

Are Terpenes Safe To Consume?



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Terpenes are naturally occurring compounds found in cannabis and other useful plants all over the world.

You'll almost always hear about terpenes when buying cannabis-based products, such as how terpenes make the product "better, more flavorful, and more aromatic."

What many people don't know is that terpenes can be dangerous if they aren't used correctly. It would be best if you always diluted your terpenes before using them.

Here's everything you need to know about using terpenes safely.

What are Terpenes?

All plants produce terpenes, from the ugliest weed to the most delicious fruit-bearing trees or beautifully flowering plants.

These essential oils naturally produced by plants give them their unique flavor, aroma, and color [1].

There are many different *types* of terpenes — characterized by their size and unique chemical structure. Most terpenes are either monoterpenes, diterpenes, triterpenes, alcohols, or ketones.

The small size of terpenes gives them a low boiling point. They evaporate into the air under relatively low temperatures. We can then pick them up by the olfactory receptors in the nose — thus producing what we experience as an aroma.

Can Terpenes Be Dangerous?

Terpenes offer many benefits. Consuming fruits and plants rich in terpenes may boost your energy and mood and help you maintain a healthy body and mind [2].

However, there are dangers to using terpenes as well, especially in their pure, concentrated forms.

In high concentrations, terpenes can relax the blood vessel walls and cause hypotension (low blood pressure) and dizziness. Concentrated forms can be toxic to our cells — causing irritation, pain, inflammation, and more.

This is why it's never a good idea to use any terpene or essential oil directly on the skin or take them directly into the body.

Terpenes must be diluted before use. In diluted form (5% or less), terpenes are non-toxic and safe to use.

What Makes Concentrated Terpenes Dangerous?



Some terpenes can be harmful to humans, especially children or sensitive individuals [3].

Take, for example, caryophyllene, limonene, pinene, and linalool.

These aromatic terpenes lend their scent to colognes and perfumes. In low concentrations, they're known to offer a wide range of health benefits. However, in pure form, all of these terpenes can trigger rhinitis or asthma attacks in people with seasonal respiratory problems or induce contact dermatitis [4].

The commercial cleaning solvents, Turpentine®, as well as Pinesol®, are made from terpenes extracted from pine wood. These products contain high concentrations of **pinene, camphene, and terpinolene**. This highly concentrated form irritates the mucous membranes and triggers headaches, nausea, confusion, dizziness, and shortness of breath.

Ketone terpenes may repel insect pests like lice, but they can also cause eye, nose, and throat irritations.

Cicutoxin is a toxic terpene produced by water hemlock. This terpene disrupts the way the brain and the spinal cord normally function. Not only can it cause convulsions, but it can also cause respiratory paralysis.

The daisy family produces a type of toxic terpene called **atractyloside**. While this is considered a medicinal herb, high concentrations can result in acute renal failure and acute liver damage [5].

Daphnetoxin is a terpene exclusively found in the *Thymelaeaceae* plant family. This terpene has the potential to cause diarrhea as well as lung damage that can lead to emphysema.

These adverse effects can be avoided by diluting terpenes and taking measures to avoid getting any into the eyes or mucus membranes.

What are the Most Common Terpenes & Their Effects?

Nature produces more than 30,000 different terpenes, but only a few have been well-studied so far.

1. Limonene

This common terpene has a citrusy and spicy scent with floral hints. It's abundant in citrus fruits like lime, lemon, and oranges. The invigorating aroma helps you feel more alert, energized, and refreshed.

In pure form, limonene can cause irritation and dermatitis in the skin.

2. Myrcene

Myrcene has an earthy and musky scent with some fruity and herbal notes. It can help you feel relaxed and sleepy.

High doses of myrcene may cause blood pressure to drop — making users feel dizzy or lightheaded.

3. Camphene

This musky and earthy terpene has a cooling effect. Very high concentrations have been known to cause allergic reactions, redness, and blistering on the skin.

3. Eucalyptol

This is another terpene that's popular for its invigorating and refreshing cooling effect. High concentrations of eucalyptol can trigger asthma attacks in susceptible individuals.

4. Caryophyllene

This terpene produces a peppery, spicy, and woody aroma and gives your mood and energy a boost.

Ultra-concentrated doses of caryophyllene can cause dermatitis and blister on the skin or mucous membranes.

