

IN THE UNITED STATES DISTRICT COURT FOR THE
NORTHERN DISTRICT OF FLORIDA
PANAMA CITY DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

vs.

Case No. XXXXX

JOHN DOE,

Defendant.

DEFENDANT DOE'S SENTENCING MEMORANDUM

Defendant, John Doe, requests the Court to impose a sentence substantially below the range established by the United States Sentencing Guidelines. The Guidelines overstate the potential harm of his offense, and he is no more and probably less culpable than his codefendant who the Court sentenced to a year of imprisonment.

Though the final presentence report is not yet available, it will presumably hold Mr. Doe responsible for 848 grams of synthetic marijuana (MDMB-4en-PINACA).¹ Using the ratio provided in the

¹ The draft Presentence Report holds Mr. Doe responsible for an additional 1,887 grams of synthetic marijuana based on the cash seized from the codefendant, Jane Taylor, when officers arrested her and Mr. Doe. Mr. Doe and Ms. Taylor had objected to the calculation, and it is Mr. Doe's understanding the final presentence report for Ms. Taylor concluded the calculation was not supported by the evidence.

guideline commentary of 167 grams of converted drug weight for each gram of synthetic cannabinoid, *see the Drug Conversion Tables* at USSG 2D1.1, comment. (n. 8(D)), the 848 grams amounts to 141,616 grams of converted drug weight or, essentially, 142 kilograms, for a base offense level of 24.

In the attached report from Gregory Dudley, a professor of Chemistry at West Virginia University, however, he concludes that while “167 gm is appropriate to apply to the actual amount of synthetic cannabinoid substance” it is not warranted in the circumstances, here, where the synthetic drug is added to plant material and makes up only a percentage of the total weight.” Ex. 2 at 1.²

As Dr. Dudley explains, “[s]mokable synthetic cannabinoid (SSC) substances, also known as ‘synthetic marijuana,’ are typically prepared by soaking a synthetic cannabinoid into inert plant carrier material to produce a product similar to marijuana.” *Id.* Because of the “dilution with inert plant carrier material, a substantially greater amount of synthetic marijuana is required to deliver the same amount of

² Dr. Dudley’s curriculum vitae is attached as Exhibit 1. The defense provided the Government with a copy of Dr. Dudley’s report in March of this year.

active synthetic cannabinoid as the powder or crystalline substance.” *Id.* at 3. It is [m]uch like marijuana or hashish oil is to THC.” *Id.*

The Government has not determined what percentage of the total weight of the SSC here is MDMB-4en-PINACA. Dr. Dudley suggests two ways to reasonably estimate the amount of the synthetic marijuana where it is added to inert plant material: (1) a quantitative analysis performed by a chemist or (2) an estimate using the results of the testing done in a particular case, *United States v. Ghaleb*, No. 1:18-cr-15-GLS (N.D. N.Y), ECF No. 68 at 31, showing a concentration of 1.6 percent of synthetic cannabinoid in the SSC. *Id.* at 4-5. Absent either, he suggests assuming the manufacturer intended to produce an effect similar to marijuana and, for the purpose of the guideline calculations, considering the substance as marijuana. *Id.* at 5.

If the 1.6% is used here, the 848 grams of SSC contains 14 grams of synthetic marijuana. *Id.* at 6. It would result in two kilograms of converted drug weight and a base offense level of eight.³ If the SSC were

³ 1 gm of synthetic cannabinoid = 167 grams of CDW.
848 gm. X 1.6% x 167 = 2,265 grams of CDW or, about 2 kilograms
“At least 1 KG but less than 2.5 KG of Converted Drug Weight” results in Offense Level 8.

treated as marijuana, the 848 grams would result in an offense level of six.

Without some adjustment, it would be the same as using THC to determine the offense level for marijuana. One gram of marijuana equals one gram of converted drug weight. *Drug Conversion Tables* at USSG 2D1.1, comment. (n. 8(D)). One gram of Tetrahydrocannabinol (THC), as is true with synthetic cannabinoids, equals 167 grams of converted drug weight. *Id.* As the synthetic cannabinoid is the active ingredient in an SSC, so THC is the active ingredient in marijuana. Yet while the guideline multiplies the weight of the SSC by 167 for the converted drug weight, no multiplier is used with marijuana.

