



# COLOPHON

This report, produced by the drug checking service of the City of Zurich, Switzerland, describes data collected by the service between January and August 2020.

The original publication in German can be consulted at [https://saferparty.ch/tl\\_files/images/download/file/aktuelles%202020/Synthetische%20Cannabinoide%20Auswertung%20August%202020.pdf](https://saferparty.ch/tl_files/images/download/file/aktuelles%202020/Synthetische%20Cannabinoide%20Auswertung%20August%202020.pdf)

The service plans to publish the next report in January 2021.

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## THE ESSENTIALS IN BRIEF

- ◆ In 2019, synthetic cannabinoids were tested for the first time as an additive in cannabis flowers or hashish in various Swiss drug-checking offers.
- ◆ Since the beginning of 2020, the Drug Information Centre (DIZ) of the City of Zürich has been increasingly analysing cannabis samples which users believed that had been treated with synthetic cannabinoids.
- ◆ Synthetic cannabinoids were found in more than half (50 of 91) of the samples in the course of laboratory analyses.
- ◆ Synthetic cannabinoids are largely unexplored and are suspected of causing severe side effects and even death.
- ◆ The assessment that cannabis is a substance with a comparatively low risk of overdose has been obsolete since the appearance of synthetic cannabinoids.
- ◆ The DIZ advises all cannabis users to exercise caution and adhere to the rules of safer use when consuming.
- ◆ From October 1, 2020, a total of 10 cannabis samples can be handed in at the DIZ weekly.

## WHAT ARE SYNTHETIC CANNABINOIDS?

The term “synthetic cannabinoids” has established itself internationally for this group of substances. However, it is not selective, because cannabinoids, which are naturally formed in the hemp plant and have a significantly lower risk potential (THC and CBD), can also be synthetically produced. The group known as synthetic cannabinoids is similar in its mechanism of action to THC, the psychoactive ingredient in cannabis. This group binds to the same receptors (CB1 / CB2) as THC, but with a partly more than 100 times stronger bond, which explains its significantly more intense effect. Synthetic cannabinoids thus imitate the effects of THC yet differ in their structure<sup>1</sup>. Because of their mechanism of action, they are also referred to as cannabimimetic (mimicking = imitating) or cannabinoid receptor agonists.

<sup>1</sup> [https://www.emecdda.europa.eu/publications/drug-profiles/synthetic-cannabinoids\\_de](https://www.emecdda.europa.eu/publications/drug-profiles/synthetic-cannabinoids_de) (letzter Zugriff 4.9.2020)

## WHAT DOES THE EMCDDA SAY?

“Synthetic cannabinoids and cathinones dominate the seizures of new psychoactive substances.

... The frequency and quantities of new psychoactive substances seized in Europe rose sharply until 2015. Since then, this trend seems to have reversed towards stabilisation or slow decline, depending on the region. Even so, their overall availability remains high.

... In Europe, seizures of new psychoactive substances are typically dominated by synthetic cannabinoids and cathinones, which together accounted for 77 % of all seizures reported in 2018 (64 % for the EU Member States).

... Products containing cannabinoids and cathinones, including herbal smoking mixtures and liquids for e-cigarettes, are typically prepared from bulk powders. In recent years, there has been a decrease in the number and quantity of powders containing synthetic cannabinoids and cathinones seized in the European Union. For cannabinoids, this may reflect a decrease in local processing of herbal smoking mixtures.”

