German Federal Institute for Risk Assessment

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Psychoactive effects to be expected following consumption of products containing hexahydrocannabinol (HHC)

→ Changes to the version from 5 October 2023: Introduction of the new BfR risk profile, addition of new data, update regarding the legal classification of HHC

In brief

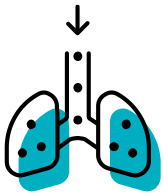
– Hexahydrocannabinol (HHC) belongs to the cannabinoid substance group. Its chemical structure is similar to that of Δ^9-tetrahydrocannabinol (Δ^9-THC), the main psychoactive cannabinoid in the plant *Cannabis sativa* L. Until recently, HHC was offered as a legal alternative to cannabis, or Δ^9-THC. However, it has since been prohibited in Germany.

– Intake of products containing HHC with the amounts of HHC typically offered for sale are linked to a high probability of the occurrence of health impairments in the form of psychoactive effects.

– Scientific data on the toxicity of HHC is still incomplete. According to current insights, the intake of larger amounts might lead to the occurrence of severe poisoning.

How does HHC enter the body?

Oral intake of HHC occurs via products which consumers may perceive as foodstuffs. These include wine-gum-like products as well as products illegally marketed as food supplements. Additionally, it is offered in the form of HHC oils.



Here, HHC-intake occurs by **inhalation**. For instance, HHC may be used in liquids for e-cigarettes. According to current German law, the sale and purchase of these products is also prohibited.

Is there a health-based guidance value?

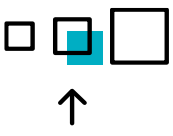
HHC has yet to be sufficiently toxicologically characterised. There is a particular lack of data in regard to acute or chronic toxicity of the substance. So far, no health-based **guidance value** can be derived.

Is there a health risk?

For the **general population**, the probability of health impairments following illegal or accidental consumption of HHC is **high**. According to the current state of knowledge, HHC-levels in products which may be mistaken for foodstuffs, such as wine-gum-like products with 25 milligrams of HHC per piece, can induce a state of euphoria in those who consume them. According to current information, the intake of larger amounts might lead to the occurrence of severe poisoning.

For **children**, the probability of health impairments following (accidental) intake of HHC is **high**. The current state of knowledge indicates that intake of larger amounts, including accidental intake by children, can lead to severe poisoning.

How high is the data quality?



The data is of **medium** quality. Scientific data on the toxicity of HHC is still incomplete. Insights have been gained from experiments with animals and cell cultures as well as from reports by persons consuming HHC and from case studies. They suggest that HHC, particularly in its ß-HHC form, may induce effects similar to those caused by Δ^9-THC, though slightly higher dosages are probably necessary.

How can the health risk posed by HHC be decreased?

The German **government** can limit the distribution of HHC in Germany through regulatory measures. Since 21/06/2024, it has been subject to Germany's New Psychoactive Substances Act (NpSG). This means that HHC may not be manufactured, placed on the market, sold, or purchased in Germany. Possession is not permitted, either. These provisions also apply to products containing HHC.

Consumers can control the risk of adverse health effects by avoiding consumption.

1 Subject of the assessment

Products containing hexahydrocannabinol (HHC) that can be perceived as foodstuffs by consumers (e.g. in the form of wine-gum-like products) are currently illegally available on the German market. The German Federal Institute for Risk Assessment (BfR) has therefore carried out a toxicological assessment of HHC in foodstuffs.

2 Results

Hexahydrocannabinol (HHC) has been found in various products available on the European market since 2022. However, since 21/06/2024, HHC has been subject to Germany's New Psychoactive Substances Act (NpSG). Accordingly, HHC may no longer be manufactured, placed on the market, sold, or purchased in Germany. Possession is not permitted, either. These provisions also apply to products containing HHC. Despite this, illegal products that consumers may perceive as foodstuffs (e.g. wine-gum-like products) remain available. The HHC used in this process is probably produced semi-synthetically from cannabidiol (CBD).

