In the

United States Court of Appeals

For the Seventh Circuit

Nos. 12-2792 & 12-2793

UNITED STATES OF AMERICA,

Plaintiff-Appellee,

v.

JAMA MIRE and HASSAN RAFLE,

Defendants-Appellants.

Appeals from the United States District Court
for the Southern District of Indiana, Indianapolis Division.
No. 1:11-cr-00015-WTL-KPF—**William T. Lawrence,** *Judge.*

ARGUED APRIL 12, 2013—DECIDED JULY 25, 2013

Before BAUER, POSNER, and FLAUM, *Circuit Judges*.

BAUER, *Circuit Judge*. This case introduces a new drug culture to the Seventh Circuit: the underground world of "khat."

Jama Mire and Hassan Rafle became involved in a conspiracy to distribute khat in the Indianapolis area. Mire's business, the Somali House of Coffee, served as a place where people could get the "stuff" and enjoy it in comfort. Government agents received a tip from a con-

cerned Somali man about this khat-distribution conspiracy and launched an investigation into it. Mire and Rafle were each indicted on one count of conspiracy to possess with intent to distribute cathinone, in violation of 21 U.S.C. §§ 841(a) and 846. Mire was indicted on two additional counts: (1) knowingly using or maintaining a place for the purpose of distributing and using cathinone, in violation of 21 U.S.C. § 856(a)(1); and (2) possession with intent to distribute a mixture or substance containing cathinone, in violation of 21 U.S.C. § 841(a). And after a bench trial, Mire and Rafle were found guilty on all counts.

The Defendants appeal their convictions; the sentences they received are not at issue. Mire and Rafle contend, first, that their due process rights were violated because they were not given fair warning that the possession of khat may be illegal; and second, that the district court erred under *Daubert* in admitting government expert witness testimony regarding khat plants that were seized at the coffee house and tested for cathinone, a controlled substance. Mire also contends that his conviction for conspiracy to distribute khat and his conviction for maintaining a place for the distribution or use of khat violate the Double Jeopardy Clause; and anyway, that the evidence at trial was not sufficient to support any of his convictions.

Finding each of the arguments without merit, we affirm.

I. BACKGROUND

A. What is Khat?

This is the first case involving khat to appear before this Court, so we take the opportunity to explain it. Khat,[1] pronounced "kɑːt"—the common name for the plant *Catha Edulis*—grows in parts of East Africa and the Arabian Peninsula. It is known as the drug-of-choice among Somali men who chew the leaves or mix them in with tea for the stimulant effects. It is not smoked or eaten in any fashion. The use of khat in Somalia is legal and an accepted pastime, and the plant is readily sold in the marketplace and stores. Estimates put its use among Somali men as being equivalent to caffeine or tobacco use among the American population. *See* Edward G. Armstrong, *Research Note: Crime, Chemicals, and Culture: On the Complexity of Khat*, 38 J. DRUG ISSUES 631, 633 (2008) [hereinafter Armstrong, *Research Note*] (noting that 75% of Somali men use khat). U.S. pop culture has even referenced the use of khat in Somalia, including the 2001 Oscar-winning film Black Hawk Down. *See Black Hawk Down*, INTERNET MOVIE DATABASE, http://www.imdb.com/title/tt0265086/?ref=ttqt_qt_tt (last visited July 8, 2013).

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[1] "Street Names: Khat has over 40 street names to include Abyssinian Tea, African Salad, Bushman's Tea, Chat, Gat, Kat, Miraa, Oat, Qat, Somali Tea, Tohai, Taschat." *Fact Sheet, KHAT AKA: Catha Edulis*, DRUG ENFORCEMENT ADMIN., http://www.justice.gov/dea/pubs/pressrel/pr072606a.html (last visited July 8, 2013).

Khat "the plant" is not illegal in the United States. It is not listed in the U.S. Code or the Code of Federal Regulations (CFR) controlled substances schedules. *See, e.g.*, *United States v. Hassan*, 542 F.3d 968, 972 (2d Cir. 2008); *United States v. Caseer*, 399 F.3d 828, 833 (6th Cir. 2005); *United States v. Hussein*, 351 F.3d 9, 15 (1st Cir. 2003). The plant, however, contains two controlled substances, cathinone and cathine, that produce an energetic and excited state that allows a user to combat fatigue and function at a higher level. *See* U.S. Food and Drug Administration, *Basis for the Recommendation for Control of Cathinone into Schedule I of the Controlled Substances Act* 10, 12 (Nov. 5, 1992) [hereinafter FDA Report]. As a result, cab drivers in the United States have been known to use khat during their shifts.[2] *See Caseer*, 399 F.3d at 831. "Fresh" khat is sold in "bundles," costing approximately $40 to $70 in the United States. "Dried" khat, also known as "garraba" or "G20," is sold in packs or "baggies" for about $40 each.

Cathinone, a Schedule I drug, has properties similar to those of amphetamine and is the stronger of the two controlled substances found in khat leaves. It was added to the U.S. Controlled Substance Act (CSA) in 1993.[3] *See* 21 C.F.R. § 1308.11(f)(3); FDA Report, at 18.

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[2] An audio recording of a call played at trial included a cab driver saying he did nothing for hours during his shift because he was too high from the garraba he chewed.

[3] Synthetic cathinone is one of the key ingredients in the increasingly-popular recreational drug "bath salts." *See Drug*

(continued...)

