

# CASE STUDY

## Identifying Smuggled Khat

### About Khat

Khat (also known as qat or chat) is a flowering shrub which is native to East Africa and the southwest Arabian Peninsula. The buds and plant leaves of khat are chewed to achieve a stimulant effect similar to amphetamine, although khat is less potent. Cathinone and cathine, the active drug components of khat, are released into the user's saliva as it's chewed.

Khat chewing has a long history dating back thousands of years as a social custom and for medical uses in its native regions. Although still legal in a few African and Middle East countries, khat (and/or its active components) has been designated as illegal throughout much of the world. In May of 2022, the U.S. Coast Guard seized 10,000 tons (estimated street value of \$3.6 Million) of Khat disguised as tea from Kenya while a few months later, Saudi Arabia's Border Guard seized 48.6 tons of khat and arrested 146 smugglers.

### The Situation

At a major U.S. international airport, a shipment from Sierra Leone in western Africa was flagged for further inspection after an officer observed a plant-like material in the shipment. This package was nearly identical to a 27 kg shipment that was delivered to its recipient previously because law enforcement had no way to confirm if the shipment was khat.



**Khat leaves** - this bitter plant is chewed as a stimulant in East Africa and the Arabian Peninsula.

Knowing the package originated from Africa, where khat is still legal in some countries, the officers took steps to confirm what the material was. The package was opened and the plant material inside was consistent with khat, a bundle of leaves and fresh shoots. Using both a Raman and Fourier Transform Infrared (FTIR) spectrometer, the officers attempted to identify the material, but both technologies gave a "No Target Detected" result. This is not uncommon as these technologies are "bulk detectors" that excel at identifying visible amounts of drug material (typically more than 1 mg).



Suspicious of a possible drug shipment, officers ran the samples in the **MX908 Drug Hunter Mission Mode** which returned multiple alarms for cathinone, an active drug substance in khat.

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### MX908 Identifying Drugs When Other Technologies Fail

With no way to identify the suspected khat, responding law enforcement made a call to a nearby agency which had an MX908 and requested their assistance to identify the material. Using the MX908, the officers swabbed various parts of the plant material and packaging to obtain multiple samples. Suspicious of a possible drug shipment, officers ran the samples in the MX908 Drug Hunter Mission Mode which returned multiple alarms for cathinone, an active drug substance in khat. Officers quickly downloaded and sent the data from the scans to 908 Devices to conduct reachback analysis. Reachback analysis by 908 Devices' forensic chemists supported the on-screen alarms after analyzing the sample and reference spectra. Forensic chemists from 908 Devices also noted that the high sample signal reported on the device was consistent with cathinone given the drugs lower required temperature for vaporization.

### The Result

A previous 27 kg shipment of what was presumably khat was delivered to the recipient and likely ended up being sold on the streets. This time, the MX908 was able to provide a positive identification of cathinone, an active component in khat. This positive identification allowed law enforcement to seize the 62 kg shipment and continue their investigation. It also provided them with the confidence to continue to further screen these types of shipments knowing that the MX908 provided a reliable way to identify trace amounts of cathinone where other technologies failed.

### About MX908

MX908 leverages high-pressure mass spectrometry to deliver dramatically enhanced sensitivity and broader threat category coverage. This down-range tool increases mission support with unmatched flexibility and trace detection power for first responders in priority drug, chemical, explosive and high-threat hazmat scenarios. MX908 lightens the overall technology burden by displacing other less selective technologies from the response toolkit.

### References

[US Customs and Border Protection, CBP, US Coast Guard Seize more than 10 tons of khat, Department of Justice/DEA Drug Fact Sheet Khat](#)

[Alcohol and Drug Foundation, What is Khat?](#)

[European Monitoring Centre for Drugs and Drug Addiction, Khat Drug Profile](#)



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