

# TERPENES

Instead of relying solely on the Indica/Sativa classification to identify the potential experience when consuming cannabis, we look to terpenes. Terpenes are tiny, aromatic compounds found in almost all plants. They give plants their smell and also correlate to specific experiences. Terpenes are abundantly found in cannabis and are thought to be responsible for the nuanced effects each variety can deliver.



## MYRCENE

### AROMA + PALATE

grape, grassy, herbal,  
sweet tropical fruit

### NATURAL SOURCES

mangoes, hops, wild thyme,  
cardamom, lemon grass

### MEDICINAL PROPERTIES

muscle relaxation, pain relief,  
anti-inflammatory, anti-carcinogenic

### POSSIBLE EFFECTS IN CANNABIS

general relaxation, sleep aid

Myrcene is the terpene found most abundantly in cannabis! Myrcene is also found in hops, so think when you drink a beer or a few beers and you begin to feel drowsy. That drowsy experience is in part due to myrcene. Therefore in cannabis, we predict that myrcene is primarily responsible for determining if the effect felt from a variety will be uplifting or relaxing. When analyzing myrcene concentrations in cannabis we can use this general rule - If myrcene exists in a concentration over 0.5% then the effect felt from the myrcene will most likely be sedative. If the myrcene exists in a concentration under 0.5% then the effect felt from the myrcene may not be very sedative at all. It may instead offer muscle relaxation, pain relief and a general state of calm to the overall experience. When combined with THC and CBD, myrcene may also act as a potent neuroprotective agent and antioxidant.

# LIMONENE

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## AROMA + PALATE

sweet, bright, tangy citrus

## NATURAL SOURCES

rinds of citrus fruits

## MEDICINAL PROPERTIES

anti-anxiety, antioxidant,  
anti-inflammatory, immune modulator

## POSSIBLE EFFECTS IN CANNABIS

euphoria, giggles, energy



Think when you bust open a citrus fruit and get a slight euphoric lift - that's limonene doing its job. Limonene acts as an anti-anxiety, euphoric agent by engaging with our serotonin and dopamine receptors. Therefore it can induce a very uplifting experience. Limonene is part of the reason why many of the uplifting strains smell like citrus! Limonene has many medicinal properties and may even help reduce acid reflux in patients who struggle with digestive disorders. Limonene also has documented synergistic properties with cannabinoids and other compounds. Limonene may increase the permeability of skin and mucous membranes allowing deeper penetration of cannabinoids and other terpenes. Limonene, when combined with CBD and THCV, also has the ability to increase the anorexic effects associated with some varieties of cannabis - reducing appetite and promoting weight loss. Limonene, when consumed with other cannabinoids and terpenes, may also increase the anti-inflammatory and immune regulatory potential of the experience.



# PINENE

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## AROMA + PALATE

fresh pine

## NATURAL SOURCES

pine needles, evergreen trees

## MEDICINAL PROPERTIES

anti-anxiety, antibiotic,  
anti-inflammatory, antiproliferative

## POSSIBLE EFFECTS IN CANNABIS

focus, clarity, mood elevation, heightened energy

Think of walking through a pine forest - you can breathe easier and think clearer. Forest bathing in a pine forest usually brings a heightened sense of awareness, that unique feeling of being alive in the present moment. The experiences we associate with hiking in a pine forest are all because of pinene! Pinene is the terpene found in pine needles, so of course the aroma associated with this terpene is fresh, woody pine. Pinene is one of the first terpenes made in the plant matrix. If you have the pleasure of touring Resonant's facility, you will smell a lot of pinene! Pinene is a potent anti-inflammatory agent and bronchodilator. It opens up the bronchial tubes of the lungs, allowing more oxygen to be absorbed through the tissues and into the bloodstream. When we are very oxygenated, we will have an experience of heightened mental clarity and awareness. When pinene exists in a high concentration in a cannabis cultivar then the experience will be one of focus, clarity and mood elevation. Due to its ability to act as a bronchodilator, many people also seek strains high in pinene to help combat lung issues. Pinene (specifically  $\alpha$ -pinene) has a plethora of additional medicinal properties, however, pinene's greatest therapeutic value lies in its ability to act as an antidote to cannabis intoxication. It helps to offset many of the negative side effects associated with THC consumption (anxiety, paranoia, elevated heart rate, memory loss etc). Specifically, pinene has shown great potential in its ability to reduce and in some cases even eliminate memory impairment and loss from overconsumption of THC. .