HHC has yet to be sufficiently toxicologically characterised. There is a particular lack of data in regard to acute or chronic toxicity of the substance. There are also only few robust findings related to the effects of HHC on humans. Findings from animal experiments, *in vitro* studies, case studies in the literature, anecdotal reports of HHC users on the Internet, and a human study carried out with a small number of healthy participants have led to the following conclusions:

- → The available data suggests that β-HHC in particular has psychoactive potential. On the other hand, the cannabimimetic activity of α-HHC seems to be considerably lower.
- → There is evidence that the effects of β-HHC are similar to those of Δ^9-tetrahydrocannabinol (Δ^9-THC), although the potency is probably somewhat lower. This means that somewhat higher doses are required in order to attain an effect comparable to that achieved following intake of Δ^9-THC.
- → According to the current state of knowledge, the HHC-levels in products that can be perceived as foodstuffs by consumers (e.g. wine-gum-like products with 25

mg/piece) may be sufficient to induce a state of euphoria in those who consume them.

→ Due to the differences in the cannabimimetic activity of β-HHC and α-HHC, it is to be expected that the effects after consuming products containing HHC with different epimer contents may differ.

→ The current state of knowledge indicates that intake of larger amounts, including accidental intake by children, can lead to severe poisoning.

Products containing HHC can, in principle, also be contaminated with residues from the extraction, synthesis by-products, and other phytocannabinoids as well as residues of the catalysts used in the synthesis. However, whether this results in health risks can be assessed only in individual cases.

3 Rationale

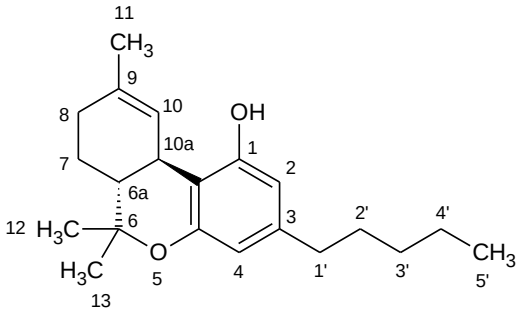
3.1 Background

Hexahydrocannabinol (HHC) appeared on the US drug market in late 2021. In Europe, it was first observed in May 2022; by December 2022, HHC products were found in 70% of EU member states. Initial detection in Germany was in December 2022 based on a customs seizure from June 2022 (Kühnl *et al.* 2023). Among other things, HHC was used in liquids for e-cigarettes or offered in the form of HHC oils. However, it is also found in products that consumers may perceive as foodstuffs – including wine-gum-like products and food supplements. HHC was openly offered as a legal substitute for cannabis, or Δ^9-tetrahydrocannabinol (Δ^9-THC) (EMCDDA 2023).

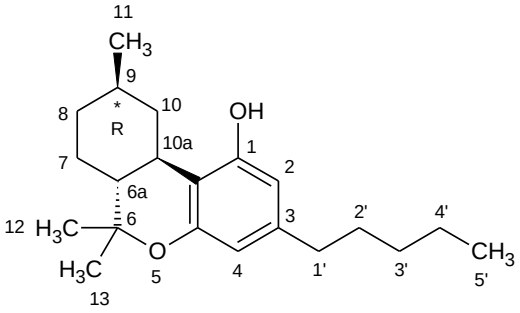
In the EU, HHC is under observation by the European Union Drugs Agency (EUDA), formerly the EMCDDA, as a new psychoactive substance. In the spring of 2023, the agency published a comprehensive report on HHC (EMCDDA 2023). In Germany, HHC has been subject to Germany's New Psychoactive Substances Act (NpSG) since 21/06/2024. This makes it illegal to trade it, to place it on the market, to manufacture it, to transport it into, out of or through the legal jurisdiction of this law, to purchase it, to possess it or to provide it to another person. These provisions also apply to products containing HHC. HHC has since become regulated in other European countries, too, including Denmark, Finland, France, Greece, Austria, Sweden, Switzerland, the Czech Republic, and the United Kingdom.