Some courts have corrected the flaw. In *United States v. Hossain*, 2016 WL 70583, *6 (S.D. Fla. 2016), the court, having considered the testimony of a Government witness and defense witnesses, including Dr. Dudley, abandoned the 1:167 ratio in favor of a 1:7 ratio. In *United States v. Ritchie*, 2020 U.S. Dist. LEXIS 26755, *8 (D. Nev. 2020), where, again, Dr. Dudley was a defense witness, the court used a 1:15 ratio. In *United States v. Ramos*, 814 F.3d 910, 924 (8th Cir. 2016), the dissenting judge urged a 1:1 ratio.

To be sure, cases such as *Ramos* have found “no clear error,” in using the 1:167 ratio. *Id.* at 919.⁴ *Ramos* was decided before 2018 when the Commentary said nothing about synthetic cannabinoids and required courts to rely on Note 6 of the Commentary to USSG § 2D11.1 that told courts to use “the converted drug weight of the most closely related controlled substance referenced in this guideline.”⁵ In *Ramos*, the question was not Mr. Doe’s claim—that the court should vary from the guidelines—but, instead, the accuracy of the guideline calculation. *Id.* at 912. The decision centered on provisions of the Guidelines requiring the calculations to use “the entire weight of the substance,” and, where the substance was not referenced in the drug-equivalency tables, requiring the use of the converted drug weight of the most similar substance in the tables, which was THC.⁶ Here, the question is not whether the guideline

⁴ In an Eleventh Circuit case, *United States v. Jaber*, 728 F.App’x 913, 917 (11th Cir. 2018), the court concluded the trial court did not “clearly err” in using the 1:167 ratio, but the issue was not the dilution of the synthetic cannabinoid but whether there was a “lack of scientific evidence to support the 1:167 ratio.” 728 F.App’x at 916.

⁵ In a 2018 amendment the Guidelines added the 1:167 ratio for synthetic cannabinoids. *See United States v. Ritchie*, 2020 U.S. Dist. LEXIS 26755, *3 (D. Nev. 2020)

⁶ The dissent argued the substance most similar to the SSC was, not THC, but marijuana: “the majority’s analysis leads to the result that the ‘most closely related controlled substance’ can never be marijuana,

calculation is correct. The Commentary now spells out the 1:167 ratio. Rather, much like challenges to the crack cocaine guideline before its amendment, the question is how much weight to give the Commentary and whether a variance is necessary to achieve the goals of sentencing.

Those decisions where courts have adjusted the ratio downward reflect the logic of Dr. Dudley. In *United States v. Hossain*, 2016 WL 70583, at *5, the court recognized the “potential dangers of synthetic cannabinoids, and the clear need for deterrence,” but concluded the 1:167 ratio “fails to achieve the goals of sentencing,” and used the ratio of 1:7.

In *United States v. Ritchie*, 2020 U.S. Dist. LEXIS 26755, *1 the synthetic cannabinoid was added to an inert plant material, damiana leaves, and the synthetic cannabinoid was XLR-11.⁷ Judge Andrew Gordon found the ratio of 1:167 “too high”:

However, applying that ratio to the finished product creates too high of an offense level because the weight of the damiana leaves that serves as the base for the XLR-11 skews the calculation higher. The damiana leaf is not a dangerous or controlled

hashish, or hashish oil because it is improper to consider the presence of plant material when analyzing THC analogues . . . contrary to the plain language of Application Note 6 and the treatment of THC in the Guidelines.” *Id.* at 923).

⁷ All the cases cited involved the synthetic cannabinoid XLR-11. Though different from MDMB-4en-PINACA, the guideline treatment of the substance and Dr. Dudley’s analysis treat the two substances the same.

substance, yet its weight is counted when applying the 1:167 ratio to the entire finished product. For marijuana, the weight of the leaf is counted in determining the offense level, but at the 1:1 ratio.

Id. at *5. Judge Gordon, “agree[d] with the Government that the synthetic cannabinoid . . . is more dangerous than marijuana,” *id.* at 6, but was “not convinced the finished product . . . is 167 times more dangerous than marijuana.” *Id.* at 5-6. He concluded the range of 1:15 was appropriate, finding it “reflect[ed] that [the synthetic cannabinoid] is more dangerous than marijuana.” *Id.* *8.

