



EU EARLY WARNING SYSTEM FORMAL NOTIFICATION

Date issued	31 May 2024	RCS ID	EU-EWS-RCS-FN-2024-0013
Issued by	EMCDDA	Transmitted by	Action on New Drugs Sector, EMCDDA
Subject	Formal notification of 3-hexyl-6a,7,10,10a-tetrahydro-6,6,9-trimethyl-6 <i>H</i> -dibenzo[<i>b,d</i>]pyran-1-ol (delta-8-THCH) by Sweden as a new psychoactive substance under the terms of Regulation (EC) No 1920/2006 and Council Framework Decision 2004/757/JHA		

1. Read me first

This document provides formal notification of the analytical identification of 3-hexyl-6a,7,10,10a-tetrahydro-6,6,9-trimethyl-6*H*-dibenzo[*b,d*]pyran-1-ol (delta-8-THCH) for the first time in Europe.

Please report any additional data you have on this substance to: ews@emcdda.europa.eu

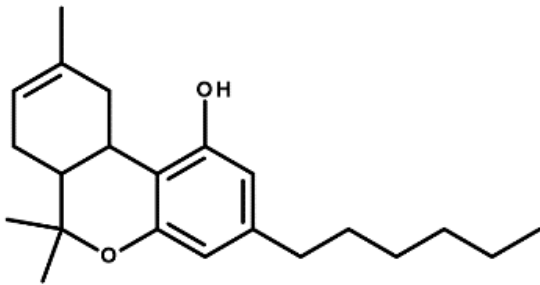
2. Data use restrictions

As with all formal notifications issued by the EU EWS remember that they may contain information that could be regarded as sensitive. Should you provide some of the information in this notification to other groups we would ask that you exercise your best judgment on what information needs to be provided. If you have any questions in this respect, please contact us.

3. Names of substance and other identifiers

- IUPAC name: 3-hexyl-6a,7,10,10a-tetrahydro-6,6,9-trimethyl-6*H*-dibenzo[*b,d*]pyran-1-ol
- Chemical names: 3-hexyl-6,6,9-trimethyl-6a,7,10,10a-tetrahydro-6*H*-dibenzo[*b,d*]pyran-1-ol; 3-hexyl-6,6,9-trimethyl-6a,7,10,10a-tetrahydrobenzo[*c*]chromen-1-ol
- Common name: delta-8-THCH
- Other names: delta-8-tetrahydrocannabinol; Δ8-tetrahydrocannabinol-C6; Δ8-THC-C6; 4'-hexyl-Δ1(6)-tetrahydrocannabinol; *n*-hexyl-Δ-tetrahydrocannabinol; *n*-hexyl-Δ8-THC; *n*-hexyl-delta-8-THC; JWH 124
- Chemical formula: C₂₂H₃₂O₂
- Molecular weight: 328.49
- CAS Registry number: 20622-08-6 (unspecified stereochemistry); 20622-30-4 (6*aR*,10*aR*); 247073-05-8 ((6*aR*,10*aR*)-rel); 2871748-74-0 (ion(1⁻))
- InChIKey: ZHYPKENABBMAAN-UHFFFAOYSA-N

Molecular structure



4. Substance classification

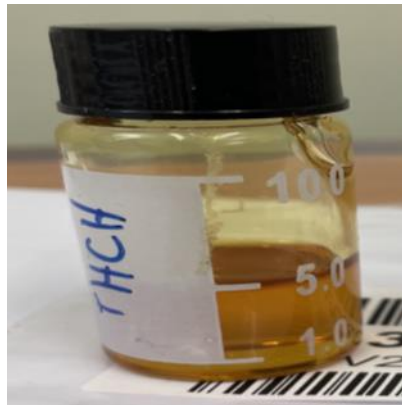
Cannabinoid

5. Detection

Type: Seizure

Case Report identifier: [EDND-CR-2024-158](#)

Details: delta-8-THCH and delta-9-THCH were identified in 5 millilitres of thick brown liquid, seized by Swedish Customs at Malmö Airport, on 24 October 2023. The material was contained in a glass vial labelled as "THCH" in handwritten text (see image below). The seized sample was en-route from the US (San Antonio, Texas) to Sweden (Sverige, Munka-Ljungby) and was reported as a case of international trafficking.



Both delta-8-THCH and delta-9-THCH were analytically confirmed using GC-MS in comparison with commercially available reference standards by the Swedish Customs laboratory.

THCH is reported to be available, in different combinations (e.g., with THCB or THCM), in webshops in Sweden and the Swedish Poisons Information Centre has also reported receiving several calls regarding THCH.

