH



□□□□□<0.010□μg/l□/25g□
□(IU)<13□□uf/g□0.066±0.038□<10□

Determination of cannabinoids in food by LC-MS/MS

2021

Some facts about Cannabis sativa L.



Cannabis sativa L.

- Hemp (Cannabis sativa L.) is a very old cultivated plant
 - was used for paper production as early as 2nd millennium B.C.
 - cannabinoids are naturally occurring compounds found in the Cannabis sativa plant
 - all plant parts except seeds contain cannabinoids
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- **Glandular hairs**
 - are to be found on the entire surface of the plant except seeds and roots. They are especially dense on the underside of the bracts along the leaf veins and on the leaves in the inflorescence area
 - secrete a resin (resin consists to 80-90% of cannabinoids, rest are essential oils, phenols, terpenes, waxes)
 - cannabinoid content correlates with the number of glandular hairs (largest glandular hairs on female plants in blossoms)



All pictures from pixabay

Some more facts about Cannabis sativa L.



- Cannabis sativa L. gains significance in food production
- **hemp seeds** contain **all 8 essential amino acids** in ideal proportions for human nutrition
- **hemp oil** has the highest content of unsaturated fatty acids of all vegetable oils.

- **Recently many products which contain highly concentrated cannabidiol (CBD, a cannabinoid) are offered in internet shops and special stores.**
- **Health benefits are promoted for cannabidiol.**

- extracts of Cannabis sativa L. and derived products containing cannabinoids, any products to which they are added, as well as synthetically obtained cannabinoids are considered **Novel Foods**

- 50 Novel Food applications were Dec 2020 under review by the European Commission



All pictures from pixabay



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... if it becomes toxic or comes into conflict with the law

- Some cannabinoids have **psychoactive effects**.
- The most important psychoactive compound is Δ 9-Tetrahydrocannabinol (THC).
 - ARfD: 1 μ g/kg bw / day
 - LOAEL: 2,5 mg / day } EFSA (EFSA Journal 2015;13(6):4141)
- In Germany: classification of products as narcotics if THC-content is higher than 0,2 % (German narcotics act)
- regulation of Cannabis products within Europe is not harmonized
- Cannabis sativa L. has to be controlled even if it contains an only negligible THC content
- Cannabidiol
 - It has slightly psychoactive effects.
 - Products with **highly concentrated cannabidiol** often contain significant amounts of **THC**



Determination of cannabinoids in food



Analytes	<ul style="list-style-type: none">- Δ9-Tetrahydrocannabinol (THC),- Δ9-Tetrahydrocannabinolic acid,- Cannabinol,- Cannabidiol - Optional: Cannabidiolic acid, Tetrahydrocannabivarin, Cannabidivarin, Cannabigerol, Δ8-Tetrahydrocannabinol
Analytical technique	LC-MS/MS
Sample quantity	100 g of oil or fatty foods 10 g of CBD oil
Standard / Rush TAT	10 / 5 working days
Limit of Quantification (LOQ)	0,01 mg/kg
Limit of Detection (LOD)	0,003 mg/kg





THANK YOU
FOR YOUR ATTENTION



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