Cathine, on the other hand, is a Schedule IV controlled substance and the weaker of the two. *See* 21 C.F.R. § 1308.14(f)(1). Not all khat leaves contain the same or similar amounts of either substance, however; some contain none. The regulation of khat then is dependent upon the particular chemical composition of each leaf, which may vary depending on the size of the plant and when the plant was harvested. *See* Schedules of Controlled Substances: Placement of Cathinone and 2,5-Dimethoxy-4-ethylamphetamine Into Schedule I, 58 Fed. Reg. 4316, 4317 (Jan. 14, 1993) ("When khat contains cathinone, khat is a Schedule I substance. During either the maturation or the decomposition of the plant material, cathinone is converted to cathine, a Schedule IV substance. . . . When khat does not contain cathinone, but does contain cathine, khat is a Schedule IV substance.").

Once a khat plant or shrub is harvested, the cathinone in the plant metabolically breaks down into the less potent substance cathine. This breakdown occurs roughly thirty to forty-eight hours after harvesting but, again, varies depending on the particular plant and whether steps are taken to preserve the plant's initial chemical composition. *See* Armstrong, *Research Note*, at 639. In other words, fresh khat leaves have a greater ratio of cathinone to cathine than old, dried up leaves,

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[3] (...continued)
Facts: Synthetic Cathinones ("Bath Salts"), NAT'L INST. ON DRUG ABUSE, http://www.drugabuse.gov/publications/drugfacts/synthetic-cathinones-bath-salts (last visited July 8, 2013).

thereby producing greater psychoactive effects on the user. This is why khat growers expedite the process of harvesting the plants and shipping them to the intended destinations: khat users purchase the leaves for their desired effects, and a slow or delayed shipping process naturally diminishes the effect of each leaf upon consumption. *See United States v. Abdulle*, 564 F.3d 119, 125 (2d Cir. 2009) ("[A] newly harvested leaf may contain cathinone, while the same leaf a few days later may contain only cathine, the weaker, Schedule IV stimulant."). And at some point, khat leaves might not have any trace of the controlled substances and ingesting them would have the same effect as chewing leaves off an oak tree. *See Argaw v. Ashcroft*, 395 F.3d 521, 526 (4th Cir. 2005) ("At this juncture, there is no reasonable basis for the conclusion that khat always contains cathine."). For this reason, khat generally arrives in the United States within five or six days after it has been harvested.

The only way to determine whether a particular khat leaf has cathinone or cathine is to chemically analyze it. This is important because, unlike marijuana or peyote, law enforcement personnel cannot determine whether possession of a given khat plant is illegal by simply looking at the plant. *Cf.* 21 C.F.R. §§ 1308.11(d)(23), (d)(26) (listing "marijuana" and "peyote" as controlled substances).

B. The Facts

Hussein Ahmed was a cab driver and known khat dealer in the Indianapolis, Indiana area. Ahmed had

"fresh" khat connections in Europe who would send packages of it to him at: his residence, rented mailbox stores, and the Somali House of Coffee (the coffee house) before Mire became its owner. Once Ahmed received a package, which usually contained 30 to 200 bundles of khat, he repackaged the bundles into smaller quantities. This made for easier distribution of the product to local street buyers stretching from Indianapolis to Columbus, Ohio. One continuing problem for Ahmed was that some of his packages of fresh khat were intercepted by U.S. Customs officials. But for the packages he did receive, he would send back money using international money transfer businesses, including Dahabshil, Inc., Amal Express, and Western Union. And in doing so, he often used fake aliases to evade law enforcement detection.

Ahmed also distributed "dried" khat, which he purchased domestically, in boxes from Ethiopian sources. These boxes contained plastic trash bags full of garraba and weighed approximately 8 kilograms. One box cost Ahmed anywhere from $800 to $1,600.

Ahmed had another problem, however; he needed help selling and distributing the khat he purchased. To overcome it, he reached out to others for assistance. One person Ahmed looked to was his roommate, Rafle, who fled from Somalia in the 1990s and eventually landed in Indianapolis. This made sense because Rafle was often present when Ahmed opened the khat shipments at their apartment and repackaged the "goods" for distribution.

Rafle had two main roles in the conspiracy. First, he often sent money back to Ahmed's sources overseas on Ahmed's behalf. The amount would vary, but on one particular occasion, Rafle sent $700 to a "Guleed Ismail" in Holland. Guleed Ismail was one of Ahmed's sources for fresh khat from September 2007 until February 2011. Additionally, Rafle was a truck driver by trade. Accordingly, he could transport khat from Columbus to Indianapolis, and vice versa, while on the road. Government wiretaps captured a few conversations between Ahmed and Rafle when Rafle was commuting to and from Columbus. One such wiretap involved a khat transaction that was to occur and included Ahmed apprising Rafle to tell the seller that he was sent by the "Sultan." Another call included Ahmed advising Rafle to "change to local roads," and Ahmed testified that he told Rafle to drive the speed limit to avoid law enforcement scrutiny. Ahmed paid Rafle approximately $400 per trip in exchange for acting as his drug courier.

Ahmed also wanted to distribute khat locally in a secure setting in Indianapolis; that is how the Somali House of Coffee and Mire became involved. Mire, born in Mogadishu, Somalia, immigrated to the United States with his family in 2004 and eventually made his way to Indianapolis, Indiana. In early 2009, he became the sole proprietor of the coffee house. The coffee house was also known by its previous name, Hargeisa Coffee; Hargeisa is a city in Somalia. It was at the coffee house where Mire's troubles began.