3.2 Agent

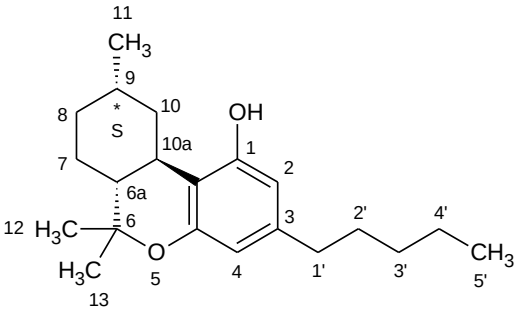
HHC (IUPAC: 6,6,9-trimethyl-3-pentyl-6a,7,8,9,10,10a-hexahydrobenzo[c]chromen-1-ol, CAS: 6692-85-9, molar mass: 316.48 g/mol) was first described in the scientific literature in 1940. The structure resembles that of Δ^9-THC, the most psychoactive cannabinoid in *Cannabis sativa* L. The only distinction is the missing double bond between C9 and C10. HHC can be present stereochemically in the form of the two epimers 9β-HHC and 9α-HHC (Ujváry 2023).



Δ^9-THC



9β-HHC (9R-HHC)



9α-HHC (9S-HHC)

Figure 1: Structural formulas of Δ^9-THC, 9β-HHC and 9α-HHC, numbering according to IUPAC

HHC is not naturally biosynthesised in *Cannabis sativa* L. However, trace amounts of the compound have been detected in the hemp plant. This occurrence is likely a degradation product of Δ^9-THC. On a larger scale, production is probably semi-synthetic, starting from cannabidiol (CBD), which is obtained from commercial hemp, among others. The first step in the process is acid-catalysed conversion of CBD into Δ^8-THC and Δ^9-THC. This is then hydrogenated in a second step. Semi-synthetic production typically results in a mixture of the epimers 9β-HHC and 9α-HHC. However, the ratio can vary depending on the synthesis method. The compound can also be made fully synthetically, although this is probably not particularly common on a larger scale because of the higher costs. Depending on the method of synthesis, different by-products may be formed. The exact production method behind the HHC available on the market is not known (Ujváry 2023).

3.3 Toxicological assessment

HHC has yet to be sufficiently toxicologically characterised. There is a particular lack of data in regard to acute or chronic toxicity of the compound. There are also only few robust findings related to the effects of HHC on humans. Findings from animal experiments, *in vitro* studies, case studies in the literature, anecdotal reports of HHC users on the Internet, and a human study with a small number of participants indicate that β-HHC in particular mediates effects similar to those of the structurally similar Δ^9-THC.

3.3.1 Toxicokinetics

Findings on the toxicokinetics of HHC are limited. Because of the chemical structure, HHC as well as structurally similar cannabinoids can be assumed to be highly lipophilic. This suggests a high absorption rate after oral ingestion, a strong plasma protein binding, and an accumulation in fatty tissue (Ujváry 2023).

Findings from studies on the metabolism of 9β-HHC using microsomal preparations from rat, guinea pig, rabbit, hamster, and mouse showed a hydroxylation pattern similar to that known for Δ^9-THC with hydroxylations at C11, C8, and C4 as well as the pentyl side chain (Harvey & Brown 1991). The study focused on monohydroxylated metabolites; other Phase I and Phase II metabolites were not reported.

In a later study, Lindbom *et al.* studied the metabolism of HHC following incubation with primary human hepatocytes. In particular, they observed monohydroxylations as well as the following formation of carboxylic compounds. Most metabolites were present in glucuronidated form (Lindbom *et al.* 2024). Di Trana *et al.* investigated the toxicokinetics of inhalative exposure to ~25mg of HHC on six participants. In their saliva, only HHC itself could be detected. In the blood and urine also the metabolites 11-nor-9-carboxy-HHC, 8-hydroxy-HHC, and 11-hydroxy-HHC were found next to the parent substance, which were bound as glucuronic acid conjugates (Di Trana *et al.* 2024).

Kobidze *et al.* also investigated various matrices for the occurrence of HHC and its metabolites following inhalative exposure to ~25mg of HHC on two participants. They found HHC in the saliva, HHC, 11-nor-9-carboxy-HHC and 11-hydroxy-HHC in the blood and urine, and 9-hydroxy-HHC in the urine. In contrast to the work conducted by Di Trana *et al.,* however, they found no 8-hydroxy-metabolites in any matrix (Kobidze *et al.* 2024).