Judge Gordon’s analysis included what he described as the “perverse result” that can result from ignoring the dilution of the synthetic cannabinoid:

And as the defendants pointed out at the hearing, the Government's argument for a 1:167 ratio for the entire finished product creates a perverse result. A defendant who mixes 10 kilos of damiana leaves with 1 kilo of XLR-11 has 11 kilos of a dangerous substance. A defendant who mixes 100 kilos of damiana leaves with 1 kilo of XLR-11 has 101 kilos of a very diluted substance. Yet the second defendant (with 101 kilos) faces a more severe punishment because his concoction converts to 16,867 kilos (101 x 167) of marijuana while the first defendant's concoction (11 kilos of the far more powerful substance) converts to only 1,837 kilos (11 x 167).

Id. at *6.

The Court has sentenced Mr. Doe’s codefendant, Jane Taylor to a year of imprisonment. Mr. Doe recognizes there were mitigating factors in her case not present in his: she had successfully completed her inpatient treatment program, ECF No. __ at 9, performed well at her employment, *id.* at 13, she made efforts at cooperation, and her criminal history included only jail sentences. *Id.* at 31.⁸

While Mr. Doe has apparently failed to complete his treatment program, he has spent nearly seven months in it. His prior history consists of only two prior marijuana convictions. Neither Mr. Doe nor Ms. Taylor have been able to convincingly explain the \$37,000 in cash seized during the arrest, but the evidence suggests it was Ms. Taylor’s—it was in her purse, and it was withdrawn from her bank account. Then, too, as Mr. Narramore conceded, the Government “can’t dispute” the explanation offered by Ms. Taylor and Mr. Doe, that the SSC had been left by an associate, and they were returning it to him. *Id.* at 25. The Government dropped what was a firearm charge against Mr. Doe when, in her proffer, Ms. Taylor stated it was her firearm. Finally, in imposing

⁸ The court reporter has prepared a transcript of Ms. Taylor’s sentencing hearing and provided a copy to the defense. It has not yet been docketed.

Ms. Taylor’s sentence, there is no indication the Court relied on the claim made here—that the 1:167 ratio fails to promote the goals of sentencing.

While there are differences between Mr. Doe’s circumstances and Ms. Taylor’s, they are limited. The evidence shows Mr. Doe’s involvement in the offense is no greater and may be less than Ms. Taylor’s. Given that and the additional argument about the flaws in the sentencing guideline, a sentence equal to Ms. Taylor’s would be “sufficient” to fulfill the goals of sentencing. 18 U.S.C. § 3553(a).

CERTIFICATE OF SERVICE AND WORD COUNT

I HEREBY CERTIFY that a copy of the foregoing has been furnished electronically to Assistant United States Attorney Walter Narramore, II, 21 E. Garden Street, Suite 400, Pensacola, FL 32502 this 4th day of September 2022. This motion contains 1,969 words.

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“SYNTHETIC MARIJUANA” MADE FROM MDMB-4en-PINACA

Gregory B. Dudley, Ph.D.

I. Summary

Smokable synthetic cannabinoid (SSC) substances, also known as “synthetic marijuana”, are typically prepared by soaking a synthetic cannabinoid into inert plant carrier material to produce a product similar to marijuana. As an expert in organic chemistry and drug science, I previously testified before the US Sentencing Commission on emerging synthetic drugs, and I recommended categorical coverage of synthetic cannabinoids in the US Sentencing Guidelines (USSG). Here, I was asked to review and consider synthetic marijuana made from MDMB-4en-PINACA, which was determined to be a Controlled Substance Analogue of 5F-ADB (aka MDMB-PINACA).

2018 USSG provides categorical coverage of synthetic cannabinoids, which “are manufactured as powder or crystalline substances” and frequently “trafficked as part of a mixture”. Synthetic cannabinoids are assigned a converted drug weight of 167 gm. Guidance on upward or downward departures is provided based on purity, dilution, and potency, recognizing the differences between synthetic cannabinoids and synthetic marijuana.