Ahmed testified that in April 2009, shortly after Mire purchased the coffee house, he reached out to Mire to

discuss selling khat there. The former owner of the coffee house, Handule Mohammed, was a player in Ahmed's khat conspiracy and previously allowed Ahmed to send khat there. Testimony indicated that the Somali community in Indianapolis was a tight-knit group and was known to hang out at the coffee house together.

Ahmed thought the coffee house, now under Mire's direction and control, would be a good place to return and sell khat. Mire, a new business owner, wanted to increase profits at the coffee house, and Ahmed knew that. Ahmed's selling point was that his khat sales would bring more customers to the coffee house and Mire would see an increase in his legitimate business sales in return. Mire agreed.

Some time thereafter, Mire expanded the coffee house to include a large room at the front of the building. This room was decorated as a lounge and had dark-tinted windows facing the street. The coffee house had other smaller rooms at the back of the building. One of these smaller rooms was where Ahmed kept the khat he sold there. Ahmed did not have a key to that room, or any other room, at the coffee house.

Ahmed testified that he sold khat at the coffee house about four to five times per week from approximately April 2009 until April 2010, and this was done with Mire's knowledge and permission. During this time period, the number of customers at the coffee house increased: often times, there were as many as fifteen to eighteen people chewing khat at a time. Testi-

mony indicated that the renovated coffee house "lounge," with its tinted exterior windows and couches, served as an ideal place to enjoy the substance. Many of the khat users present were cab drivers in the area.

In March 2010, Mire began selling khat at the coffee house on his own. Ahmed in fact testified that Mire went into business for himself; he did not supply Mire with khat to sell, share in any of Mire's profits, or assist Mire in any pertinent way with respect to selling khat at the coffee house after April 2010. A recorded conversation between Ahmed and his friend Sayid Awale on September 17, 2010, corroborated that information. Awale asked Ahmed where he could get "green leaves," another name for garraba, and Ahmed told him "the little fat one who owns the place sells the stuff." Ahmed testified that "the little fat one" was Mire; context demonstrates that "the stuff" was garraba and "the place" was the coffee house.

Other testimony indicating that Mire was knowingly selling khat at the coffee house after April 2010 came from Jafar Tuti, a cab driver in Chicago, Illinois. Tuti rented a mailbox at a UPS store in Indianapolis in September 2010; Mire was present with Tuti at the time. Tuti had planned to move to Indianapolis from Chicago, but when that did not occur, he gave Mire the key to the UPS mailbox: instead of returning the key, Mire continued to use the mailbox himself. Tuti paid between $60 to $100 to rent the mailbox for three months; Mire paid Tuti $800 to continue using it in Tuti's name. The owner of the UPS branch where the mailbox

was located testified that only Mire was authorized to receive packages at the mailbox.

Unbeknownst to the Defendants, a confidential human source (CHS) of Somali heritage, Ali Jama, tipped off the FBI in an attempt to "clean up" the Somali community in Indianapolis; he wanted to eradicate the use of khat. In April 2009, the CHS met with Special Agent Todd Samargia and Task Force Officer Andy Burks and told them that Ahmed, among others, was involved in a khat-trafficking conspiracy in the area. The CHS said the drug activity began around 2007 and explained the details regarding how the khat was shipped to the United States, where it was coming from, and how the conspirators used fictitious information on the postal labels. FBI agents used this information to launch an investigation into the khat-distribution scheme in Indianapolis. The agents followed up on the CHS's tip and tracked the shipping of khat, conducted wiretaps on individuals believed to be involved in the conspiracy, engaged in surveillance of the coffee house, and had the CHS participate in a few controlled drug buys of khat at the coffee house.

The information gathered led to two indictments being returned against Ahmed, Rafle, Mire, and many others in the Southern District of Indiana on February 15, 2011. On February 17, Mire was arrested, and a search warrant was executed at the Somali House of Coffee. The coffee house search turned up numerous large bags filled with dried khat. Luke Augustine, a Senior Forensic Chemist for the Drug Enforcement Administration,

tested the khat plants seized for the presence of cathinone and cathine. Some of the plants tested positive for cathinone; some tested positive for cathine; and some did not have a trace of either controlled substance.

After Mire was arrested and informed of his *Miranda* rights, FBI Special Agent Jeremy Michaelis asked Mire about the khat found at the coffee house. Mire did not just deny ownership of the bags; he said it must have been placed there by his "enemies." Furthermore, Mire went so far as to say that he had never before seen garraba in Indianapolis. Agent Samargia also had an opportunity to speak with Mire. He showed Mire a photograph of a man in the coffee house surrounded by bags presumably of garraba. Mire denied knowing who was in the photo, what was in the bags, or where the photo was taken. Agent Samargia testified that the photo was obtained from Mire's personal cell phone, which was found during the search of the coffee house.

On July 12, 2011, a superseding indictment was filed; eight individual defendants were named. Mire and Rafle were both listed in Count I, conspiracy to possess with intent to distribute cathinone in violation of 21 U.S.C. §§ 841(a) and 846. Mire was also listed in Count II, knowingly using or maintaining a place for the purpose of distributing and using cathinone in violation of 21 U.S.C. § 856(a)(1); and Count III, possession with intent to distribute a mixture or substance containing cathinone in violation of 21 U.S.C. § 841(a). Five of the named individuals pleaded guilty in some capacity, including Ahmed, who agreed to cooperate with the government

in exchange for leniency. The case against Mire, Rafle, and another co-conspirator continued.

