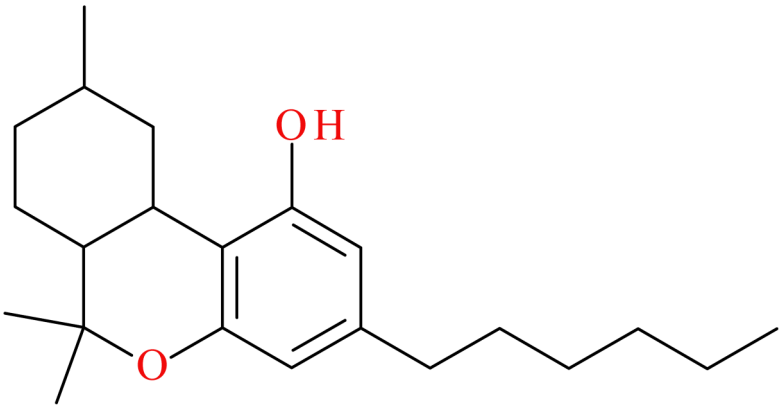
HHCH



NPS SUBCLASS
Cannabinoid
REPORT DATE
June 19, 2025
SAMPLE RECEIVED
November 11, 2024
SAMPLE TYPE
Toxicology

Preferred Name	HHCH
Synonyms	Hexahydrocannabihexol, HHC-H
Formal Name	3-hexyl-6,6,9-trimethyl-6a,7,8,9,10,10a-hexahydrobenzo[c]chromen-1-ol
InChI Key	OKXUDFJPZMVBEH-UHFFFAOYSA-N
CAS Number	N/A
Chemical Formula	$C_{22}H_{34}O_2$
Molecular Weight	330.5
Molecular Ion [M⁺]	330
Exact Mass [M+H]⁺	331.2632

Characterization & Intelligence

The following information was compiled in June 2025 and is subject to change as new research is conducted and as new information becomes available:

Description: HHCH is a semi-synthetic cannabinoid similar to other known phytocannabinoids (e.g., THC, HHC). HHCH exists as 9(R)-HHCH and 9(S)-HHCH. HHCH was first identified in September of 2023 in Sweden and reported to the European Union Drugs Agency (EUDA).[1] HHCH was identified by our laboratory in November 2024 and confirmed after acquiring standard reference material.

Sample Source: NYU Langone Health (New York City, NY)

Sample Appearance: Oral fluid (saliva)

Pharmacology: The activity and potency of HHCH have not been explicitly studied; however, due to structural similarity to other semi-synthetic cannabinoids such as HHC and HHCP, it is assumed that HHCH activates the CB_1 receptor and mimics the central nervous system effects of cannabis.[2,3]

Toxicology: HHCH has been detected in one toxicology case to date at the CFSRE.

Drug Materials: HHCH has not been detected in drug materials to date at the CFSRE.

Demographics / Geographics: Toxicology specimens originated from New York, NY, and HHCH was found alongside other cannabinoids and semi-synthetic cannabinoids (e.g., THC, THCO, THCB, THCH, Carboxy-HHC), as well as ketamine.

Legal Status: HHCH is not currently a scheduled substance in the United States.

References:

- Cayman Chemical: HHCH
- [1]EUDA: New psychoactive substances—the current situation in Europe (European drug report 2024)
- [2]Persson *et al.* In vitro activation of the CB_1 receptor by the semi-synthetic cannabinoids...
- [3]EUDA: EU early warning system formal notification 2023

About: In collaboration with medical examiner and coroner offices, crime laboratories, clinical partners, and other stakeholders, the Center for Forensic Science Research and Education (CFSRE) is documenting first confirmations of NPS through analysis of drug materials and/or toxicology samples. These reports are generated using comprehensive analytical techniques (e.g., GC-MS, LC-QTOF-MS, NMR) and include available information about the new substances identified at the time of reporting, as well as the analytical data generated during testing. Our new drug monographs are intended to assist with the rapid identification of NPS in forensic casework and related disciplines, and should not be used for confirmatory purposes alone.

Analytical Notes: All identifications were made based on evaluation of analytical data (GC-MS and LC-QTOF-MS) in comparison to analysis of acquired reference material.

