IOWA POISON CONTROL CENTER

Poison HOTLINE

1-800-222-1222

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Did you know ……

As of 2023, 72% of tobacco specialty stores in the United States reported selling kratom products [8]. Despite its growing availability, kratom has no FDA-approved medical uses.

A significant concern surrounding commercially available kratom products is the lack of regulatory oversight and product standardization. Many kratom products on the market contain higher concentrations of alkaloids than naturally found in plant leaves, along with potential adulterants such as phenylethylamine.

Additionally, some products have been found to contain artificially elevated concentrations of 7-hydroxymitragynine, sometimes three to five times higher than levels naturally occurring in the plant.

Call the IPCC 24/7 to speak to our specially trained nurses, pharmacists, and physicians!

Kratom

Kratom, also known by names such as kakuam, kraton, ketum, thang, and biak, is derived from the leaves of the tropical *Mitragyna speciosa* tree native to Southeast Asia. Traditionally used for centuries as a medicinal plant, kratom leaves were dried and either chewed or brewed into tea [1]. Today, kratom is available in various formulations. Its effects are dose-dependent: at lower doses (1–5 grams of raw dried leaves), it acts as a stimulant, while higher doses (5–15 grams) exhibit analgesic properties [2]. Kratom is frequently used for self-treatment of chronic pain and opioid withdrawal.

The bioactive constituents found in kratom leaves are mitragynine and its more active metabolite, 7-hydroxymitragynine (7-HMG). Mitragynine is metabolized to 7-HMG via CYP3A4 interaction. Mitragynine constitutes 1-2% of the dry leaf mass whereas 7-HMG is typically less than 0.05% [3]. Both indole alkaloids are partial mu-opioid receptor agonist, however 7-HMG is 10 times more potent than mitragynine [2]. Although the alkaloids are 10 times more potent than morphine, they do not activate the beta-arrestin-2 signaling pathways, which are responsible for respiratory depression in an opioid overdose [4]. The half-lives of mitragynine and 7-hydroxymitragynine are approximately 3.5 and 2.5 hours, respectively [5]. The terminal half-life of oral mitragynine is estimated to be 23 hours [6].

Between 2011 and 2017, 1,807 kratom exposures were reported to U.S. poison control centers [7]. The toxicological effects of kratom are dose-dependent. At lower doses, kratom acts as a mild stimulant, which may cause symptoms such as anxiety and agitation. At higher doses, it produces opioid-like effects, including sedation, euphoria, and analgesia. Common symptoms of toxicity include agitation, tachycardia, drowsiness, and vomiting. Severe toxic effects can include confusion, seizures, hallucinations, respiratory depression, and coma [8]. Management of an acute ingestion is mainly symptomatic and supportive care. There is no specific antidote for kratom overdose. While naloxone has been used in some cases, its efficacy has shown mixed results, as reported in limited case studies. Agitation can be managed with benzodiazepines, while significant vomiting and diarrhea may require fluid and electrolyte replacement to prevent dehydration. Chronic kratom use may lead to withdrawal symptoms, including myalgia, insomnia, fatigue, and chest discomfort.

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