Höfert *et al.* investigated the toxicokinetics of HHC following oral intake of a wine-gum-like product with 25mg of HHC or following inhalative intake (3 puffs of an inhalation solution with 1mg/ml of HHC) on three healthy adult participants. Maximum serum concentrations were reached 1.25 to 2 hours after oral intake and 2 to 6 minutes after inhalative exposure. In addition to 9β-HHC and 9α-HHC, the serum also contained the metabolites 11-hydroxy-HHC and 9β-carboxy-HHC. In addition to 9β-HHC (not detectable in all participants) and 9α-HHC, the urine contained the metabolites 11-hydroxy-HHC as well as 9β-carboxy-HHC and 9α-carboxy-HHC. In the saliva, only HHC (both epimers) could be detected, but no metabolites (Höfert *et al.* 2025).

3.3.2 Toxicology data

3.3.2.1 Findings from *in vitro* studies

HHC has been studied in a number of *in vitro* test systems. In addition to cannabimimetic properties, other endpoints were addressed (e.g. antiproliferative properties in tumour cell lines and binding affinity to opioid receptors). An overview of published studies can be found in the EMCDDA report and in a review paper by Ujváry (EMCDDA 2023; Ujváry 2023). Within the scope of the present opinion, only the essential findings regarding the cannabimimetic (i.e. the Δ^9-THC-like) activity of HHC as well as a study on safety pharmacology are described.

A recently published *in silico* analysis on *molecular docking* shows that HHC and Δ^9-THC should have similar binding affinities to the CB1 and CB2 receptor (Aviz-Amador *et al.* 2021) .

Andersson *et al.* used HEK 293 cells expressing the human cannabinoid receptors CB_1R or CB_2R to investigate whether and to what extent 9β-HHC and 9α-HHC (test concentration: 100 µM) lead to an activation of these receptors. Receptor activation was reported only semi-quantitatively as a decrease in forskolin-induced cAMP accumulation. Both epimers

caused an activation of CB_1R and CB_2R in this test system; the effect size was similar to that of the Δ^8-THC also investigated (Andersson *et al.* 2011).

Another study was recently conducted at the Swedish National Board of Forensic Medicine and is described in the EMCDDA report. CB_1R-expressing transfected cells were used in the study. It was shown that 9β-HHC acts as a partial agonist at CB_1R (EMCDDA 2023).

In 2023, Nasrallah and Garg published a study that investigated both the binding affinity (radioligand binding assay) and functional activity (G-protein coupled receptor (GPCR) functional assay) of 9β-HHC and 9α-HHC at CB_1R and CB_2R. This showed that both the binding affinity and the functional activity at CB_1R and CB_2R for β-HHC are comparable to that of Δ^9-THC. In this study, 9α-HHC showed about tenfold lower binding activity and functional activity (Nasrallah & Garg 2023).

A few other studies on CB_1R-expressing transfected cells were able to show that 9β-HHC and 9α-HHC lead to activation of the receptor. 9β-HHC fundamentally shows far higher activity than 9α-HHC (Durydivka *et al.* 2024; Janssens *et al.* 2024; Persson *et al.* 2024).

In principle, the comparison of the three-dimensional structure shows that 9β-HHC and Δ^9-THC are very similar, while 9α-HHC is very different in parts (Ujváry 2023). Cannabimimetic activity is therefore particularly plausible for 9β-HHC. This observation further supports the experimental results.

In 2022, Collins *et al.* published a study in which different endpoints regarding the toxic potential of HHC were addressed. HHC was in this case tested as a mix of the epimers 9β-HHC and 9α-HHC. The mutagenic potential was investigated in a bacterial reverse mutation test (Ames test). From a regulatory perspective, however, the test report is not sufficiently robust. Additionally, the patch-clamp technique was used to examine whether HHC can lead to the deactivation of the hERG channel. As no activity was found here, it is currently not assumed that HHC has QT-time prolonging potential for the heart. Further tests showed that HHC has a cytotoxic effect on human lung fibroblasts (IC_{50} = 14.4µM), while for human hepatocytes, no relevant cytotoxic effect was observed up to a concentration of 50µM (Collins *et al.* 2022).

