

Kratom

Kratom (*Mitragyna speciosa*) is a plant/tree indigenous to Thailand and Southeast Asia whose leaves have been used for their psychoactive properties since the 19th century in that part of the world. The Maryland Poison Center was consulted on three cases of toxicity from kratom abuse this month alone, raising our concern that abuse of this drug might be on the rise.

Kratom is most frequently abused for its euphoric effect or used by some to self-treat opioid withdrawal, as it is considered an alternative to opium. Recently, kratom has been gaining awareness as a "natural" alternative to physician-supervised opioid replacement therapy. Many different kratom products are available for purchase on the internet, each with its own distinctive set of curative or mood-enhancing properties. Kratom is typically consumed in capsules or as a powder, but can be made into a tea.

Kratom contains more than 25 alkaloids. Mitragynine is the primary constituent; other alkaloids such as 7-hydroxymitragynine are also present but in lesser quantities. Mitragynine, is an agonist at mu, kappa, and delta opioid receptors. 7-hydroxymitragynine is more potent than mitragynine or morphine at opioid receptors and is thought to contribute significantly to the overall clinical effects of kratom. Mitragynine also has effects on adenosine, alpha adrenergic and serotonin receptors. In low doses (1-5 grams), kratom is said to produce mild stimulant effects. At high doses (5-15 grams), kratom produces euphoria and opioid effects. Onset of action is 5 to 10 minutes and duration is 2 to 5 hours.

Anxiety and irritability have been reported. Large doses may cause flushed skin, itching, lethargy, stupor, vertigo, nausea, vomiting, and tremors. Although mitragynine agonizes mu opioid receptors, miosis, respiratory depression, coma, and death have not been associated with its use. Three case reports of kratom-associated seizures exist in the medical literature. The seizures occurred following acute-on-chronic exposures, and co-ingestants were present. None of the seizures progressed to status epilepticus. The mechanism for kratom-induced seizures remains largely unknown. One case report of kratom-associated liver injury is found. Significant hyperbilirubinemia and cholestatic injury developed in a previously healthy 25 yo man following a daily exposure to large doses of kratom for two weeks. Viral hepatitis and autoimmune disease workups were negative; serum mitragynine concentrations confirmed the exposure; and symptoms resolved after stopping the drug. (*J Med Toxicol* 2011;7: 227-231). Addiction and withdrawal symptoms similar to mild opioid withdrawal have occurred with chronic use.

Treatment of toxic effects consists of supportive care. It is unclear whether naloxone will reverse the opioid-like effects. Routine urine drug screens do not test for kratom or mitragynine. Qualitative testing is available at NMS Labs in Willow Grove PA (www.nmslabs.com).

Suzanne Doyon, MD
Medical Director, Maryland Poison Center



Did you know?

Kratom is uncontrolled in the U.S.

Mitragyna speciosa is illegal in Thailand, Denmark and Australia but is uncontrolled in the U.S. Indiana banned the active ingredients mitragynine and 7-hydroxymitragynine in 2012. Tennessee followed suit in 2013. This year, the FDA issued an alert that gave border agents broader authority to seize kratom products entering the country. Arizona, Massachusetts and Vermont have pending legislation on kratom. (https://www.erowid.org/plants/kratom/kratom_law.shtml)



@MPCToxtidbits