After review and assessment, my opinion is the Converted Drug Weight of 167 gm is appropriate to apply to the actual amount of synthetic cannabinoid substance, and that a downward departure is warranted for synthetic marijuana to account for dilution onto the inert plant carrier material.

II. My Background and Expertise

I am the Eberly Family Distinguished Professor and Department Chair of the C. Eugene Bennett Department of Chemistry at West Virginia University in Morgantown, WV. Prior to this appointment, I was a Professor and Associate Chair in the Department of Chemistry and Biochemistry at Florida State University (FSU) in Tallahassee, FL, and a member of the Graduate Faculty in the College of Pharmacy and Pharmaceutical Science at Florida A&M University (FAMU) in Tallahassee, FL. I graduated *magna cum laude* with a B.A. in Chemistry from FSU in 1995, and I earned a Ph.D. in Organic Chemistry from the Massachusetts Institute of Technology (MIT) in 2000. I received a National Institutes of Health (NIH) Fellowship to conduct postdoctoral research in Molecular Pharmacology and Chemistry at the Sloan–Kettering Institute for Cancer Research, the research wing of the Memorial Sloan–Kettering Cancer Hospital in New York, NY. After working in this capacity from 2000–2002, I accepted an Assistant Professor position at FSU. I was promoted to Associate Professor with tenure in 2008 and Professor in 2015.

My broad expertise is in chemistry. I specialize in the synthesis, structure, and reactivity of drug-like molecules (i.e., synthetic, organic, and medicinal chemistry). My research interests focus on the development of new organic reactions and reaction technology, chemical synthesis of natural and drug-like compounds, and applications of synthetic organic chemistry in biomedical research. My research efforts have produced over 100 peer-reviewed publications, 7 invited contributions to leading reference works in organic chemistry, and multiple patents for innovations leading to two commercial products. I am called upon frequently to provide expert peer-review services for leading journals in chemistry (e.g., *Journal of the American Chemical Society*), organic chemistry (e.g., *Journal of Organic Chemistry*), medicinal chemistry (e.g., *Journal of Medicinal Chemistry*),

and research funding agencies (e.g., National Institutes of Health, National Science Foundation, American Chemical Society). I have delivered over 150 invited lectures at universities, scientific conferences, and pharmaceutical companies. I have received awards and recognition related to research, teaching, and innovation, as outlined in my CV.

My consulting experience includes matters of chemistry and pharmacology for pharmaceutical companies, biotechnology companies, entrepreneurial and economic development endeavors, and litigation support. I have consulted on dozens of cases related to emerging designer drugs and regulatory controls based on chemical structure and/or pharmacological effects, testified on numerous occasions in Federal and State courts, given lectures and served on panels related to drug science in the statutory context, contributed to an *Amicus Brief* submitted to the Supreme Court of the United States in the case of *McFadden v. United States of America*, and testified on synthetic drugs on two occasions before the United States Sentencing Commission.

III. Excerpts from the US Sentencing Guidelines (USSG) on Synthetic Cannabinoids¹

Synthetic Cannabinoids... Converted Drug Weight

1 gm of a synthetic cannabinoid (except a Schedule III, IV, or V substance) = 167 gm...

“Synthetic cannabinoid,” for purposes of this guideline, means any synthetic substance (other than synthetic tetrahydrocannabinol) that binds to and activates type 1 cannabinoid receptors (CB1 receptors).

(E) Departures for Certain Cases involving Synthetic Cannabinoids.—

- (i) **Departure Based on Concentration of Synthetic Cannabinoids.**—Synthetic cannabinoids are manufactured as powder or crystalline substances. The concentrated substance is then usually sprayed on or soaked into a plant or other base material, and trafficked as part of a mixture. Nonetheless, there may be cases in which the substance involved in the offense is a synthetic cannabinoid not combined with any other substance. In such a case, an upward departure would be warranted.

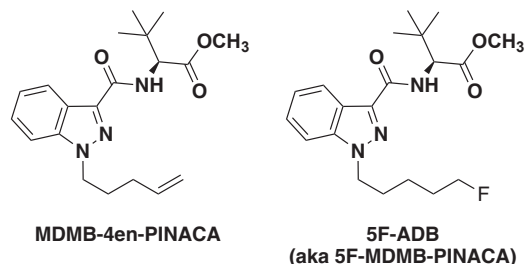
There also may be cases in which the substance involved in the offense is a mixture containing a synthetic cannabinoid diluted with an unusually high quantity of base material. In such a case, a downward departure may be warranted.

