



## UNDERSTANDING TERPENES

What are terpenes and why are they beneficial for your pet's health?

### WHAT ARE TERPENES:

Terpenes are a natural oil or organic compound that is produced in plants, including the hemp plant. If you've ever noticed the aroma of lavender, sage or even cannabis, you've already smelled terpenes hard at work. Those aromatic molecules are what gives plants, trees, and flowers a wide range of scents, such as floral, citrus and even earthy smells. As it turns out, those scents are more than just enjoyable scents; They are also good for your health!

### MEDICAL BENEFITS OF TERPENES:

Terpenes have a wide range of health benefits, and each individual terpene has its own unique effects and benefits. Some terpenes promote stress relief and relaxation, while other terpenes promote focus and alertness. The cannabis plant is extremely rich in terpenes. The structure of these compounds is similar to cannabinoids, equally impressive is the number of terpenes found in cannabis – scientists can classify over one hundred different types. The ten most commonly found terpenes in cannabis are:

- Myrcene - antioxidant properties and enhanced anti-inflammatory effects.
- Pinene - may be used for pain, inflammation, or anxiety.
- Limonene - increased anti-anxiety with mood elevating properties.
- Humulene - anti-inflammatory benefits.
- Linalool - enhanced anti-anxiety with sedative properties, and pain-relieving effects.
- Eucalyptol - studies have shown that eucalyptol can help with inflammation-causing pain, respiratory diseases, pancreatitis, and more. It also has antioxidant, antibacterial, anticancer, and antifungal properties. As for its mental benefits, eucalyptol can help enhance memory while boosting cognitive energy. There has also been research that shows eucalyptol as a promising treatment for those with Alzheimer's.
- Borneol - A staple of Asian traditional medicine, borneol is an effective anti-inflammatory and pain reliever, primarily as a topical. Borneol has also proven effective as an anticoagulant for stroke patients and may increase the effectiveness of other drugs.
- Phytol - may be used as a pain reducer and anti-inflammatory.
- Geraniol - potential medical benefits attributed include: antioxidant, anti-tumor, neuroprotectant, anti-bacterial, anti-fungal, anti-viral, and anti-spasmodic.

- Caryophyllene - Unlike the other terpenes, caryophyllene has a unique quality similar to cannabinoid CBD conveyed in the central nervous system. Caryophyllene has the power to reduce pain and inflammation in the body, while also decreasing stress levels.

The effect and health benefit of any given terpene may change in the presence of other compounds, which is called the entourage effect. When we at Healthy Hemp Pet Company refer to the entourage effect it means all of the cannabinoids and terpenes working together in our full-spectrum, terpene-rich hemp oil. The idea is that multiple cannabinoids combined with multiple terpenes lead to better therapeutic benefits than the cannabinoids alone.

As more terpene isolates and terpene blends become available, there's no reason these benefits need to be reserved strictly for humans and not extended to animals. In fact, not only are terpenes safe for animals, but they may potentially benefit immensely from the healing properties of terpenes.

THERE ARE MORE THAN 100 TERPENES IN JUST ONE CANNABIS FLOWER. HERE ARE SOME OF THE MOST WELL KNOWN TERPENES RIGHT NOW, MOST OF WHICH YOU'LL FIND IN LEGAL CANNABIS PRODUCTS IN YOUR AREA.