*(In EMCDDA, Drug Report 2020).*



*source: Saferparty.ch*

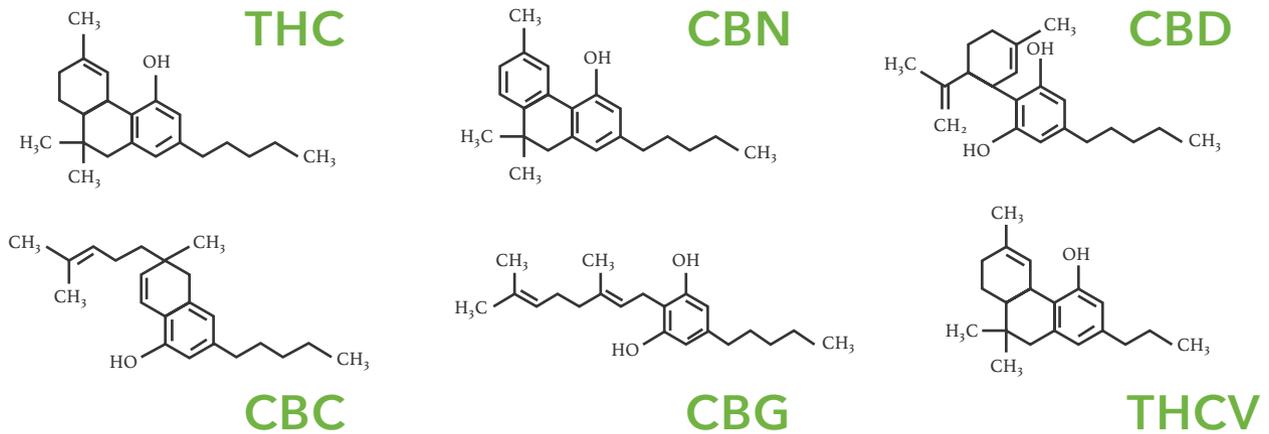


Table of cannabinoids

# 1 STARTING POINT

So-called synthetic cannabinoids have been circulating on the illegal drug market in Switzerland since 2008. Originally used as an additive in incense mixtures (e.g. “Spice”), they were mainly consumed by experienced consumers (so-called “psychonauts”) for its effects. Synthetic cannabinoids cannot be detected in standard urine tests, which is why these substances were also consumed by people who have to give urine samples regularly.

In 2019, synthetic cannabinoids were tested for the first time as an additive to cannabis flowers or hashish in various Swiss drug-checking offers. Since the beginning of 2020, inquiries and analyses about synthetic cannabinoids have been increasing in the Drug Information Centre (DIZ) of the City of Zurich. The Forensic Institute Zurich has also noticed a significant increase in seizures since the end of 2019<sup>2</sup>.

Due to the limited capacities in the DIZ, as of September 2020, around ten people who would like to submit suspicious cannabis samples for analysis have to be turned away per week. Feedback from other drug checking services in Europe and the EMCDDA suggest that the increased occurrence of synthetic cannabinoids is a phenomenon that has so far been predominantly observed in Switzerland.

<sup>2</sup> Schläpfer, M.; Bissig, C.; Bogdal, C.: Synthetische Cannabimimetika auf Industriehanf-Blüten – ein gefährliches Aufeinandertreffen zweier bekannter Phänomene, in: Kriminalistik [07/20].

## 2 NINETY-ONE (91) SUBSTANCE SAMPLES SUBMITTED TO THE DIZ AND ANALYSED

In the first eight months of 2020, the DIZ analysed 91 cannabis samples that were suspected of having been treated with synthetic cannabinoids. While leaving their samples for the analysis, the clients declared the following:

- ◆ 85 sales of “conventional weed” (cannabis flowers with a content of over 1% THC)
- ◆ Five sales of hashish
- ◆ One sale of “legal weed” with a THC content of less than 1% (“CBD weed”)

83 people stated that they had bought the substance in their private circle (friends, etc.). Six people bought the cannabis “on the street”, one person on the Internet and one at a party.

## 3 ANALYSIS RESULTS: OVER 50% OF THE SAMPLES WITH SYNTHETIC CANNABINOIDS

Synthetic cannabinoids can only be determined using complex methods such as gas chromatography and mass spectrometry. The laboratory analysis of the 91 submitted samples led to the following results:

Over half of the samples (50) tested positive for synthetic cannabinoids.

- ◆ 48 samples were «CBD grass» (THC <1%)
- ◆ One sample had a THC content of over 1%.
- ◆ One sample had both high levels of CBD and high levels of THC.

The 50 positively tested samples contained between one and five different synthetic cannabinoids. 34 samples contained one synthetic cannabinoid ; eight samples contained two whilst seven samples contained three different synthetic cannabinoids, and one sample contained five different ones. Little is known about the interactions and additional risks associated with the mixed consumption of varying synthetic cannabinoids. However, it can be assumed that the risks associated with consumption increase the more different synthetic cannabinoids. One of the



most frequently detected substance (n = 27), 5 F-MDMB-PICA, is suspected to be responsible for several deaths in Europe and North America<sup>4</sup>. There is still not enough information collected about the mode of action and toxicology of these and the other substances analysed (see figure 1).

The various synthetic cannabinoids are only determined qualitatively in the laboratory (no quantitative measurements), which is why no statements can be made about their potency.