- (ii) **Downward Departure Based on Potency of Synthetic Cannabinoids.**—In the case of a synthetic cannabinoid that is not specifically referenced in this guideline, the converted drug weight for the class should be used to determine the appropriate offense level. However, there may be cases in which a substantially greater quantity of a synthetic cannabinoid is needed to produce an effect on the central nervous system similar to the effect produced by a typical synthetic cannabinoid in the class, such as JWH-018 or AM-2201. In such a case, a downward departure may be warranted.

1. United States Sentencing Commission, 2018 Guidelines Manual, §3E1.1 (Nov. 2018)

IV. MDMB-4en-PINACA and 5F-ADB

MDMB-4en-PINACA was determined for this case to be a Controlled Substance Analogue of 5F-ADB. Both compounds are synthetic cannabinoids with agonist activity at the CB1 receptor. According to data from a 2020 report in *ACS Chemical Neuroscience*,² MDMB-4en-PINACA is less potent than 5F-ADB.



V. Synthetic Cannabinoids and Synthetic Marijuana

It is important to recognize and understand the differences between the powder or crystalline synthetic cannabinoid substance as initially manufactured, and the synthetic marijuana product, which comprises plant material infused with a synthetic cannabinoid.

A synthetic cannabinoid is a chemical substance produced in a laboratory that binds to cannabinoid receptors. More specifically in this context, synthetic cannabinoid drugs of abuse bind to and activate cannabinoid receptors in the central nervous system in a manner similar to that of THC (the active ingredient in marijuana). Many synthetic cannabinoids, including 5F-ADB, are controlled substances. It is specifically the cannabinoid substance that binds the receptor and creates the pharmacological effect, not the plant carrier material.

Synthetic marijuana is a common colloquial term for a smokable synthetic cannabinoid (SSC) product (aka Spice, K2, fake pot, etc) designed and intended to mimic the effects of marijuana. Synthetic marijuana is prepared by combining a synthetic cannabinoid with an inert plant carrier material. The Associated Press described synthetic marijuana / pot as “a mind-altering drug made by taking plant material and spraying it with chemicals [i.e., synthetic cannabinoids] that can mimic the high from marijuana. It [synthetic marijuana] is sold under names like K2, AK47, Spice, Kush, Kronic, and Scooby Snax.”³ Synthetic marijuana does not itself bind to cannabinoid receptors, but rather serves as the delivery vehicle for the active cannabinoid.

Because of the dilution with inert plant carrier material, a substantially greater amount of synthetic marijuana is required to deliver the same amount of active synthetic cannabinoid as the powder or crystalline substance. **As analogies, synthetic marijuana is to synthetic cannabinoids:**

- as marijuana or hashish oil is to THC,
- as hallucinogenic mushrooms are to psilocin or psilocybin, and
- as peyote is to mescaline.

2. Cannaert, A., Sparkes, E., Pike, E., Luo, J.L., Fang, A., Kevin, R.C., Ellison, R., Gerona, R., Banister, S.D. and Stove, C.P. Synthesis and *in Vitro* Cannabinoid Receptor 1 Activity of Recently Detected Synthetic Cannabinoids 4F-MDMB-BICA, 5F-MPP-PICA, MMB-4en-PICA, CUMYL-CBMICA, ADB-BINACA, APP-BINACA, 4F-MDMB-BINACA, MDMB-4en-PINACA, A-CHMINACA, 5F-AB-P7AICA, 5F-MDMB-P7AICA, and 5F-AP7AICA. *ACS Chemical Neuroscience* **2020**, *11*(24), pp.4434-4446.

3. AP News report, “Synthetic pot seen as a public health danger”, August 17, 2018 (accessed March 14, 2022), <https://apnews.com/b28055d9bbd2467ea76db64b3c4ccac3>.