3.3.2.2 Findings from animal studies

The focus of the animal studies was to clarify the cannabimimetic activity of HHC.

The first studies on this subject date back to the 1940s and addressed the cannabimimetic effect of HHC in the Gayer test (decrease of the corneal reflex in rabbits) (Russell *et al.* 1941) and in the ataxia test in dogs (Adams *et al.* 1940; Adams *et al.* 1942) after intravenous application of the test substance. In both studies, an activity of the test substance that was slightly weaker than THC (approx. 20–50%) was observed. However, the studies are difficult to interpret because the purity and isomeric ratios of HHC and THC were not characterised. In addition, the Gayer test is no longer considered a suitable test for determining cannabimimetic activity (EMCDDA 2023).

The cannabimimetic effect of HHC was later investigated in a comprehensive study on rhesus monkeys. The behaviour of animals after intravenous administration of 9β-HHC (doses: 0.1, 0.5, and 1 mg/kg body weight (BW)) or 9α-HHC (doses: 1, 2, 5 mg/kg BW) was assessed using Norton's score. Administration of 9β-HHC resulted in stupor, ataxia, immobility, and crouched posture as well as reduced response to external stimuli in the

animals. The potency of 9β-HHC was about half that of Δ^9-THC; the activity of 9α-HHC was about 10-fold lower compared to 9β-HHC. The authors noted that the substances were not completely isotopically pure. The effects of 9α-HHC could thus also have been caused by low levels of 9β-HHC (Edery *et al.* 1971; Mechoulam *et al.* 1980).

Skinnert *et al.* investigated the effects of several cannabinoids on the endpoints locomotor activity, postural arrest, body temperature, and pain sensation (hot plate test) in mice after intraperitoneal application of HHC as a mixture (about 1:1) of the two epimers 9β-HHC and 9α-HHC. The potency of HHC was about one order of magnitude or more lower than that of Δ^9-THC depending on the endpoint. However, unlike Δ^9-THC, HHC showed no analgesic effect in this study (Skinner *et al.* 1979).

Intravenous administration of Δ^9-THC is known to induce convulsions in the *New Zealand White* rabbit (Martin *et al.* 1977). Consroe *et al.* therefore investigated different cannabinoids in this animal model. Compared with Δ^9-THC, HHC showed a potency of about 50% (Consroe *et al.* 1982).

In a study published in 2023, Russo *et al.* investigated the cannabimimetic potential of 9β-HHC and 9α-HHC after intraperitoneal application to mice in the tetrad test (locomotor activity, catalepsy, body temperature, pain sensation; dose: 10 mg/kg BW). A non-significant cataleptic effect as well as a non-significant decrease in body temperature was observed in the 9β-HHC group. In addition, a significant analgesic effect and a significant decrease in locomotor activity were observed in this group. In contrast, there was no relevant change in the animals treated with 9α-HHC compared with the control animals. In this study, no Δ^9-THC group was included (Russo *et al.* 2023).

Recently, Marusich *et al.* also investigated the cannabimimetic potential of 9β-HHC and 9α-HHC following intraperitoneal application on mice with the tetrad test (doses: 10, 30, 100 mg/kg KG) and the drug discrimination test (doses: 0,3, 1, 3, 10 mg/kg KG for 9β-HHC; 10, 30, 56, 100 mg/kg KG for 9α-HHC) compared to Δ^9-THC. In the tetrad test, 9β-HHC showed similar cannabimimetic activity to Δ^9-THC, while 9α-HHC was far less potent and only showed slight activity for two of the four parameters. The cannabimimetic stimulus in the drug discrimination test was also comparable for 9β-HHC and Δ^9-THC, while 9α-HHC was far less potent here, too. After applying the higher doses of 30 and 10 mg/kg KG of 9β-HHC, further acutely toxic effects were also shown in some mice. These included seizures, shaking, and muscle tension. After 5 or 6 days, respectively, four of the eight mice from the tetrad test group who had received 100 mg/kg KG 9β-HHC were found dead. In the view of the authors, it is unclear if this was due to a treatment-related effect (Marusich *et al.* 2025).