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Gas Chromatography Mass Spectrometry (GC-MS)

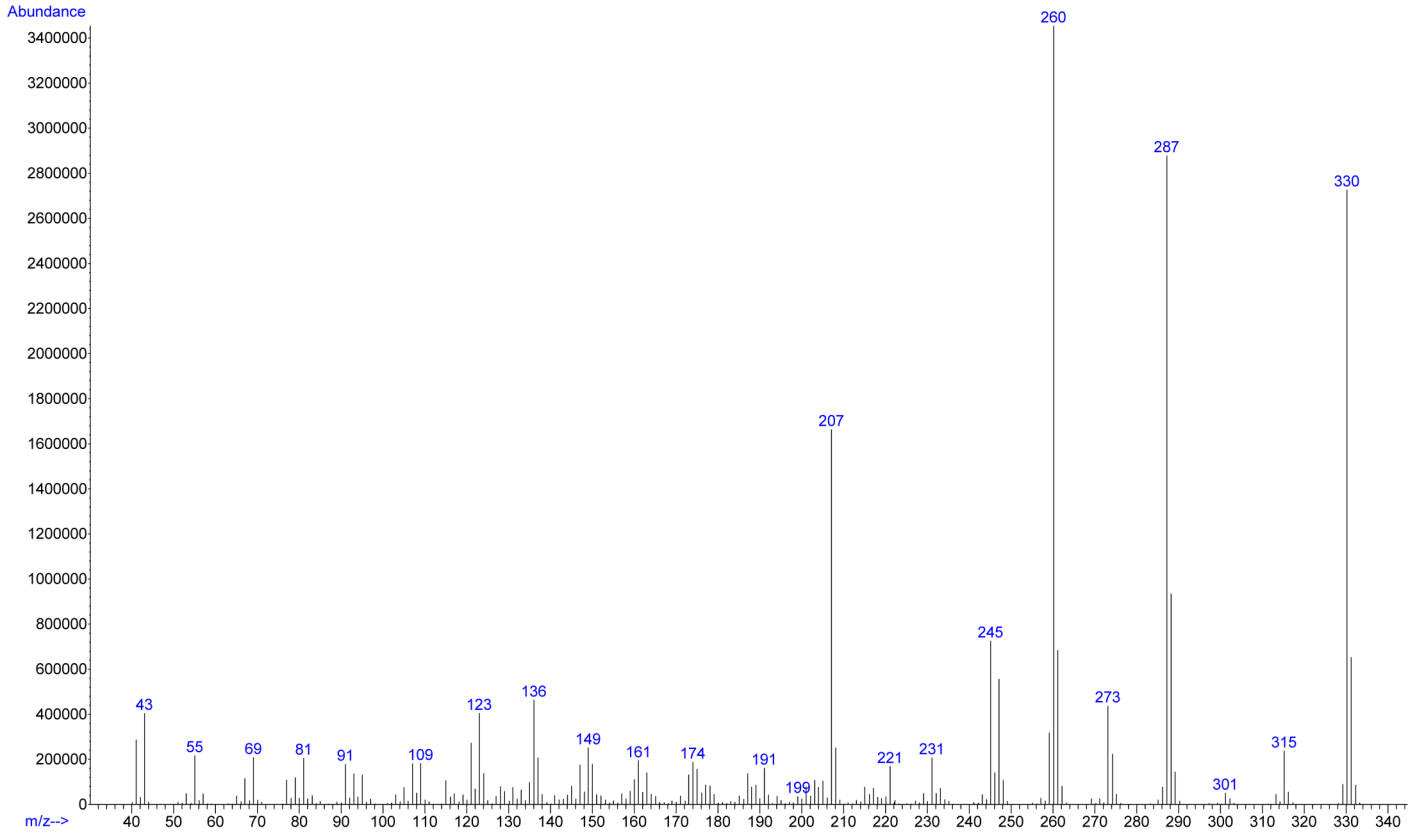
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham PA, USA)

Sample Preparation: Standard diluted in methanol

Instrument: Agilent 5975 Series GC/MSD

Methods: GC-MS Method Details & Monographs

GC-MS: Mass Spectrum (EI 70 eV)