The government informed the Defendants that it intended to call Dr. Augustine and Theresa Browning, DEA Forensic Chemists, to testify as experts regarding the testing of khat plants for cathinone. On October 7, 2011, Mire filed a motion to exclude that testimony.[4] Rafle joined the motion on March 12, 2012. The Defendants contended that the testing procedures underlying the experts' testimony were unreliable and incomplete.

The district court conducted a *Daubert* hearing on the motion on March 19, 2012. *See Daubert v. Merrell Dow Pharms.*, 509 U.S. 579 (1993). On April 23, 2012, the court denied the Defendants' motion to exclude, as we discuss in full detail below.

A bench trial for Mire, Rafle, and the other co-conspirator was held from March 12, 2012, through March 30, 2012. The bulk of the government's case came from Ahmed's testimony. Other significant testimony came from Dr. Augustine, Agent Michaelis, and Agent Samargia. At the close of the government's case, all three defendants moved for a judgment of acquittal pursuant to Federal

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[4] Co-defendant Abdikadar Hodan filed the first motion to exclude the government's expert testimony, which Mire requested to join on August 12, 2011. Hodan pleaded guilty to the charges against him on September 1, 2011, so his motion was rendered moot. By invitation of the district court, Mire requested Hodan's motion be reinstated and treated as if Mire had originally filed it. The district court obliged.

Rule of Criminal Procedure 29(a). They argued, among other things, that (1) the CSA violated the Due Process Clause of the Fifth Amendment because it did not provide fair warning that the possession of khat could be illegal; (2) the government did not prove they "knew" khat contained a controlled substance; and (3) the government did not prove an "agreement" to violate 21 U.S.C. § 841(a) as required by the conspiracy count.

On April 4, 2012, the district court found Rafle guilty on Count I and Mire guilty on Counts I, II, and III. The court found the third defendant not guilty.

On April 23, 2012, the district court denied the Rule 29(a) motions in their entirety; the court also issued its factual findings and an entry of judgment as to Mire and Rafle. Rafle was sentenced to a prison term of twelve months and one day for his conviction on Count I. The district judge sentenced Mire to sixteen-month prison terms on Counts I, II, and III; the terms to run concurrently.

II. DISCUSSION

Mire and Rafle seek to have their convictions overturned. They each contend, first, that their due process rights were violated because the CSA and its corresponding regulations do not provide fair warning that the possession of khat may be illegal, and second, that the district court erred under *Daubert* in admitting the government's expert testimony regarding the chemical composition of the khat leaves tested. Mire puts

forth two additional contentions: his conviction for conspiracy to distribute khat, 21 U.S.C. §§ 841(a)(1) and 846, and his conviction for maintaining a place for the distribution or use of khat, 21 U.S.C. § 856(a)(1), violate the Double Jeopardy Clause; and alternatively, the government did not present sufficient evidence supporting each of his convictions. We address the four contentions in turn.

A. Fair Warning

The Defendants' "fair warning" argument is that the CSA violates the Due Process Clause because the regulations do not provide sufficient notice to persons of ordinary intelligence that khat plants may contain cathinone or cathine and, therefore, may be illegal to possess. This argument is one of first impression in this Court, but all of our sister circuits who have considered it have rejected it. *See United States v. Hassan*, 578 F.3d 108, 122 (2d Cir. 2008); *Caseer*, 399 F.3d at 839; *United States v. Sheikh*, 367 F.3d 756, 764 (8th Cir. 2004). We review this question of law *de novo*, *United States v. Ketchum*, 201 F.3d 928, 934 (7th Cir. 2000), and join the other circuits and reject it as well.

The Due Process Clause requires a criminal statute to "give fair warning of the conduct that it makes a crime." *Bouie v. City of Columbia*, 378 U.S. 347, 350-51 (1964). The Clause is violated when "a criminal statute . . . fails to give a person of ordinary intelligence fair notice that his contemplated conduct is forbidden by the statute. The underlying principle is that no man shall be held

criminally responsible for conduct which he could not reasonably understand to be proscribed." *United States v. Harriss*, 347 U.S. 612, 617 (1954). But we will strike down a statute only when it contains "terms so vague that [persons] of common intelligence must necessarily guess at its meaning and differ as to its application." *Gresham v. Peterson*, 225 F.3d 899, 907 (7th Cir. 2000) (quoting *Roberts v. United States Jaycees*, 468 U.S. 609, 629 (1984)).

The issue here is not whether the statute is vague in and of itself. The CSA specifically provides that cathinone and cathine are controlled substances. *See* 21 C.F.R. §§ 1308.11(f)(3), 1308.14(f)(1). No one disputes that. Rather, the Defendants maintain that, even though cathinone and cathine are specifically prohibited, "the regulations do not give an ordinary person any indication that khat is illegal, and in fact, tend to suggest that it is not illegal." This argument is based on the fact that "khat" is not listed in the CSA or the regulations, yet it still may be illegal to possess at certain times, depending on the chemical composition of a particular plant or leaf—i.e., whether it contains cathinone or cathine, two terms that are unfamiliar to most people. We are thus looking at a statute that may be more appropriately described as "underinclusive," because persons of ordinary intelligence would not necessarily know that khat is (or contains) a controlled substance even after reading the statutory text, as opposed to a statute that cannot be understood on its face. *See Caseer*, 399 F.3d at 836 (explaining that cathinone is an "obscure scientific term" and "the controlled substances

schedule's vagueness derives not from the language's imprecision but rather from the schedule essentially being written in a language foreign to persons of ordinary intelligence"). And in these situations, the risk of an individual being "trapped" is high. The Supreme Court in *Bouie* explained,

> When a statute on its face is vague or overbroad, it at least gives a potential defendant some notice, by virtue of this very characteristic, that a question may arise as to its coverage, and that it may be held to cover his contemplated conduct. When a statute on its face is narrow and precise, however, it lulls the potential defendant into a false sense of security, giving him no reason even to suspect that conduct clearly outside the scope of the statute as written will be retroactively brought within it by an act of judicial construction.

