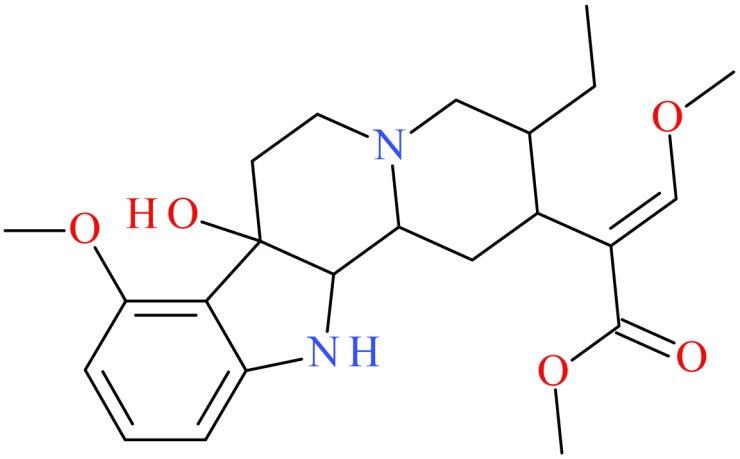
Dihydro-7-Hydroxy Mitragynine



NPS SUBCLASS
Miscellaneous
REPORT DATE
November 11, 2025
SAMPLE RECEIVED
September 2, 2025
SAMPLE TYPE
Drug Material

Preferred Name	Dihydro-7-hydroxy Mitragynine
Synonyms	MGM-15, Dihydro-7-OH Mitragynine, DH7OH MG
Formal Name	methyl (E)-2-(3-ethyl-7a-hydroxy-8-methoxy-2,3,4,6,7,12,12a,12b-octahydro-1H-indolo[2,3-a] quinolizin-2-yl)-3-methoxy-prop-2-enoate
InChI Key	QXFXDJATKPXTFF-DTQAZKPQSA-N
CAS Number	1158901-38-2
Chemical Formula	$C_{23}H_{32}N_2O_5$
Molecular Weight	416.5
Molecular Ion [M⁺]	416
Exact Mass [M+H]⁺	417.2384

Characterization & Intelligence

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

Description: Dihydro-7-hydroxy mitragynine ("MGM-15") is synthetic derivative of 7-hydroxy mitragynine. It is structurally similar to known kratom alkaloids and is the primary component in products being sold as "MGM-15".[1] Analysis of dihydro-7-hydroxy mitragynine is challenging due to the analytical conversion of dihydro-7-hydroxy mitragynine to mitragynine during GC-MS analysis. Dihydro-7-hydroxy mitragynine was first identified by our laboratory in September 2025 and confirmed after acquiring standard reference material.

Sample Source: In Collaboration with StreetCheck

STREET CHECK COMMUNITY DRUG CHECKING

Sample Appearance: Tan solid material

Pharmacology: Dihydro-7-hydroxy mitragynine is reported to be a partial agonist of the mu-opioid receptor and has increased opioid receptor affinity compared to 7-hydroxy mitragynine due to stereospecific saturation of the imine N(1)-C(2) double bond.[1]

Toxicology: Dihydro-7-hydroxy mitragynine has been detected in one toxicology cases at the CFSRE.

Drug Materials: Dihydro-7-hydroxy mitragynine has been detected in two drug materials at the CFSRE.

Demographics / Geographics: Drug materials originated from New England and toxicology sample originated from New Jersey. Dihydro-7-hydroxy mitragynine was identified alongside mitragynine, 7-hydroxy mitragynine, and trace ketamine.

Legal Status: Dihydro-7-hydroxy mitragynine is not currently scheduled in the United States.

References:

- Cayman Chemical: Dihydro-7-Hydroxy Mitragynine
- [1]Gour et al. (2025) From Kratom to Semi-Synthetic Opioids: The Rise and Risks of MGM-15

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 (LC-QTOF-MS) in comparison to analysis of acquired reference material (note: GC-MS analysis was not suitable for this substance).