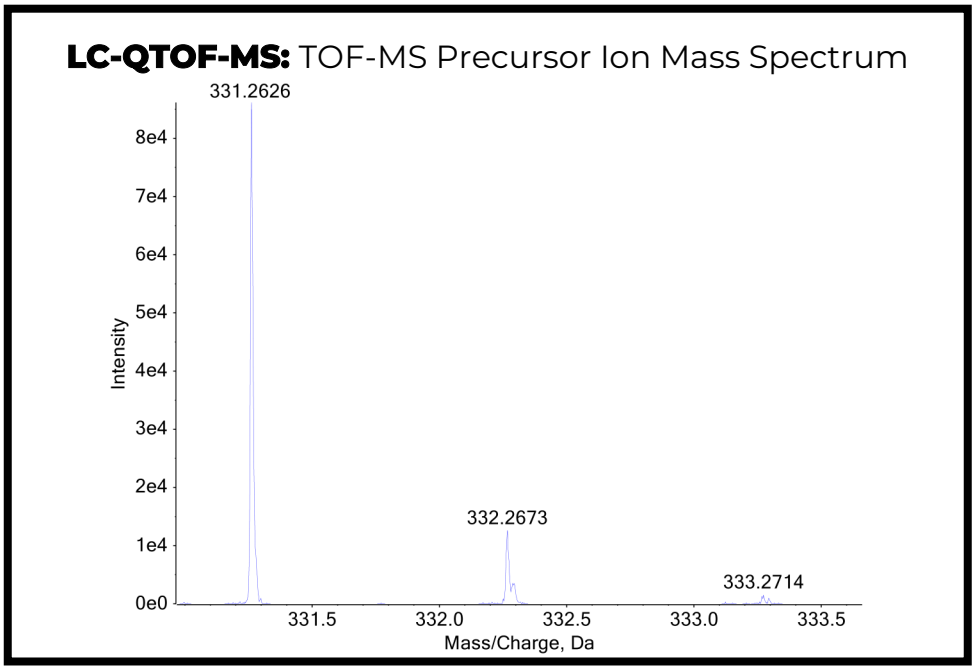
Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

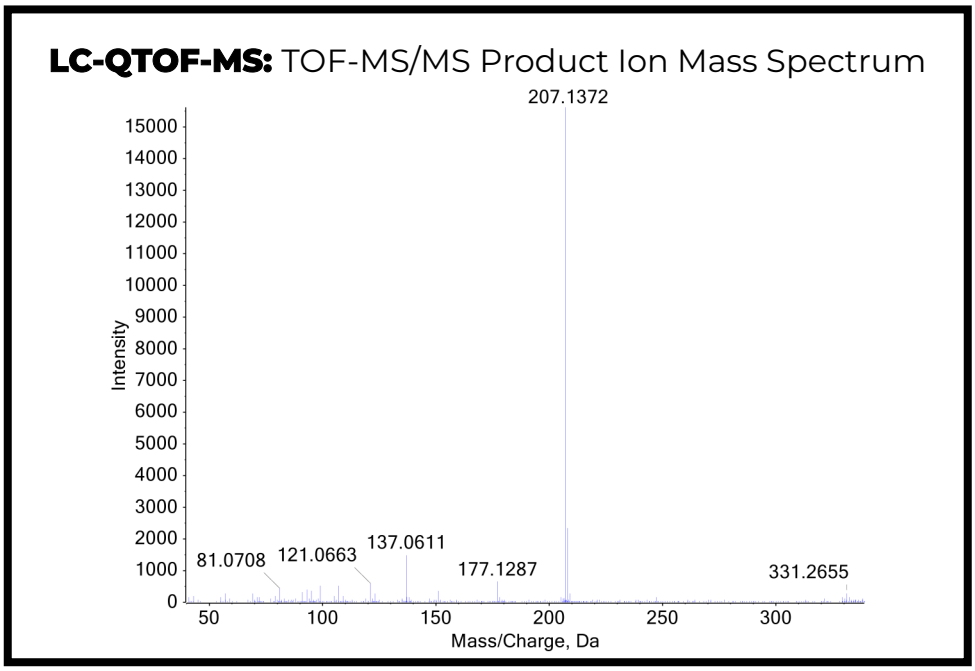
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham, PA, USA)

Sample Preparation: Liquid-liquid extraction

Instrument: Sciex X500R LC-QTOF-MS

Methods: LC-QTOF-MS Method Details & Monographs





Confirmation Using Drug Standard: *Reference material for 9(R)-HHCH (Batch: 0685493-4) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be HHCH based on retention time (sample: 11.26 min vs. standard: 11.49 min) and mass spectral data comparisons.*