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Ziese Farms Response to FDA/HHS/ White House Questions

Ziese Farms supports the use of the whole hemp plant. We have secured FDA allowances for hemp leaf foods, but believe there is more to be used.

The hemp plant contains many cannabinoids in addition to cannabidiol (CBD) and delta-9-tetrahydrocannabinol (D9THC), which is the cannabinoid that is tested for to determine legality of a hemp product or plant and commonly known as THC. Cannabinoids such as: delta-8-THC (D8THC), cannabinol (CBN), cannabigerol (CBG), cannabichromene (CBC), cannabidivarin (CBDV) and others may be present. These cannabinoids, aside from D9THC, are legal under the controlled substances act due to the passage of the Agricultural Improvement Act of 2018. The US Farm bill states:

Hemp.--The term 'hemp' means the plant *Cannabis sativa*

L. and any part of that plant, including the seeds thereof and

all derivatives, extracts, cannabinoids, isomers, acids, salts,

and salts of isomers, whether growing or not, with a delta-9

tetrahydrocannabinol concentration of not more than 0.3 percent

on a dry weight basis.¹

The agencies/office requested more information on the potential of these other cannabinoids to potentially cause false positives on drug tests. D8THC and CBN for example do react with drug tests for cannabis (D9THC).^{2&3}

Compound	Description / Synonyms / Brand Names	Cutoff (ng/mL)
11-nor-delta-9-THC-COOH	Marijuana metabolite / THC-COOH, 11-nor-9-carboxy-THC, 11-nor- Δ^9 -THC-9-COOH, 11-nor-9-carboxy-delta-9-Tetrahydrocannabinol, 11-nor-delta-9-Tetrahydrocannabinol-9-carboxylic acid, delta(9)-Tetrahydrocannabinol-11-oic acid, delta(1)-Tetrahydrocannabinol-7-oic acid	50
11-nor-delta-8-THC-COOH	Marijuana metabolite / 11-nor- Δ^8 -THC-9-COOH, 11-nor-9-carboxy-delta-8-Tetrahydrocannabinol, 11-nor-delta-8-Tetrahydrocannabinol-9-carboxylic acid, delta(8)-Tetrahydrocannabinol-11-oic acid, delta(6)-Tetrahydrocannabinol-7-oic acid	30
delta-9-THC	Marijuana ingredient / THC, Tetrahydrocannabinol, delta-9-Tetrahydrocannabinol, Δ^9 -Tetrahydrocannabinol, delta(1)-Tetrahydrocannabinol, Dronabinol / Marinol, Syndros	15,000
delta-8-THC	Marijuana ingredient / delta-8-Tetrahydrocannabinol, Δ^8 -Tetrahydrocannabinol, delta(6)-Tetrahydrocannabinol	15,000
Cannabinol	Marijuana ingredient / CBN, Cannabinolo	20,000

In addition to cannabinoids, hemp essential oils could be used as a flavoring in food and beverages, including alcohol. Essential oils and their building blocks such as terpenoids and terpenes are GRAS if sourced from lavender, hops or other plants.⁴ There is some concern about the potential risk of THC contamination in hemp essential oils. However, extraction methods like steam distillation are capable of extracting terpenes/terpenoids and leave heavier cannabinoids in the plant.⁵

Research has shown that flowers from hemp and THC cultivars that were turned into an essential oil contained well below the .3% THC requirement and comparatively low CBD concentrations.⁶ The studies find that terpenes/terpenoids account for 99.7% or greater of the essential oil.

		THC	CBD
Hemp Cultivar	Inflorescence	.19	1.37
	Essential Oil	.02	.25
THC Cultivar	Inflorescence	1.28	.61
	Essential Oil	.08	.04

When this essential oil is then used in food it is even safer. A study on the assessment of risk from THC and cannabinoids in hemp foods found that due to hemp essential oils being such

concentrated flavoring agents that when used in sodas the THC levels average 5 ug/kg and in beers they are 3 ug/kg.⁷

The EU⁸ and Canada⁹ have currently developed approved cultivar lists while the USDA has yet to do so.

Ziese Farms is happy to provide any more information or answer any questions the FDA, HHS or White House may have. We would love to be a resource to provide the data you need to make the most informed decisions. Thank you for your time and consideration.

1. <https://www.congress.gov/bill/115th-congress/house-bill/2/text>
2. <https://www.drugtestsuccess.com/drug-tests/12-panel-drug-test-doa-1124-081>
3. <https://academic.oup.com/jalm/article-abstract/5/3/569/5811388>
4. <https://pubmed.ncbi.nlm.nih.gov/21726592/>
5. <https://www.sciencedirect.com/science/article/pii/S0926669018304515>
6. <http://www.internationalhempassociation.org/jiha/jiha4208.html>
7. <http://industrialhemp.net/pdf/HempFoodsRiskAss.pdf>
8. https://ec.europa.eu/food/plant/plant_propagation_material/plant_variety_catalogues_databases/search/public/index.cfm?event=SearchVariety&ctl_type=A&species_id=240&variety_name=&listed_in=0&show_current=on&show_deleted=on
9. <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/producing-selling-hemp/commercial-licence/list-approved-cultivars-cannabis-sativa.html>