

KRATOM (*Mitragyna speciosa*) (Street Names: Thang, Kakuam, Thom, Ketum, Biak)

Introduction:

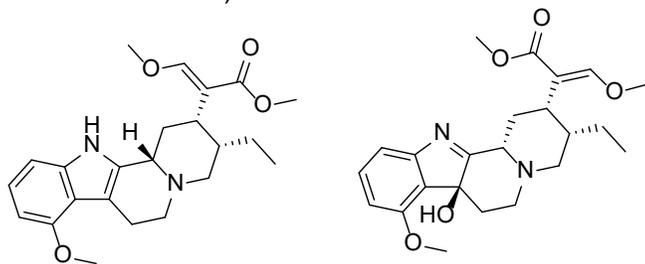
Kratom (*Mitragyna speciosa*) is a tropical tree indigenous to Thailand, Malaysia, Myanmar, and other areas of Southeast Asia. Kratom is in the same family as the coffee tree (*Rubiaceae*). The tree reaches height of 50 feet with a spread of over 15 feet. Kratom has been used by natives of Thailand and other regions of Southeast Asia as an herbal drug for centuries. Traditionally, kratom was used as a stimulant by Thai and Malaysian laborers and farmers to overcome the burdens of hard work. Kratom was also used to substitute for opium when opium was not available. It has also been used to manage opioid withdrawal symptoms by chronic opioid users.

Licit Uses:

Kratom has no legitimate medical use in the United States.

Chemistry:

Kratom's chemistry centers on a unique class of indole alkaloids. At least 54 alkaloids have been isolated in kratom. The alkaloid content varies significantly based on factors like plant strain and maturity, leading to variations in the chemical profile of different kratom products. Among the diverse alkaloids present in kratom, mitragynine (the most abundant alkaloid- about 66% of total alkaloid content) and 7-hydroxymitragynine (minor alkaloid, <2% of total alkaloid content) are the most studied alkaloids.



Mitragynine

7-Hydroxymitragynine

Pharmacology:

Available preclinical data show that both mitragynine and 7-hydroxymitragynine, similar to morphine, produce analgesia that can be attenuated by naloxone. Further, mitragynine and 7-hydroxymitragynine fully substitute for morphine in a drug discrimination study, an animal experimental model to assess shared pharmacological properties and subjective effects. At low doses, kratom produces stimulant effects, with users reporting increased alertness, physical energy, talkativeness, and sociable behavior. At high doses, kratom's opioid effects include sedation and euphoria. Effects occur within 5 to 10 minutes after ingestion and last for 2 to 5 hours. Acute side effects include nausea, itching, sweating, dry mouth, constipation, increased urination, and loss of appetite.

Kratom consumption can lead to addiction. There have been reports of kratom withdrawal among chronic users. Long-term use of kratom produced anorexia, weight loss, insomnia, skin darkening, dry mouth, frequent urination, hepatotoxicity, and

constipation. Furthermore, several cases of kratom psychosis have been observed, during which kratom addicts exhibited psychotic symptoms that included hallucinations, delusion, and confusion. In the United States, the use of kratom has been associated with cases of overdose and fatalities.

Illicit Uses:

In recent years, kratom and kratom-based products have increased in popularity on the recreational drug market. Kratom is mainly abused orally as tea or by chewing its leaves. Kratom is commonly used as an alternative to prescription opioids, self-treatment of opioid use disorder, or other substance use disorder, including withdrawal.

America's Poison Centers' 2023 annual report indicates that kratom accounted for 1,489 case mentions, 880 single exposures, 671 cases that involved treatment in a healthcare facility, and 5 deaths. According to data from the Food and Drug Administration's Adverse Event Reporting System, kratom (herbal/mitragynine and 7-hydroxymitragynine) was co-involved in 1,486 cases from 2008 to 2025. Of those cases, 1,387 cases were classified as serious and 715 cases involved death.

Other countries are reporting emerging trends in the use of kratom. In the United Kingdom, kratom is promoted as an "herbal speedball." In Malaysia, kratom (known as ketum) juice preparations are illegally available.

Illicit Distribution:

DEA's National Forensic Laboratory Information System (NFLIS) Drug database collects scientifically verified data on drug items and cases submitted to and analyzed by federal, state, and local forensic drug laboratories. NFLIS-Drug has received over 4,000 reports of mitragynine since it was first reported in 2010. The annual number of mitragynine reports peaked in 2018 at 609 and has steadily decreased since then to 369 in 2020, 360 in 2021, 292 in 2022, 269 in 2023, and 261 in 2024. NFLIS-Drug received the first 4 reports of 7-hydroxymitragynine in 2025 (data still pending).

Kratom is widely available on the Internet and is also sold in ethnobotanical retail stores; numerous vendors within and outside of the United States sell kratom and promote it as a legal psychoactive product. On the Internet, kratom forms available include leaves (whole or crushed), powder, extract, encapsulated powder, and extract resin "pies" (40-gram pellets made from reduced extract). Seeds and whole trees are also available through some online vendors, suggesting the possibility of domestic cultivation.

Control Status:

Kratom is not a controlled substance or listed chemical under the Controlled Substances Act.