Bouie, 378 U.S. at 353.

The government puts forth two contentions as to why the situation discussed in *Bouie* is not present here. First, the government says that the Supplementary Information published in the Federal Register explains the connection between cathinone, cathine, and khat. The Government is partially correct; the Supplementary Information does discuss the connection. *See* 58 Fed. Reg. 4317 (discussing the connection between cathinone, cathine, and khat); *see also* Schedules of Controlled Substances; Temporary Placement of Cathine ((+)-norpseudoephedrine), Fencamfamin, Fenproporex and Menfenorex Into Schedule IV, 53 Fed. Reg. 17459 (May 17,

1988) (discussing the connection between cathine and khat). That information, however, was never incorporated or published in the CFR, and there is no reference to khat in the CFR. *See Hussein*, 351 F.3d at 13.

Next, the government directs us to the U.S. Sentencing Guidelines, which provide a marijuana equivalency for khat-related offenses even though neither cathinone nor cathine are explicitly mentioned. *See* U.S.S.G. § 2D1.1, comment. n.8(D) (listing one gram of khat as being equivalent to 0.01 grams of marijuana). But on these facts, we simply cannot accept the government's contention that this additional information cures the "underinclusive" problem. Many of the questions during oral argument focused on the general nature of khat—e.g., how the word is pronounced, what it is, how it is used, who uses it, and what its effects are. With these questions in mind, an ordinary person would not understand or generally know that khat contains two controlled substances, let alone cathinone and cathine. *See Caseer*, 399 F.3d at 838-39 (rejecting the government's arguments that the Supplementary Information and the Sentencing Guidelines cure "a vague criminal statute of its constitutional defect").

The government is not without recourse, however; a lifeline is available. The Supreme Court has noted that "a scienter requirement may mitigate a law's vagueness, especially with respect to the adequacy of notice to the complainant that his conduct is proscribed." *Vill. of Hoffman Estates v. Flipside, Hoffman Estates*, 455 U.S. 489, 499 (1982). The statutes at issue here require "actual

knowledge" that khat contains a controlled substance; they contain a scienter requirement. *See* 21 U.S.C. §§ 841(a)(1), 856(a)(1) (requiring that the defendant committed the offense "knowingly" or "intentionally"). Accordingly, the Defendants could not have been convicted of violating the statutes unless they had actual knowledge that khat—fresh or dried—contains a controlled substance. *See Hassan*, 578 F.3d at 120-21; *Caseer*, 399 F.3d at 839, 841-42; *Hussein*, 351 F.3d at 14-19. This requirement saves the statutes. *See Hassan*, 578 F.3d at 120-21; *Caseer*, 399 F.3d at 839, 841-42; *Hussein*, 351 F.3d at 14-19*; see also Boyce Motor Lines, Inc. v. United States*, 342 U.S. 337, 342 (1952) ("The statute punishes only those who knowingly violate the Regulation. This requirement of the presence of culpable intent as a necessary element of the offense does much to destroy any force in the argument that application of the Regulation would be so unfair that it must be held invalid.").

Like our sister circuits who have considered the regulations involving khat, we are mindful that "it would be helpful to people, who actually resort to statutes and regulations to determine whether their conduct is lawful, for Congress, through the statutory or regulatory scheme, to include the word 'khat' in the CSA." *Hassan*, 578 F.3d at 121. This is especially true considering that not all khat leaves contain cathinone or cathine and that other plants containing controlled substances are specifically listed in the schedules. *See Caseer*, 399 F.3d at 847-50 (Holschuh, J., dissenting) (discussing other plants, like marijuana, peyote, the poppy plant, and coca leaves, that are "themselves listed in the schedules by

their commonly known names") (emphasis omitted). But this does not invalidate the statutes at issue on Due Process grounds; the Defendants' fair warning challenge fails.[5]

B. Expert Testimony under *Daubert*

The Defendants' second challenge is to the admission under *Daubert* of the government's expert testimony regarding the presence of cathinone and cathine in the khat plants tested. Federal Rule of Evidence 702 permits expert testimony on an issue, provided the testimony is helpful to the trier of fact, is based on sufficient facts or data, and is the product of reliable principles and methods. Fed. R. Evid. 702. The district court is tasked with determining whether the requirements of Rule 702 are satisfied. *Bielskis v. Louisville Ladder, Inc.*, 663 F.3d 887, 893 (7th Cir. 2011) (citing *Daubert*, 509 U.S. at 589). In doing so, the court considers a non-exhaustive list of guideposts: (1) whether the scientific theory on which the expert's testimony is based can be or has been tested; (2) whether the theory has been subjected to peer review and publication; (3) the known and potential rate for error; and (4) whether the theory has been generally accepted in the relevant scientific, technical, or professional community. *Am. Honda Motor Co. v. Allen*, 600 F.3d 813, 817 (7th Cir. 2010) (citing *Daubert*, 509 U.S. at 593-

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[5] To the extent the Defendants attempt to bring the Equal Protection clause into the purview of their fair warning challenge, we reject this without further discussion.