6. Chemistry and Analysis

Chemical classification: unclassified

Delta-8-THCH, also known as delta-8-tetrahydrocannabihexol and JWH-124, is a higher homologue of the internationally controlled delta-8-THC, differing in the length of the alkyl side chain on the resorcinol group, namely the presence of a hexyl linear side chain instead of a pentyl side chain. Delta-8-THCH is also a lower homologue of delta-8-tetrahydrocannabiphorol (delta-8-THCP), formally notified in March 2024, differing due to the replacement of the heptyl group with a hexyl linear side chain on the resorcinol group.

Delta-8-THCH also shares structural similarities with the internationally controlled THC (delta-9-THC) and with other semi-synthetic cannabinoids such as tetrahydrocannabutol (THCB), formally notified in March 2024, tetrahydrocannabiphorol (THCP), formally notified in September 2023, and hexahydrocannabinol (HHC), formally notified in October 2022 and placed under intensive monitoring as of 7 November 2022.

Delta-8-THCH, delta-9-tetrahydrocannabihexol (delta-9-THCH), delta-8-tetrahydrocannabinol methyl ether (delta-8-THCM), delta-9-tetrahydrocannabinol methyl ether (delta-9-THCM), cannabidihexol (CBDH), cannabidiol monomethyl ether (CBDM) and cannabichromehexol ((±)-CBCH) are isomers. The identification and discrimination of these isomers can pose analytical challenges due to the fact that these substances have the same molecular weight and similar fragmentation patterns. As a result, in addition to GC-MS, other analytical techniques, such as FTIR or NMR, may be required.

Reference standards are available for delta-8-THCH [1], delta-9-THCH [2], delta-8-THCM [3], delta-9-THCM [4], CBDH [5], CBDM [6] and (±)-CBCH [7]. Delta-8-THCH is reportedly soluble in acetonitrile (10 mg/ml) [1].

Delta-8-THCH contains two stereogenic centres and therefore four possible stereoisomers might exist.

7. Pharmacology and toxicology

Pharmacological classification: cannabinoid

There is limited information available on the pharmacology and toxicology of delta-8-THCH.

According to a recent publication by Janssens *et al.*, THCH seems to have similar psychoactivity to THC [8]. In particular, delta-8-THCH (*compound 13*) showed higher maximal effects and lower potency compared to delta-9-THC [8]. Delta-8-THCH was also included in a patented method to orally administer cannabinoids to patients with an autoimmune disease and hypertension [9].

The substance (*compound 4*; also referred to as JWH-124) was also included in a study assessing the pharmacological potency in mice and receptor affinity of a series of THC analogs [10]. The compound was found “to have receptor affinity and pharmacological potencies in the spontaneous activity and tail-flick assays comparable with those of delta-8-THC” and was reportedly almost 60-fold more potent than delta-8-THC in producing hypothermia [10].

In a study by Brown *et al.*, eleven metabolites were identified in mouse liver from delta-8-THCH (*compound II*; *n*-hexyl-delta-8-THC), with the major biotransformation pathway being hydroxylation and oxidation at C-11 [11]. Other metabolites were mainly hydroxylated derivatives of these compounds and metabolites containing two hydroxy groups in the side-chain were present in low concentration [11].

8. Further information

Further information on this substance is available on the EDND profile:

<https://ednd2.emcdda.europa.eu/ednd/substanceProfiles/1464>

9. Acknowledgements

The Swedish National Focal Point, Swedish Customs and the Swedish Customs laboratory are kindly acknowledged for the information and analytical data provided.

10. Attachments

None.

11. References

- [1] <https://www.caymanchem.com/product/33392/%CE%B48-thc>
- [2] <https://www.caymanchem.com/product/33352/%CE%B49-thc>
- [3] <https://www.caymanchem.com/product/36793/%CE%B48-thc-methyl-ether>
- [4] <https://www.caymanchem.com/product/36348/%CE%B49-thc-methyl-ether>
- [5] <https://www.caymanchem.com/product/33351/cbdh>
- [6] <https://www.caymanchem.com/product/35712/cannabidiol-monomethyl-ether>
- [7] [https://www.caymanchem.com/product/36702/\(%C2%B1\)-cbch](https://www.caymanchem.com/product/36702/(%C2%B1)-cbch)
- [8] Janssens, L. K., et al. Investigation of the intrinsic cannabinoid activity of hemp-derived and semisynthetic cannabinoids with β -arrestin2 recruitment assays-and how this matters for the harm potential of seized drugs. Arch Toxicol (2024)
- [9] Thomas, C.R. Compositions and methods for oral administration of cannabinoids. US Patent. 2022; US20220370402
- [10] Martin BR, et al. Manipulation of the tetrahydrocannabinol side chain delineates agonists, partial agonists, and antagonists. Journal of Pharmacology and Experimental Therapeutics. 1999;290(3):1065-79.
- [11] Brown, N. K., et al. (1988). Metabolism of n-hexyl-homologues of delta-8-tetrahydrocannabinol and delta-9-tetrahydrocannabinol in the mouse. European Journal of Drug Metabolism and Pharmacokinetics, 13(3), 165–176.