



## Usefulness of terpenes

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Plants use terpenes for different reasons: to repel pests, attract pollinators, protect themselves from fungi, or be unattractive to herbivores. One of the most striking functions that terpenes have in cannabis is to refrigerate the plant so that it can better withstand high temperatures. The evaporation of the more volatile terpenes creates air currents around the plant that promote cooling and reduce perspiration.

Terpenes are very numerous and most of them are not exclusive to a single plant species and can be found in many different plants. For this reason



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we find notes of known aromas in the buds or in a glass of wine. When a variety of marijuana smells like pineapple it is because it contains a terpene that has that aroma and that is also present in the fruit. Our olfactory capacity is much more sensitive than our gustatory capacity, up to 10,000 times more, but we are not fully aware because our culture and civilization is based much more on the sense of sight or hearing than on taste. Most of us have real trouble talking about smells; but nevertheless,

The specific terpenes present in a variety and the relative concentration of each depend mainly on the genetics of the plant. Let's say that the recipe for your resin is in your DNA. But the total amount of terpenes in relation to the weight of the plant depends much more on the growing conditions. It is not clear what role terpenes play in cannabis. Some appear to have a role in the synthesis of THC and other cannabinoids. In fact, cannabinoids are terpenophenols, that is, they combine elements of two large chemical families: terpenes and phenols.

The combination of terpenes that gives a variety its particular smell could be considered as its aromatic fingerprint. Certain terpenes are always found in cannabis resin, such as pinene, myrcene, or caryophyllene, but others are specific to certain varieties. Some terpenes can be found in large quantities; sometimes up to eighty percent of the total amount of terpenes corresponds to just one, while others are found in minute amounts.

## The psychoactive effect

Terpenes can have pharmacological effects. In fact, many have them, and some are very powerful, even in very small amounts. Some terpenes present in the resin can modify, through different mechanisms, the effect of cannabinoids. For example, some bind to the same brain receptors as cannabinoids and probably alter the effect caused. Others affect the blood-brain barrier, allowing or preventing the penetration of different cannabinoids into the brain. There are terpenes that directly cause effects on the mood, such as limonene, which is antidepressant, or linalol, which has a sedative effect. There are terpenes that affect serotonin and dopamine, the two brain neurotransmitters most linked to mood, in different ways. Pulegono, for its part, seems to reduce the effects of THC on memory, so that consuming varieties rich in this terpene we would forget things less when we are high.

## What are terpenes?

After cannabinoids, terpenes are the most abundant compounds in cannabis and can make up ten percent of the resin. Both cannabinoids and terpenes are synthesized in the resin glands. Terpenes are made up of one or more molecules of isoprene, a type of hydrocarbon. Monoterpenes have only one molecule and are the most volatile. Sesquiterpenes have several molecules and are larger and heavier, less volatile. Terpenes are a family of aromatic molecules present in many plants. In cannabis resin, along with cannabinoids, more than a hundred different terpenes have been found, which are responsible for the smell of marijuana. Despite what you might think, cannabinoids do not smell and the aroma of cannabis is given by its terpenes. So essential are terpenes in the cannabis scent that police dogs trained to detect cannabis are actually detecting a terpene, caryophyllene oxide.

Terpenes not only smell, they also cause effects on the consumer. In fact, the huge differences found between different varieties of cannabis are thought to be due in large part to the different terpenes they contain. This is why two strains with very similar concentrations of cannabinoids can have very different psychoactive effects. Research on terpenes has opened up a new field of knowledge that is not yet well developed. Although much more is known than a few years ago, there are still many questions about how the effects of terpenes and cannabinoids interact.

Of all the molecules present in cannabis resin, tetrahydrocannabinol or THC is, without a doubt, the main psychoactive. Pure THC causes anxiety in many users, but this effect does not occur when consuming buds that, in addition to THC, contain other cannabinoids and terpenes. This is why users almost always prefer to consume whole buds or extracts that contain all the resin to pure THC.

Other cannabinoids like CBN, CBD, THCV, etc. they also contribute significantly to the total effect, but do not quite clearly explain the enormous differences between the effects of one variety and the other. There are very narcotic indica strains, which leave us so relaxed that we can hardly even get off the couch, which contain practically the same proportions of cannabinoids as other sativa strains whose effects are much more stimulating.