94); *Bradley v. Brown*, 42 F.3d 434, 437 (7th Cir. 1994). We give the district court "wide latitude" in performing this gate-keeping function and determining whether expert testimony is admissible. *Lapsley v. Xtek, Inc.*, 689 F.3d 802, 810 (7th Cir. 2012).

The government called Dr. Augustine, a DEA Forensic Chemist, to testify at trial regarding the results from his analysis of the khat plants seized and tested. Dr. Augustine testified that many of the plants he analyzed tested positive for the controlled substances cathinone and cathine. He also testified that there were some plants that did not include either of the controlled substances.[6] The Defendants objected to this testimony before trial, contending that it was not based on reliable methodology. The district court held a *Daubert* hearing on the issue.

At the hearing, the government called John Chappell, another DEA Forensic Chemist, to testify regarding the procedures and methods Dr. Augustine used to analyze khat for the presence of cathinone and cathine. Dr. Chappell testified that the proposed testimony was based on an analysis of the plant material using a process called gas chromatography-mass spectrometry, also known as "GC-MS." GC-MS yields a "qualitative" result, as opposed to a "quantitative" result. Dr. Chappell explained that the difference between the two "results" is that a qualitative analysis involves testing the plant for

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[6] The khat plants with a "negative" result had no bearing on the prosecution of the Defendants.

the presence of a particular substance while ruling out the possibility of other substances being present; a quantitative analysis determines the particular amount of the substance tested for in the plant. DEA procedures do not require quantitative testing of khat.

With respect to GC-MS testing as utilized to detect the presence of cathinone and cathine in khat, Dr. Chappell's testimony encompassed the non-exhaustive *Daubert* factors. He first discussed several studies and published literature detailing the use of GC-MS to detect cathinone and cathine in khat. Next, Dr. Chappell stated that GC-MS methodology had been subjected to various peer-review studies and directed the court to several peer-reviewed publications, including one that he co-authored. *See* John S. Chappell & Marsha M. Lee, *Cathinone preservation in khat evidence via drying*, FORENSIC SCIENCE INTERNATIONAL, Feb. 25, 2010, at 108-120; Marsha M. Lee, *The Identification of Cathinone in Khat (*Catha edulis*): A Time Study*, 40 J. FORENSIC SCI. 116 (1995). With respect to the third factor, he described the rate of error as "infinitesimal." Finally, Dr. Chappell testified that GC-MS testing was a proper and common way to analyze khat plants for the presence of cathinone and cathine.

In response, the Defendants called Daniel McCoy, a toxicologist for over thirty years, to testify that the tests were inadequate. Dr. McCoy testified that the tests were inadequate because they did not include a "limit of blank," a "limit of detection," or a "quantitative component." A limit of blank is the "highest *apparent* analyte concentration expected to be found when replicates of

a sample containing no analyte are tested"; a limit of detection is the "lowest analyte concentration likely to be reliably distinguished from the [limit of blank] and at which detection is feasible." David A. Armbruster & Terry Ply, *Limit of Blank, Limit of Detection and Limit of Quantitation*, 29 CLIN. BIOCHEM. REV. S49, S49-52 (Supp. I Aug. 2008), *available at* http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2556583/. These assertions as to why Dr. Augustine's testing was unreliable, which the district court rejected after applying *Daubert*, are the same as those the Defendants present on appeal. We thus look to whether the district court's rejection of these arguments was "manifestly erroneous." *See Lapsley*, 689 F.3d at 809.

In its written decision denying the Defendants' motion to exclude, the district court addressed the issue of false positives. The court noted Dr. Chappell's testimony that the qualitative analysis uses "negative controls" as "blanks" to verify that there is no "independent source of contamination in the preparation of the sample for analysis." The court also noted that GC-MS analysis requires the tester to make sure that the "testing instrument" is not contaminated by a substance not actually present in the object tested. In the event of a "false positive," that sample result is invalidated and tossed out. We think this discussion was sufficient for the court to conclude that the rate of error in the testing was low, a critical guidepost under *Daubert*.

The district court next addressed the issue of limit of blank and limit of detection in the testing. The court

noted Dr. Chappell's testimony that these terms, and their corresponding meanings, are not generally applied in forensic drug analysis. Dr. Chappell had previously explained,

> These terms are not generally applied in the forensic drug analysis of solid dosage forms because they are much simpler mixtures as opposed to toxicology, which involves, invariably, bodily fluids like blood or urine, which are very complex samples and also have typically very low concentrations of drug substances, as I understand.

The district court also considered Dr. Chappell's testimony that in forensic evidence, these terms are not as important because the materials he and Dr. Augustine deal with, as opposed to other toxicologists, are "usually much more concentrated in the amount of the drug substance" being analyzed and are "simpler mixtures." And more importantly, the testers are not limited to a certain sample size. As Dr. Chappell testified, "If the [sample size] turns out to be inadequate for the detection or identification of a controlled substance, it's possible to take more material, examine it again, and be able to eventually maybe see whether there is something more present in a sample." This information, coupled with the Defendants' failure to point to anything undermining it, adequately supports the district court's conclusion that the GM-CS testing of the leaves did not need a "limit of detection" or a "limit of blank" to be admissible.