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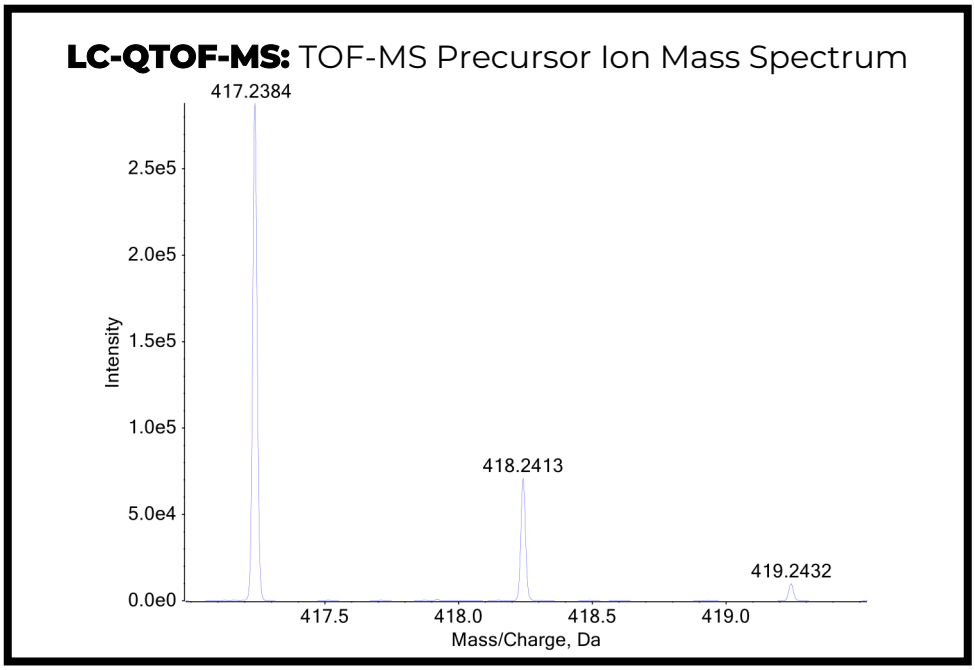
Liquid Chromatography Quadrupole Time-of-Flight Mass Spectrometry (LC-QTOF-MS)

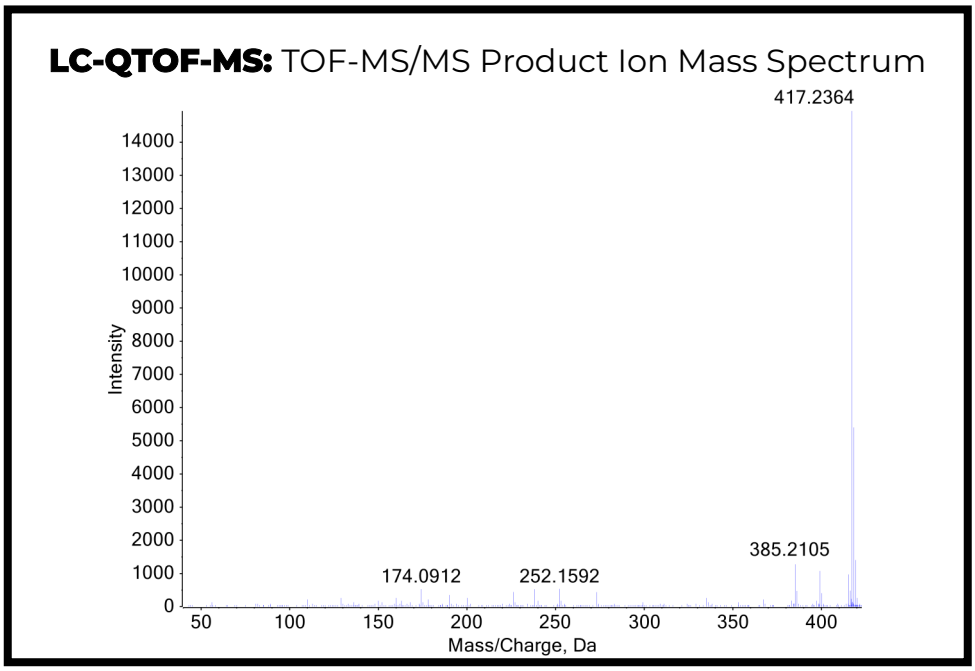
Laboratory: Center for Forensic Science Research and Education (CFSRE, Horsham, PA, USA)

Sample Preparation: Dilution in mobile phase

Instrument: Sciex 5600+ LC-QTOF-MS

Methods: LC-QTOF-MS Method Details & Monographs





Confirmation Using Drug Standard: *Reference material for dihydro-7-hydroxy mitragynine (Batch: 0811381-1) was purchased from Cayman Chemical (Ann Arbor, MI, USA). The analyte was confirmed to be dihydro-7-hydroxy mitragynine based on retention time (sample: 5.52 min vs. standard: 5.50 min) and mass spectral data comparisons.*