 <p><b>Bisabolol</b> floral</p> <p><b>Properties</b> anti-inflammatory anti-irritant anti-microbial</p> <p><b>Common Uses</b> cancer, skin lesion</p>	 <p><b>Borneol</b> mint</p> <p><b>Properties</b> anti-inflammatory antinociceptive</p> <p><b>Common Uses</b> eyesight, pain relief</p>	 <p><b>Camphene</b> fir needles, musky earth</p> <p><b>Properties</b> anti-oxidant skin lesion</p> <p><b>Common Uses</b> cardiovascular diseases</p>	 <p><b>Caryophyllene</b> spicy</p> <p><b>Properties</b> anti-bacterial anti-inflammatory anti-fungal</p> <p><b>Common Uses</b> insomnia, muscle spasms pain relief</p>	 <p><b>Delta 3 Carene</b> pine, rosemary</p> <p><b>Properties</b> anti-inflammatory bone stimulant</p> <p><b>Common Uses</b> memory</p>	 <p><b>Eucalyptol</b> mint</p> <p><b>Properties</b> anti-bacterial anti-fungal</p> <p><b>Common Uses</b> alzheimer's pain Relief</p>	 <p><b>Geraniol</b> peach, rose grass</p> <p><b>Properties</b> anti-cancer anti-oxidant neuroprotectant</p> <p><b>Common Uses</b> cancer, pain relief</p>	 <p><b>Humulene</b> earthy</p> <p><b>Properties</b> anti-bacterial anti-inflammatory anti-tumor effects</p> <p><b>Common Uses</b> cancer, infections appetite suppression</p>
 <p><b>Limonene</b> bitter citrus</p> <p><b>Properties</b> anti-anxiety anti-cancer digestion, gallstones</p> <p><b>Common Uses</b> liver detoxification weight loss, sleep aid</p>	 <p><b>Linalool</b> floral</p> <p><b>Properties</b> anti-anxiety anti-epileptic anti-psychotic pain killing</p> <p><b>Common Uses</b> depression, convulsions insomnia, pain relief</p>	 <p><b>Myrcene</b> citrus, cloves</p> <p><b>Properties</b> relaxing sedating</p> <p><b>Common Uses</b> inflammation, insomnia spasms, pain</p>	 <p><b>Pinene</b> pine</p> <p><b>Properties</b> anti-depressant anti-inflammatory anti-microbial</p> <p><b>Common Uses</b> asthma, bronchitis cancer, depression memory, mental alertness</p>	 <p><b>Phytol</b> balsamic, floral</p> <p><b>Properties</b> anti-insomnia immunosuppressant</p> <p><b>Common Uses</b> reduce itching sleep aid wound healing</p>	 <p><b>Terpinolene</b> smoky, woody</p> <p><b>Properties</b> anti-bacterial anti-fungal anti-insomnia antiseptic</p> <p><b>Common Uses</b> cancer heart disease sleep aid</p>	 <p><b>Trans-nerolidol</b> citrus, rose</p> <p><b>Properties</b> anti-cancer anti-microbial anti-oxidant, anti-parasitic</p> <p><b>Common Uses</b> relaxing skin lesion</p>	 <p><b>Valencene</b> sweet citrus</p> <p><b>Properties</b> anti-inflammatory anti-melanogenesis antiallergic</p> <p><b>Common Uses</b> memory skin lesion</p>

## TERPENE RESEARCH:

For years it was understood that terpene benefits were only from inhaling terpenes due to the olfactory system (more commonly known as the sense of smell). It was thought that terpenes were tied to the emotional centers of our brain, therefore having a positive mood effect. However, more recently it's been identified that terpenes also act directly on brain cells to modulate brain activity. The terpene caryophyllene has been shown to have pain-relieving, anti-inflammatory benefits, as well as an antioxidant boost. A study by the Chongqing Medical University in China has proven promising results in using this particular terpene to treat Alzheimer's disease. The progression is dependent on mitigating inflammation in the brain, and caryophyllene was either injected or administered orally in mice to reduce inflammation by activating cannabinoid, or CB2, receptors in the brain. The neurotherapeutic potential extends to other terpenes as well. In some lab models, high doses of linalool showed anti-seizure and anti-epileptic effects.

Myrcene is the most abundant terpene found in cannabis. Together with caryophyllene, it works to ward off pain and inflammation. In a study of 2,032 human patients with 21 illnesses that included migraine, arthritis and chronic pain, cannabis high in myrcene and caryophyllene were the most preferred to relieve pain and inflammation. While this study was conducted on humans, it's still one of importance to mention.

## HEALTHY HEMP PET COMPANY TERPENES:

We strongly believe in full disclosure and are happy to share our terpene data. You can find additional details on our Certificates of Analysis section of our website. Previous Healthy Hemp Pet Company products contained 2-3% terpenes when our hemp oil was extracted via Co2. We now use a chemical-free extraction process, Vapor Distillation, which retains 6-8% terpenes! We can proudly say that all the products we currently sell contain the highest number of terpenes for optimal health benefits.

Please keep in mind that before treating a life-threatening medical condition with terpene-rich hemp oil products, you are advised to check in with your pet's veterinarian, especially they are already taking prescribed medication. If you have additional questions regarding terpenes, please don't hesitate to contact us for more info.

## SOURCES:

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