VI. General Considerations for Active Ingredients in Drug Substances

It is important to differentiate active ingredients from inert carrier materials recognize them as distinct for sentencing purposes. The synthetic cannabinoid is the active ingredient in synthetic marijuana. 2018 USSG provides general departure guidance for synthetic cannabinoids based on potency and concentration. Specific guidance can be inferred based on how USSG treats active chemical ingredients relative to plant- (or mushroom-) based substances that contain the same active ingredient. In each of these cases, the Converted Drug Weights (in parentheses) track the amount of active ingredient in the substance.

- In the case of marijuana (1 gm) and THC (167 gm), the Converted Drug Weights relate to what the US Sentencing Commission considered to be the standard doses of each substance: 500 mg for marijuana and 3 mg for THC [Note: $500 \div 3 = 167$].⁴
- In the case of dry hallucinogenic mushrooms (1 gm) and psilocin or psilocybin (500 gm), the Converted Drug Weights relate to the standard doses of each substance — 5 gm for dry mushrooms and 10 mg psilocin or psilocybin — and the amounts of psilocin and/or psilocybin in dry mushrooms. That is, 5 gm of dry hallucinogenic mushrooms contains approximately 10 mg (0.010 gm) of active psilocin and/or psilocybin. The Converted Drug Weights of 10 mg of psilocin is 5 gm ($500 \times 0.010 = 5$), which is the same as the Converted Drug Weight for 5 gm of dry hallucinogenic mushrooms.
- In the case of dry peyote (0.5 gm) and mescaline (10 gm), the respective Converted Drug Weights approximately relate to the standard doses of dry peyote and mescaline: 12 gm and 500 mg, respectively. That is, 10-12 gm of dry peyote contains approximately 1 dose (0.5 gm) of mescaline, which either way has a Converted Drug Weight of 5-6 gm.

Likewise for synthetic marijuana, the application of the Guidelines to sentencing should track the amount of active synthetic cannabinoid ingredient. Each 1 gm of synthetic cannabinoid should be assigned a Converted Drug Weight of 167 gm, regardless of the amount of inert plant carrier material with which it was mixed.

VII. Specific Considerations for MDMB-4en-PINACA in Synthetic Marijuana

MDMB-4en-PINACA was identified in this case as a Controlled Substance Analogue of 5F-ADB, so it can be treated categorically as a synthetic cannabinoid having a Converted Drug Weight of 167 gm. However, the precise amount of MDMB-4en-PINACA involved in this case has not been determined. The gross weight of synthetic marijuana identified as containing MDMB-4en-PINACA was reported to be 848 gm in the Investigation Report. The important unanswered question as it pertains to drug science is the amount of the active ingredient. Three approaches to addressing this question are outlined below.

Quantify the active ingredient. The amount of active synthetic cannabinoid in a given batch of synthetic marijuana can be determined by quantitative analysis⁵ with the same instrumentation used to make the definitive qualitative identification (e.g., gas chromatography, GC). Quantitative

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4. United State Sentencing Commission, *Amendments to the Sentencing Guidelines*, April 30, 2018, p 24.
 5. Tettey, J.N., Crean, C., Rodrigues, J., Yap, T.W.A., Lim, J.L.W., Lee, H.Z.S. and Ching, M. United Nations Office on Drugs and Crime: Recommended methods for the identification and analysis of synthetic cannabinoid receptor agonists in seized materials. *Forensic Science International: Synergy*, **2021**, 3, 100129 (updated from 2013 manual).

forensic analysis of the seized synthetic marijuana allows for precise determination of the amount of controlled substance (synthetic cannabinoid) seized, independent of the bulk weight of the inert plant carrier material. Quantitative analysis requires an extra calibration of the instrument.⁵

Estimate the active ingredient. The amount of MDMB-4en-PINACA by weight has not been established for the synthetic marijuana substance at issue here. Reasonable estimates based on other prior formulations can be made until such case-specific data are provided.

One estimate can be made based on information submitted to the Court in US v Hossain: “According to the Drug Enforcement Agency (DEA), one kilogram of synthetic cannabinoid powder is typically combined with 13 kilograms of organic leaf to produce the finished product *Spice*, which is a common street term for SSC.”⁶ This formulation corresponds to synthetic marijuana that is approximately 7% synthetic cannabinoid by weight.