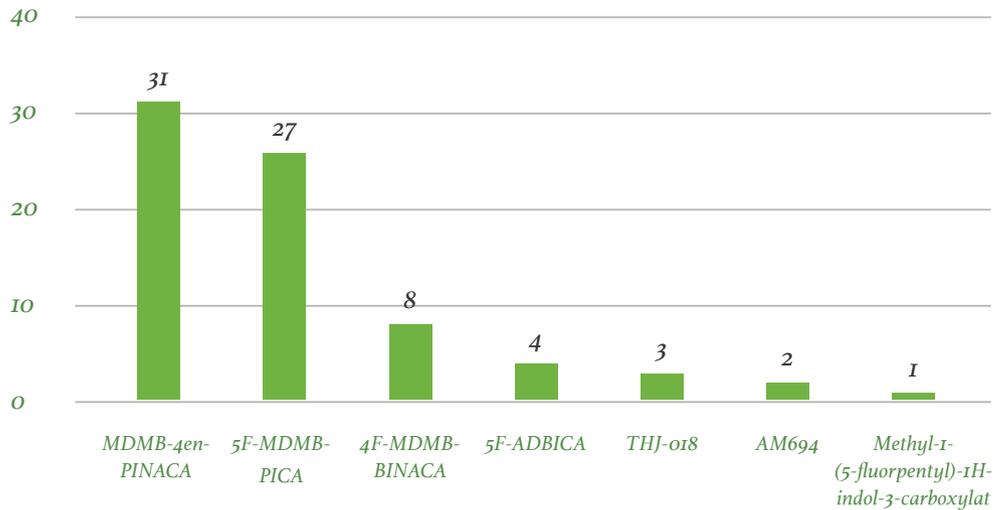


Figure 1: Synthetic cannabinoids analysed by frequency in the 50 samples of occurrence.

## 4 SYMPTOMS AFTER CONSUMPTION

The users reported to the DIZ after they experienced severe, unfamiliar side effects, such as palpitations, extreme inner restlessness, panic attacks, disorientation, unconsciousness, hallucinations and unusually strong feelings of intoxication. These were felt to be particularly intense, mainly in the first 10 to 30 minutes after consumption. Occasionally, clients had to seek emergency medical care due to the severe symptoms.

<sup>4</sup> [https://www.who.int/medicines/access/controlled-substances/Final\\_5F-MDMB-PICA.PDF?ua=1](https://www.who.int/medicines/access/controlled-substances/Final_5F-MDMB-PICA.PDF?ua=1) sowie [https://www.emcdda.europa.eu/system/files/publications/5483/2017.4963\\_TDAS17003ENN\\_PDFWEB.pdf](https://www.emcdda.europa.eu/system/files/publications/5483/2017.4963_TDAS17003ENN_PDFWEB.pdf) (letzter Zugriff 4.9.2020)

## 5 RISK ASSESSMENT

Synthetic cannabinoids that are not declared as such can lead to dangerous overdoses and/or intense, often harmful side effects. This effect is sometimes intensified by the uneven distribution<sup>5</sup> of the substance on the flowers, which can lead to high concentrations.

In contrast to naturally occurring THC, acute and serious poisoning is common with synthetic cannabinoids. Consumption of these can lead to fainting, palpitations, high blood pressure, seizures, nausea with vomiting, decreased mental performance, confusion, delusions, acute psychoses, a strong desire for further consumption (craving) and aggressive and violent behaviour up to a heart attack.

The high potential of synthetic cannabinoids increases the risk of overdosing. In addition to their high effectiveness, some synthetic cannabinoids have an incredibly long breakdown time for the substance (detectability) in the blood and can lead to a prolonged psychoactive effect.

## 6 SAFER USE RULES

- ◆ Get cannabis tested in a drug-checking service if you suspect something is wrong with it.
- ◆ Just "test" newly purchased cannabis products the first time you use them (take two or three puffs) and then wait 20 minutes. If the effect is unusual, absolutely refrain from further consumption!
- ◆ Avoid mixed consumption! Mixed consumption (also with alcohol or medication) is particularly risky because of the unpredictable and as yet unknown interactions.
- ◆ Mix cannabis products well before consumption (use a grinder) to avoid a high concentration of possible synthetic cannabinoids on individual flower parts. Particular care should be taken with residual material that has fallen off the outer flower parts, as it is assumed that it contains a particularly high concentration of synthetic cannabinoids.

<sup>5</sup> Synthetische Cannabinoide werden mit Zerstäubern auf die Blüten aufgetragen, was zu einer ungleichmässigen Verteilung führt.



# 7 CONCLUSIONS

- ◆ Only a laboratory analysis provides reliable information about the composition of cannabis.
- ◆ Synthetic cannabinoids cannot be visually recognized.
- ◆ The price cannot be an indication for misdeclaration. In the DIZ, consumers named an average purchase price of CHF 10/gram (approximately 9.4 Euro/gram) which corresponds to the market prices for illegal, THC-rich weed.
- ◆ The assessment that cannabis is a substance with a comparatively low risk of overdose has been obsolete since the appearance of synthetic cannabinoids.
- ◆ In particular, if users are not aware of their consuming a significantly more potent substance than assumed (false declaration), there is a high risk of overdosing.
- ◆ More than half of the suspicious samples tested in the DIZ contained one or more synthetic cannabinoids. The suspicion was not confirmed with the other samples showing that the set and setting can also influence the effect experienced when consuming cannabis.

Overall, the current development from the perspective of the DIZ is worrying and requires additional measures to reduce harms. The DIZ is therefore expanding its range to a total of 10 cannabis sample submission weekly, as of October 1, 2020. The offer is anonymous and free of charge and, in addition to the substance analysis, includes a mandatory consultation with a specialist. The results of the cannabis drug checks are continuously evaluated and published in a quarterly monitoring report on [www.saferparty.ch](http://www.saferparty.ch).

The publication of the next report will be in January 2021.



**Stadt Zürich**