The Defendants' final argument, that the testing was unreliable because it did not encompass a quantitative

component, is without support. The Defendants do not assert that the testing for the presence of cathinone or cathine can never be done; they concede that science can determine "trace" amounts of the substances. Instead, their argument is framed around a misguided belief that a precise amount of the substance needs to be calculated. In making this argument, they liken the situation here to the fact that the majority of dollar bills in the United States have traces of cocaine on them, s*ee* Theresa K. Casserly, *Evidentiary and Constitutional Implications of Employee Drug Testing Through Hair Analysis*, 45 CLEV. ST. L. REV. 469, 474 n.49 (1997) ("In Miami, it is reported that there is cocaine on every dollar bill." (citing Constance Holden, *Hairy Problems for New Drug Testing Method*, SCIENCE, Sept. 1990, at 1099)), and people are not put in jail for the possession of dollar bills. But as we pointed out at oral argument, people do not ingest dollar bills to get the effects of cocaine (at least not reasonably); people do chew khat leaves for the stimulant effects.

Furthermore, the CSA and its accompanying regulations prohibit the possession of cathinone if it can affect the nervous system, regardless of the amount. *See* 21 C.F.R. § 1308.11(f) (explaining that cathinone in Schedule I includes "any material, compound, mixture, or preparation which contains *any quantity* . . . having a stimulant effect on the central nervous system") (emphasis added). It is irrelevant as to whether the precise amount of the controlled substance found in a khat plant could actually produce the effects the user desires; a "trace" amount can have a stimulant effect on the nervous system even if the user does not get "high."

To find in the Defendants' favor, we would have to write an additional element into the offenses: that khat leaves must have a "certain amount" of cathinone versus "any quantity." That is not our job, and we decline to do so. *See Urnikis-Negro v. Am. Family Prop. Servs.*, 616 F.3d 665, 684 (7th Cir. 2010) (stating that "[o]ur job is to apply the statute as Congress has written it"). Finally, the fact that one khat plant may be illegal to possess (because it contains a controlled substance) whereas another may be completely legal (because the controlled substances have fully broken down into others) makes no difference in this case or to the application of the *Daubert* analysis. The Defendants' argument that a qualitative assessment is insufficient because it does not say "how much" cathinone or cathine is in a given leaf or plant easily fails; the district court correctly rejected it.

As to the Defendants' other arguments, including that the research articles Dr. Chappell discussed were not peer reviewed and that there were other "serious defects in the methods used by the government chemists to test the khat materials," we have considered them and find them unpersuasive. The record establishes that the district court properly followed *Daubert* and did not abuse its discretion by admitting the government's expert testimony.

C. Double Jeopardy

Mire argues that his convictions and subsequent sentences under 21 U.S.C. §§ 841(a)(1) and 846 (conspiracy

to possess with intent to distribute cathinone) and 21 U.S.C. § 856 (knowingly maintaining a place for the distribution or use of cathinone) violate the Double Jeopardy Clause. This challenge was not raised in the district court, so we review for plain error. *See United States v. Fluker*, 698 F.3d 988, 1003 (7th Cir. 2012).

The Double Jeopardy Clause states that no person shall "be subject for the same offense to be twice put in jeopardy of life or limb." U.S. CONST. amend. V. In other words, "a person may not be convicted and punished for two separate offenses arising out of the same act unless 'each [offense] requires proof of a fact which the other does not.'" *United States v. Larsen*, 615 F.3d 780, 786 (7th Cir. 2010) (quoting *Blockburger v. United States*, 284 U.S. 299, 304 (1932)). Our inquiry, also known as the *Blockburger* test, takes us to the elements of the offenses at issue: "[i]f each statute contains an element that the other does not, then the offenses are different. If one statute has an element missing from the second, but all of the second's elements are in the first, then the second is a lesser included offense of the first." *United States v. Loniello*, 610 F.3d 488, 491 (7th Cir. 2010). Only in the latter situation is the Double Jeopardy Clause violated.

A conviction for conspiracy under 21 U.S.C. §§ 841(a) and 846 required the government to prove beyond a reasonable doubt that: (1) there was a conspiracy to possess cathinone with an intent to distribute it, and (2) Mire knowingly or intentionally became a party to the agreement. A conviction under § 856, however, required the government to prove that: (1) Mire knowingly used or

maintained a place, and (2) he did that for the purpose of distributing or using cathinone. Looking at these offenses and their elements, it is clear on their face that there is no Double Jeopardy violation. Mire acknowledges that the conspiracy count required proof of an "agreement"; there is no agreement requirement for a conviction under § 856. Mire also acknowledges that a conviction under § 856 required proof that a defendant "used or maintained a place"; there is no similar element in §§ 841(a) or 846.

That the conspiracy offense "functionally" has no element that § 856 does not have because of the facts of this case, as Mire asserts, makes little difference. Even assuming that the agreement for the conspiracy to violate § 841(a) involved Mire's ability to "maintain a place"—the Somali House of Coffee—it is well-settled that "the commission of a substantive offense and the conspiracy to commit that offense are two separate crimes." *United States v. Somers*, 950 F.2d 1279, 1283 (7th Cir. 1991). If that is the case, surely the principle of "two separate crimes" applies to a conspiracy offense and an offense completely separate from the substantive offense of the conspiracy. Furthermore, proof of an "overt act," or that Mire *actually maintained* the Somali House of Coffee for the purpose of distributing or using cathinone, is not required for a conspiracy conviction. *See United States v. Nunez*, 673 F.3d 661, 663 (7th Cir. 2012). As we explained, proof of an overt act was required for a conviction under § 856. There is nothing special about this case or the offenses charged that takes it outside the reach of these long-standing principles.