I incorporated this estimate into testimony before the US Sentencing Commission⁷ and in several earlier cases (e.g., US v Zeidan⁸). The DEA later disavowed this estimate (cf. US v Ghaleb^{9,10}) and cited a 2017 publication¹¹ (co-authored by DEA pharmacologist Dr. Jordan Trecki), which included quantitative analysis of synthetic marijuana linked to a severe mass intoxication event in 2016. That batch of synthetic marijuana (branded as AK-47 24 Karat Gold) consisted of 16.0±3.9 mg of synthetic cannabinoid (AMB-FUBINACA, aka FUB-AMB) per gram. In other words, the active synthetic cannabinoid was 1.6% by weight of the total synthetic marijuana substance.

Consider the object of the attempt. A third way to contemplate the synthetic marijuana at issue in the absence of quantitative analysis is to consider “the object of the attempt” to be a synthetic product that mimics actual marijuana. “*In controlled substance offenses, an attempt is assigned the same offense level as the object of the attempt.*” The Commission adopted this approach for marijuana plants that were presumably intended for illicit marijuana production, estimating that each plant could produce at least 100 gm of illicit marijuana.¹² If the object of synthetic marijuana production is to mimic actual marijuana, and one presumes that the production attempt was successful, then synthetic marijuana can be treated like actual marijuana. Both substances comprise an active cannabinoid (THC or synthetic) and bulk plant matter.

The “848 grams synthetic material” noted in the Investigative Report for this case contain an unknown quantity of synthetic cannabinoid controlled substance. The best way to arrive at an

6. *US v Hossain*, Case 2:15-cr-14034-DMM, Document 159, entered into the FLSD Docket 09/16/2015, p 6.

7. United States Sentencing Commission, Review of Sentencing Guidelines: Public hearing on synthetic drugs, Washington, DC, April 18, 2017. Written report and video of panel testimony and discussion (Panel 5) available at: <http://www.ussc.gov/policymaking/meetings-hearings/public-hearing-april-18-2017>

8. *US v Zeidan*, Case 8:15-cr-00410-JDW-TBM

9. *US v Ghaleb*, Case 1:18-cr-00150-GLS

10. Expert Report of Jordan Trecki, Ph.D., *U.S. v. Ghaleb*, Case 1:18-cr-00150-GLS, Document 62-1 Filed 08/13/19, Reference 1 on Page 4 of 5

11. Adams AJ, Banister SD, Irizarry L, Trecki J, Schwartz M, Gerona R (2017). "Zombie" Outbreak Caused by the Synthetic Cannabinoid AMB-FUBINACA in New York. *New England Journal of Medicine*, 376(3):235-242.

12. Reference 1, §2D1.1, page 167.

appropriate Converted Drug Weight for this material is first to quantify the amount of synthetic cannabinoid present. In the absence of such data here, note that the recent analysis of 1.6% by weight¹¹ would correspond here to approximately 14 gm of synthetic cannabinoid. Alternatively, the 848 grams of synthetic marijuana could be treated as the drug equivalent of actual marijuana, based on that being the object of the attempt.

VIII. Summary and Conclusions

The Converted Drug Weight for synthetic cannabinoids of 167 gm is appropriate to apply to the actual amount of synthetic cannabinoid substance. As noted above, a ***synthetic cannabinoid*** for purposes of 2018 USSG is “*any synthetic substance (other than synthetic tetrahydrocannabinol) that binds to and activates type 1 cannabinoid receptors (CB1 receptors).*” Only the active synthetic cannabinoid ingredient (identified in this case as MDMA-4en-PINACA) binds to the CB1 receptor. The plant carrier material does not. It is not appropriate to apply the Converted Drug Weight for synthetic cannabinoids to bulk synthetic marijuana without a downward departure to account for the dilution into the bulk plant carrier material.

In my opinion, the forensic lab should perform a quantitative analysis to determine the precise amount of synthetic cannabinoids seized in this case. Meanwhile, if we presume a composition similar to what is cited in footnote 11, then we can estimate the amount of synthetic cannabinoids to be 14 gm, for a Converted Drug Weight of 2,300 gm (848 gm x 1.6% x 167 = 2,265).

I certify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge. Executed on 16 March 2022.