Currently, there is still a lack of studies on classic toxicological endpoints related to acute and chronic toxicity of HHC.

3.3.2.3 Findings from studies on participants

Höfert *et al.* investigated the psychoactive effects of HHC following oral intake of a wine-gum-like product with 25 mg of HHC or following inhalative intake (3 puffs of an inhalation solution with 1 mg/ml of HHC) on three healthy adult participants. Here, all participants from the oral intake group and two of the three participants from the inhalation group reported a subjectively perceived feeling of euphoria. The extent of the euphoria varied greatly between participants, particularly following inhalative exposure. Further tests (modified Romberg test, nystagmus test, pupil size, walk-and-turn test, one-leg stand test,

finger-finger test, finger-nose test) only partially showed indications of HHC-related changes. All participants reported dry mouth. It should be noted that the study only included three participants per application type and was neither blinded nor placebo-controlled (Höfert *et al.* 2025).

3.3.2.4 Insights from experiential reports from consumers and expert surveys

Between June and August 2023, as part of the German National Early Warning System (NEWS), information on HHC was collected and consolidated and then published in the Trendspotter Report (September 2023) (Kühnl *et al.* 2023). Data collection included surveying experts and consumers on the topic of HHC. Generally, the Trendspotter Report describes a somewhat weaker psychoactive effect of HHC compared to THC. At the same time, however, consumers of HHC report an array of in some cases severe, undesired physical and psychological effects. Due to the frequently reported mixed consumption, the effects and side-effects following consumption of HHC are difficult to determine. Furthermore, experiential reports are based almost exclusively on self-reported HHC consumption which cannot be independently verified. As such, there is no evidence as to whether persons actually consumed HHC or in fact consumed products falsely labelled as HHC which contained other substances, such as THC or synthetic cannabinoids. The results can therefore not be used to draw scientifically robust conclusions.

3.3.2.5 Case studies

Case studies from France, the Czech Republic, and Germany indicate that intake of HHC or products likely containing HHC can lead to light to severe symptoms (Holt 2024).

A retrospective observational study describes self-reported HHC exposure (n = 37) which led to calls to French poison information centres between January 2022 and May 2023 (Labadie *et al.* 2024). The severity was classified as light in 40% of cases, moderate in 43%, and severe in 5% (2 cases). The majority of patients showed neurological and cardiovascular symptoms.

In five of six tested cases, HHC was detected in blood and/or urine using liquid chromatography–tandem-mass spectrometry (LC-MS/MS). In three cases, only HHC was detected, while in two cases THC and metabolites were also detected. In the sixth case, no HHC could be detected in the blood (sample taken after >24 h), although HHC, THC, and CBD were found in the product.

For the three cases in which only HHC was detected, a variety of symptoms were reported (neurological, gastrointestinal, cardiovascular, ocular, and psychiatric symptoms). The severity was classified as moderate in two cases and as severe in one case.

Information on cases (n = 236, of which 38 with detected cannabinoids) reported to the Czech poison information centres between May 2022 and April 2024 also show that various symptoms can occur following exposure to HHC.

In Germany, the Trendspotter Report published data from three poison information centres. They had been contacted 25 times regarding HHC exposure in the time period from late 2022 to July 2023. In the nine cases for which information regarding the degree of severity was reported, five cases were classified as moderate.

The Trendspotter Report includes a case toxicologically verified by experts in which children lost consciousness following accidental consumption of wine gums containing HHC which were also labelled accordingly (Kühnl *et al.* 2023).

By now, there have also been case reports about the occurrence of psychoses linked to the consumption of HHC (O'Mahony *et al.* 2024).

In general, however, it should be noted that only a few of the reported cases have been analytically verified. Overall, possible health effects of HHC cannot currently be conclusively gauged.

