

# KRATOM

Biak – Herbal Speedball – Kakuam – Ketum  
Krathom – Thang – Thom

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Opioid, Addiction, and Pain ECHO

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# OBJECTIVES

- Outline the history of Kratom
- Review the pharmacology and mechanism of action
- Summarize the laws surrounding Kratom use



# KRATOM

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# DESCRIPTION

Kratom refers to *Mitragyna speciosa*, a tree native to tropical regions of Southeast Asia (Thailand, Malaysia, and Indonesia) that is in the coffee family.





## EPIDEMIOLOGY

- The national poison center reporting database documented 1,807 calls concerning reported exposure to kratom from 2011–2017
- **152 out of 27,338** overdose deaths that occurred from 2016–2017 tested positive for kratom on postmortem toxicology reports
- Kratom was determined as the cause of death in **91 of the 152** kratom-positive cases, **7 for whom kratom was the only substance to test positive on postmortem toxicology**

## HOW IT'S USED

- Leaves are chewed
- Leaves are dried to be:
  - Brewed as a tea
  - Smoked
  - Crushed into powder to fill capsules
- “4x100”
  - Cocktail of kratom leaves, codeine cough syrup, Coca-Cola, and ice
  - Popular in Thailand



## USES

- Energy / Reduce fatigue
- Anxiety
- Pain
- **Addiction (Alcohol and Opioid Withdrawal)**
- Antitussive
- Anti-diarrheal
- Libido
- Mood enhancement

There are **no approved medical uses** for kratom, but it is often used in **Malaysian folk medicine**. It is currently under FDA review for significant safety concerns. There are no human studies, but some animal data are available.

# PHARMACOKINETICS

- Effects
  - **Opioid ( $\mu$ )**
  - **Stimulant**
  - Sedative (alpha-2-andrenergic)
  - Sensory suppressive
- Inhibits CYP3A4, 2D6, 1A2
- Onset: 5-10 minutes
- Duration: 2-5 hours
- Urine Drug Screen
  - POC: No
  - GC/MS: Yes







## MITRAGYNINE

- Makes up 60% of kratom's alkaloid content
- A **partial mu-opioid receptor agonist** that is about 25% as potent as morphine
- Also affects the adrenergic, serotonergic, and dopaminergic pathways
- Mitragynine is also a central stimulant
- Half-life is about 3.5 hours

## 7-HYDROXYMITRAGYNINE

- Makes up 2% of kratom's alkaloid content
- A highly selective **mu- and kappa-opioid receptor agonist** that is estimated to be **14 times more potent** than morphine
- 7-HMG has CNS stimulant and depressant effects that are 4 times that of mitragynine
- Half-life is about 2.5 hours

## EFFECTS

- Higher doses (5-15 grams) have **opioid-like effects**
  - Sedation, pleasure, and decreased pain
- Lower doses (1-5 grams) have **stimulating effects**
  - Euphoria, energy, talkativeness, and alertness
- **The full mechanism is not understood**, as other alkaloids found in Kratom may be causing stimulating effects.
- Effects may also vary depending on strain (color of vein)



# ADVERSE REACTIONS

## Opioid

- Nausea/Vomiting
- Constipation
- Withdrawal
- Respiratory depression
- Addiction
- Liver toxicity\*
- Death



## Stimulant

- Hypertension
- Tachycardia
- Psychosis
- Seizure
- Addiction
- Death

# WITHDRAWAL SYMPTOMS

- Muscle/bone aches
- Insomnia
- Irritability
- Aggression
- Runny nose
- Jerky movements



# TREATMENT OF USE DISORDER AND OVERDOSE

- Not yet studied, no evidence based guidance
- Use **naloxone for overdose**
- Symptomatic treatment for stimulant effects
- Treat opioid withdrawal symptoms
- Medication for OUD (buprenorphine, naltrexone)
- Behavioral therapy

## LEGALITY

- Kratom is **not** federally controlled in the United States, but it is a **“drug of concern.”**
- It is controlled/banned in many regions of Southeast Asia
  - Australia, Denmark, Germany, Malaysia, New Zealand, Romania, etc.
  - Kratom Act 1943 banned use in Thailand
- States including Alabama, Arkansas, Indiana, Tennessee, Vermont, and Wisconsin have banned the plant in various forms, while others have legislation pending



## DEA/FDA

- DEA (2013): “No legitimate medical use”
- FDA (February 2018): “Not safe or effective for any medical condition”
  - Feb. 2014: FDA began seizing shipments due to increase in poisonings
  - Aug. 2016: DEA > CS I of Controlled Substance Act due to 44 Kratom related deaths
  - Oct. 2016: DEA withdraws announcements due to public protest, 51 Congress people and 9 Senator response

## LAWS – UTAH

- FDA recall for Salmonella (2018)
- Utah concern for safety (2019)
- <https://le.utah.gov/~2019/bills/static/SB0058.html>
  - Kratom Consumer Protection Act
  - “Requires a person that prepares, distributes, sells, or offers to sell a kratom product to follow certain labeling requirements”

# WHERE TO GET KRATOM?

- Kratom Bars/Kava Bars serve Kratom as a brewed beverage
  - Colorado, New York, North Carolina, Florida
- Head shops
- Convenience stores
- Online



## BOTANICAL TEA BAR

Voted “Best in Tampa,” our kratom tea and kava is AWESOME!!!! Made fresh, flavored perfectly.

[Details](#)

## CONCLUSION

- There are no approved uses for Kratom. Further studies need to be conducted to show safety and efficacy for its proposed uses
- Kratom poses a risk for addiction, abuse, and dependence
- Deaths have been associated with the use of kratom-containing products





# QUESTIONS?

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