# TERPINOLENE

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## AROMA + PALATE

sharp, pinesol, chemically

## NATURAL SOURCES

lilacs, turpentine, turnips

## MEDICINAL PROPERTIES

antioxidant, anti-fungal,  
anti-proliferative

## POSSIBLE EFFECTS IN CANNABIS

heightened energy, cerebral stoniness



Terpinolene is a terpene that's hard to miss. Commonly found in high concentration in varieties such as Super Silver Haze, Orange Haze, Jack Herer, and Dutch Treat, it gives quite a sharp, pinesol cleaner aroma. When in high concentrations in cannabis terpinolene also seems to have a significant effect on mood. Research studies have shown isolated terpinolene's ability to act as a sedative in rats. However, this contradicts the aggregate anecdotal evidence regarding consumer experience with terpinolene. Terpinolene typically has dramatically energizing effects on people. This elucidates a synergistic property between THC and terpinolene. When terpinolene and THC are consumed together, terpinolene increases motility and creates a rather energizing experience. For some people this can be incredibly focusing and motivating. For others, it can create an uncomfortable experience. For those who have not yet tried strains high in terpinolene - take it slow. Microdose. See how you respond before consuming a large amount.

# B-CARYOPHYLLENE

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## AROMA + PALATE

peppery, spicy, sweet

## NATURAL SOURCES

black pepper, clove,  
cinnamon

## MEDICINAL PROPERTIES

anti-inflammatory, anti-anxiety,  
anti-depressant, muscle relaxing,  
pain relieving properties

## POSSIBLE EFFECTS IN CANNABIS

general relaxation, stress relief, pain relief, euphoria

B-caryophyllene is an interesting compound because it is a terpene that can also bind to endocannabinoid receptors. Specifically, our CB2 receptors, an endocannabinoid receptor that not even THC and CBD efficiently bind with! Therefore, there are many medicinal properties associated with this terpene. B-caryophyllene even helps to reduce the perception of pain, making it a potential therapeutic for disorders such as neuropathy and fibromyalgia. When in high concentration in cannabis, it can create a very euphoric body high, helping to alleviate both anxiety and pain. B-caryophyllene also has documented synergistic properties with cannabinoids. When co-administered with THC it has greater likelihood in acting as an anti-pruritic (anti-itch). When co-administered with CBD, b-caryophyllene has a dramatic increase in anti-inflammatory benefit.

# LINALOOL

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## AROMA + PALATE

floral, sweet, soapy

## NATURAL SOURCES

lavender

## MEDICINAL PROPERTIES

sedative, anti-depressant,  
anxiolytic, analgesic, anticonvulsant

## POSSIBLE EFFECTS IN CANNABIS

relaxation, stress relief, sleep aid



Linalool is associated with deep relaxation and can be very helpful when trying to manage stress and anxiety. That's why many aroma therapists or massage workers will use lavender oil (aka linalool) with their clients. Linalool has many medicinal properties and may even help to strengthen the immune system. When found in high concentrations in cannabis, linalool can induce a calming, de-stressing energy that may help the consumer get better sleep. There are documented synergistic properties between linalool and other compounds in cannabis. Linalool, when combined with CBD and THCA, may increase the anticonvulsant efficacy, making it an ideal formulation for anti-seizure medication. Linalool also influences enzymes in the liver altering how cannabis is processed, especially when orally ingested. Linalool's influence on the liver may result in an altered experience for the consumer.

# HUMULENE

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## AROMA + PALATE

grassy, earthy, dirt

## NATURAL SOURCES

hops

## MEDICINAL PROPERTIES

anti-proliferative

## POSSIBLE EFFECTS IN CANNABIS

general relaxation



Humulene, like myrcene, is also abundantly found in hops. Therefore it has quite an earthy, grassy aroma. Humulene is a good defense agent for plants regarding insecticide potential. Humulene also has been shown to act as an anti-proliferative, showing promise for future anti-cancer drugs. When combined with b-caryophyllene, humulene has shown a 25-30% increase in its anti-cancer efficacy. This is an example of a synergistic property between b-caryophyllene and humulene.