3.3.2.6 Other toxicological aspects

The exact synthesis methods and manufacturing conditions of HHC are not known for individual products. However, it can generally be assumed that HHC is primarily obtained semi-synthetically from CBD. The conversion of CBD to Δ^8-THC and Δ^9-THC is the first step. Numerous studies have shown that various by-products are also formed. The exact pattern of the resulting products differs depending on the exact manufacturing conditions. Unless adequate purification takes place, the final HHC products may be contaminated with residues from the extraction, by-products, and other phytocannabinoids as well as residues from the catalysts used. However, there is no analytical data available for such products so far (EMCDDA 2023; Ujváry 2023). Whether this results in health risks can be assessed only in individual cases.

Furthermore, it must be taken into account that the purity of HHC products may deviate from the manufacturer's specifications. For example, one HHC product sold in the US contained Δ^8-THC, Δ^9-THC, $\Delta^{6a,10a}$-THC, but no HHC (Sams 2020).

3.3.3 Exposure

The BfR does not yet have comprehensive knowledge about the levels of HHC in products that might be perceived as foodstuffs by consumers. Two products presented in the EMCDDA report have a content of 25 mg per wine gum or marshmallow according to the product declaration (EMCDDA 2023). A cursory Internet search yielded numerous hits for other products with the HHC content often stated as 25 mg per wine gum or higher.

3.3.4 Miscellaneous

Due to the structural similarity of the compounds, the use of immunological rapid tests for detecting Δ^9-THC and its metabolites can also lead to positive results in the presence of HHC and its metabolites. There appears to be pronounced cross reactivity here. Sensitivity can vary depending on the substance and the test (Wolf *et al.* 2023; Derne *et al.* 2024; Helander *et al.* 2024; Höfert *et al.* 2024; Kronstrand *et al.* 2024; Patton *et al.* 2024).

3.4 Risk management options, recommended measures

HHC has yet to be sufficiently toxicologically characterised. There is a particular lack of data in regard to acute or chronic toxicity of the substance. There are also only few findings related to the effects of HHC on humans. Findings from animal experiments, *in vitro* studies, anecdotal reports of HHC users on the Internet, and a human study carried out with a small number of healthy participants have led to the following conclusions:

- → The available data suggests that β-HHC in particular has psychoactive potential. On the other hand, the cannabimimetic activity of α-HHC, seems to be considerably lower.
- → There is evidence that the effects of β-HHC are similar to those of Δ^9-tetrahydrocannabinol (Δ^9-THC), although the potency is probably somewhat lower. This means that somewhat higher doses are required in order to attain an effect comparable to that achieved following intake of Δ^9-THC.
- → According to the current state of knowledge, the HHC-levels in products that can be perceived as foodstuffs by consumers (e.g. wine-gum-like products with 25 mg/piece) may be sufficient to induce a state of euphoria in the consumer.
- → Due of the differences in the cannabimimetic activity of β-HHC and α-HHC, it is to be expected that the effects after consumption of products containing HHC with different epimer contents may differ.
- → The current state of knowledge indicates that intake of larger amounts, including accidental intake by children, can lead to severe poisoning.
- → Products containing HHC can, in principle, also be contaminated with residues from the extraction, synthesis by-products, and other phytocannabinoids as well as residues of the catalysts used in the synthesis. However, whether this results in health risks can be assessed only in individual cases.
- → It should be noted that HHC has been subject to Germany's New Psychoactive Substances Act (NpSG) since 21/06/2024. HHC may therefore not be manufactured, placed on the market, sold, or purchased in Germany. Possession is not permitted, either. These provisions also apply to products containing HHC.

Further information on the BfR website on substance risks in foods

Topic page on the assessment of substance risks in foods:
https://www.bfr.bund.de/en/food-safety/assessment-of-substance-risks-in-foods/

Questions and answers on the health risks of food and feed containing hemp:
https://www.bfr.bund.de/en/service/frequently-asked-questions/topic/questions-and-answers-on-the-health-risks-of-food-and-feed-containing-hemp/

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Publisher:
German Federal Institute for Risk Assessment
Max-Dohrn-Straße 8-10
10589 Berlin, Germany
T +49 30 18412-0
F +49 30 18412-99099
bfr@bfr.bund.de
bfr.bund.de/en

Institution under public law
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