5. Pinene

The refreshing and invigorating aroma of pine needles is because of this terpene. Its refreshing scent can help you feel recharged and focused.

High concentrations of pinene can cause dizziness and general malaise.

How to Use Terpenes Safely



We've been consuming terpenes for millennia. They're in the fruits and vegetables we eat, and they're in the herbal concoctions we take.

Throughout history, terpenes were only available in the plant sources they're produced in. Today, we have access to ultra-pure, concentrated terpenes, which makes them much more potent, but also increases the potential for causing harm if you're not careful.

When working with concentrated terpenes, always wear gloves and goggles, and make sure there's adequate ventilation in the space you're working.

This only applies when working with concentrated terpenes. Once diluted, terpenes are safe to use.

1. Diluting Terpenes

Before using terpenes, you should always dilute them by mixing them into carrier oils like coconut, olive, hemp, or cannabis oil.

Check the appropriate dilution (usually less than 5% by total volume) before adding to food, base extract, or oil.

If you're unsure of the terpene's safety and recommended dilution, talk with a licensed herbalist. They can help you with the dilution and how to consume terpenes with food safely.

2. Wear Safety Equipment When Working With Concentrated Terpenes

Terpenes play an essential role in many topical products. They add fragrance and can help moisturize the skin, keeping it soft and healthy.

If you're going to add terpenes to topical products, use protective gear like gloves and safety glasses.

Pure terpenes can damage skin cells, cause skin irritations like contact dermatitis, trigger skin allergies, or even damage the mucous membrane in your eyes.

In case of skin or eye irritation, rinse the area well with clean, warm water. If symptoms become worse, visit the emergency room immediately for proper medical care.

3. Avoid Inhaling Concentrated Terpenes Directly

Whenever working with concentrated terpenes, make sure there's adequate ventilation. Inhaling pure, concentrated terpenes can cause damage and irritation to the lungs and may cause further damage once absorbed into the bloodstream.

Some terpenes are directly toxic as well — such as benzene or methacrolein.

None of our blends contain dangerous terpenes, but it's still essential that you avoid using them in a confined space with poor airflow.

4. Check Third-Party Lab Reports Before You Buy

Terpenes themselves aren't the only thing dangerous.

Low-quality or contaminated products can cause health issues.

However, if you take the necessary steps, you can be sure your terpenes are potent and pure:

1. **Only buy tested terpenes** — Check for third-party lab reports to verify the purity.
2. **Get to know the manufacturer** — Read reviews and feedback about the product and the company itself. Most importantly, only choose laboratory-tested products.
3. **Don't use off-label products** — You can't be sure of their safety, quality, or potency.

How Do Terpenes Differ From Cannabinoids?

Cannabinoids and terpenes, terpenes and cannabinoids. Some people often confuse the two and think they're the same.

They're not.

Cannabis produces cannabinoids and terpenes; these compounds are in the trichomes or resin glands on flowers and leaves. Terpene concentration levels vary in each cannabis strain, giving each one its unique flavor, aroma, and effect. Like terpenes, cannabinoids also serve as the plant's protective system and help in the plant's growth and development.

However, cannabinoids are only in cannabis plants — no other plants produce cannabinoids.

Another difference between the two is their interaction with your cells.

Cannabinoids and terpenes can affect some of the receptors found in your cells and influence their reaction to stimuli.

However, cannabinoids stimulate the endocannabinoid system by binding to receptors; terpenes do not, except for one known terpene. When psychoactive cannabinoids like THC and delta 8 THC bind to the CB1 receptor, they produce mind-altering, intoxicating effects.

Terpenes, on the other hand, can't bind to the cannabinoid receptors. This is why terpenes, in the traditional sense, won't get you intoxicated.

Final Thoughts: How to Use Pure Terpenes Safely

The terpenes we eat from foods are generally safe.

However, in their pure, concentrated form, they can be dangerous.

They can cause irritations and allergic reactions when they come into contact with the skin and eyes. They can also cause organ damage in high concentrations.

When used the right way, though, terpenes are not only safe to use, they deliver a variety of useful health benefits.

Always wear gloves, goggles, and ensure adequate ventilation when working with full-strength terpenes. Terpenes should always be diluted to around 5% or less of the total volume for the final product.

References:

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