The facts underlying each conviction no doubt overlap. But the offenses are effectively different, and we presume Congress intended separate punishments for each offense. *See United States v. Faulds*, 612 F.3d 566, 569 (7th Cir. 2010); *United States v. Xiong*, 595 F.3d 697, 698 (7th Cir. 2010). Mire's Double Jeopardy challenge fails.

D. Sufficiency of the Evidence

Mire's final challenge is to the sufficiency of the evidence underlying all three of his convictions. His first contention is the government did not prove the "actual knowledge" element in each count—i.e., that Mire "knew" khat plants contained a controlled substance. *See* 21 U.S.C. §§ 841(a)(1), 846, and 856(a)(1). His second contention is the government did not prove the "agreement" required for the conspiracy conviction under 21 U.S.C. § 846. Our inquiry on these questions is whether "after viewing the evidence in the light most favorable to the prosecution, *any* rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt." *Jackson v. Virginia*, 443 U.S. 307, 319 (1979). And in making this determination, it is axiomatic that we will not "weigh the evidence or second-guess the [trier of fact's] credibility determinations." *United States v. Stevens*, 453 F.3d 963, 965 (7th Cir. 2006). Thus, we will only overturn a verdict for insufficiency of the evidence "if the record is devoid of the evidence from which a reasonable jury could find guilt beyond a reasonable doubt." *United States v. Stevenson*, 680 F.3d 854, 856 (7th Cir. 2012).

We begin with Mire's contention that he did not "know" khat contained a controlled substance, specifically, cathinone. Initially, it is important to note that the *mens rea* for the offenses charged—21 U.S.C. §§ 841(a)(1), 846, and 856(a)(1)—only required the government to prove that Mire conspired to distribute, maintained a place to distribute, or possessed with intent to distribute *any* controlled substance. *See, e.g.*, *Abdulle*, 564 F.3d at 126; *Hussein*, 351 F.3d at 18; *see also United States v. Turcotte*, 405 F.3d 515, 526 n.2 (7th Cir. 2005) (acknowledging the *Hussein* case and stating the "baseline principle that defendants must know that the substances in their possession are controlled substances to be convicted under the CSA, even if they do not know the exact identity of the substance they possess"). It does not matter whether Mire knew that khat contained cathinone or cathine; all that matters is Mire knew that khat contained *an* illegal substance. This distinction is key because having to prove a defendant knew the particular controlled substance at issue would be a much more difficult undertaking.

Unlike many of the cases in which we review a sufficiency of the evidence claim, Mire's trial was a bench trial. We therefore know exactly what evidence the trier of fact relied on when rendering his decision. Here, in the entry of judgment, the district judge specifically discussed Mire's statements to Agent Michaelis in which he denied having ever seen khat or owning the khat found at the Somali House of Coffee, in addition to Mire's statement that the khat had been placed there by his "enemies." As the district judge wrote, "Denial of

ownership of the khat and deflecting responsibility for it are strong circumstantial evidence that Mire knew that the khat contained an illegal substance." We agree with the judge's assessment of the information and cannot say that no rational jury could reach the same conclusion. *See United States v. Skidmore*, 894 F.2d 925, 928 (7th Cir. 1990) (concluding that the defendant's "denial of ownership reinforce[d] the inference that he knew about the presence of cocaine"). Mire's contention that the government did not prove that he "knew" khat contained a controlled substance is wrong.

We move to Mire's argument regarding the "agreement" requirement of his conspiracy conviction. *See* 21 U.S.C. § 846; *United States v. Speed*, 656 F.3d 714, 717 (7th Cir. 2011) (explaining that the government must show an agreement between two or more persons to engage in criminal conduct to attain a conviction for conspiracy). Ahmed testified at trial that in 2009, before he started selling khat at the coffee house, he had a conversation with Mire about selling khat there. Ahmed also testified that the parties agreed that selling khat at the coffee house would bring in more customers and increase business for Mire. That is what occurred. Between 2009 and March 2010, Ahmed sold khat at the coffee house, and Mire allowed khat to be stored in an unlocked back room of the building. Ahmed said he did not have keys to the room; we can thus presume that Mire, as the owner and operator of the coffee house, held the keys and permitted the khat's storage there. In other words, if Mire did not want

khat there, he could have easily prevented it by simply locking the door. The district judge found Ahmed's testimony both credible and persuasive, and we have no reason to disagree with those findings. We also believe Ahmed's testimony demonstrates overwhelmingly that the parties operated under an agreement and had a mutually-beneficial relationship: Ahmed sold khat at the coffee house; individuals went to the coffee house for the khat; and once the individuals were at the coffee house, they purchased legitimate items like coffee, tea, and sandwiches. An important factor in the success of any retail business is foot traffic. Like a saloon that offers video poker to attract patrons, Mire's agreement with Ahmed brought in the customers necessary to keep the Somali House of Coffee afloat.

It is true that Mire started selling khat on his own in March or April 2010, but that did not undo the conspiracy (or the agreement) that had already occurred. *See United States v. Read*, 658 F.2d 1225, 1233 (7th Cir. 1981) (explaining that a participant may withdraw from a conspiracy, but he is "still liable . . . for his previous agreement and for the previous acts of his co-conspirators in pursuit of the conspiracy"). The information in the record precludes Mire from convincing us that no rational jury could conclude he and Ahmed were parties to an agreement. Thus, Mire's challenge to his conspiracy conviction suffers the same fate as all the other challenges on appeal.

III. CONCLUSION

Having now described the underground world of "khat," and for the reasons discussed above, we AFFIRM.