

Citronella Oil: The All-Natural Bug Repellent

If you are a fan of aromatherapy, you're probably familiar with citronella oil. Citronella is also often added to a variety of personal care and cleaning products and provides numerous benefits.

What Is Citronella Oil?

Citronella essential oil is obtained from the *Cymbopogon genus* plant family.¹ More precisely, it is extracted through steam distillation of the grasses *Cymbopogon nardus* (Jowitt) and *Cymbopogon winterianus* (Rendal). This results in two types of citronella oil:^{2 3}

- **Ceylon**, which is obtained from *C. nardus* and is a native product of Sri Lanka (previously Ceylon). Ceylon citronella oil has a warm, citrusy, and wood scent, and has a pale to dark yellow color.
- **Java**, which is distilled from *C. winterianus*. It also has a fresh lemon-like scent but is darker in color. Between the two, java citronella is considered the one with the higher quality.

Uses of Citronella Oil

Citronella oil is popularly used as an insect repellent. In fact, the Environmental Protection Agency (EPA) classifies it as a biopesticide with a non-toxic mode of action.⁴ Citronella oil can be found in dozens of registered pesticide products, such as sprays, lotions, and candles. At times, it is added to [sunscreen](#), wristbands, and flea collars.⁵ Due to its antifungal properties, citronella oil is also used to treat insect bites.⁶

Citronella essential oil is one of the most common oils used in [aromatherapy](#). It is said that as an aromatherapy oil, citronella can help treat and prevent colds, fevers, and headaches.⁷ As a massage oil, it may relieve pain in individuals suffering from arthritis.

The oil of citronella is also widely used in fragrances and personal care products. It is largely imported by Germany and France, two of the largest hubs for the perfume industry.⁸ Because of its antiseptic properties, citronella oil is also used in soaps, household cleaners, and detergents.

Citronella oil is also added as a food and beverage flavoring, such as in alcoholic drinks, frozen dairy, and gelatin and puddings.⁹

- Alcoholic and non-alcoholic beverages
- Baked products
- Frozen dairy
- Gelatin and puddings

- Soft and hard candies

Additional research found that using citronella oil can help calm barking dogs.¹⁰

Composition of Citronella Oil

Both types of citronella oil contain over 80 constituents, about 50 of which make up 90 percent of each oil.¹¹ The main components of citronella oil are citronellol, citronellal, and geraniol. The two types of citronella oil vary in the amounts of geraniol and citronellal.

Below are the main constituents of each oil:¹²

| Ceylon Citronella Oil | Java Ceylon Oil |
|---|---|
| Geraniol – 18 to 20 percent | Citronellal – 32 to 45 percent |
| Citronellal – five to 15 percent | Citronellol – 11 to 15 percent |
| Citronellol – 6.4 to 8.4 percent | Geraniol – 21 to 24 percent |
| Geranyl acetate – two percent | Geranyl acetate – three to eight percent |
| Limonene – nine to 11 percent | Limonene – 1.3 to 3.9 percent |
| Methyl isoeugenol - 7.2 to 11.3 percent | Elemol and sesquiterpene alcohols – two to five percent |

Benefits of Citronella Oil

According to a paper in the *International Journal of Advanced Research*,¹³ citronella oil is noted for its efficiency in repelling mosquitoes – it provided about two hours of repellency in the study. It has proven successful in repelling the dreaded *Aedes aegypti*, a species of [mosquito](#) that spread diseases like dengue fever, chikungunya, and yellow fever. Apart from being used on humans, citronella oil is also used to keep ticks away from livestock and pets.

In a 2011 issue of *Tropical Medicine & International Health*,¹⁴ an analysis of 11 studies on the capabilities of citronella oil found that when combined with vanillin, the essential oil likely provided up to three hours of protection against mosquitoes. The study also pointed out comparable protection time against DEET, a chemical commonly found in chemical bug repellents.

The research stated that oil of citronella has potent antifungal properties that help suppress the growth of fungi species, such as *Aspergillus*,

Penicillium, and *Eurotium*.¹⁵ Citronella oil owes its antibacterial and antiseptic nature to compounds like methyl isoeugenol. These compounds prevent the growth of

bacteria in your body and help treat wounds, as well as infections that may occur in the colon, urethra, bladder, gastrointestinal tract, prostate, and kidneys.¹⁶ Citronella essential oil is often used in aromatherapy because it can provide relief from anxiety and a light feeling. It can also provide relief from menstrual cramps and muscle spasms. The oil can also help inhibit inflammation in the liver, stomach, and digestive tract.¹⁷

How to Make Citronella Oil

Citronella oil is widely available in natural food and beauty stores. However, commercial oils processed through steam distillation may be pricey. A more practical solution would be to make your own citronella oil at home,

There are sites that provide step-by-step guides on how to create citronella oil. Here is one from eHow.com:¹⁸

Ingredients/Materials:

- ¼ ounce nard grass leaves and stems (you may use lemongrass as substitute)
- 1 cup olive oil
- Slow cooker (ex. Crock-Pot)
- Cheesecloth

Instructions:

1. Mix the olive oil and nard grass leaves and stems in the slow cooker.
2. Leave and cook the mixture for about four to eight hours.
3. With the cheesecloth, strain the mixture, which is actually the citronella oil. Remove nard grass.
4. Repeat steps 1-3 with the strained mixture with fresh nard grass leaves and stems. No need to add more olive oil. Keep on repeating until the oil obtains the desired scent.
5. Once done, seal the oil in a dark-colored jar. Store in a cool, dry place.

How Does Citronella Oil Work?

While citronella oil helps prevent mosquito bites, it does not kill mosquitoes. It only repels these insects by blocking the scent that attracts these bugs, causing them to become disoriented.¹⁹

Pure citronella essential oil should never be used directly on your skin, as this may cause sensitivities. It should be mixed with a carrier oil, like olive or coconut oil. Once diluted, citronella oil can also be inhaled. Just place a few drops onto a cloth or tissue, or using a diffuser.²⁰

You may use citronella by itself or mix it with other natural agents. I've created my own [natural insect repellent](#) by combining citronella with other essential oils like

lemongrass oil, peppermint, and vanillin. Since this formulation is all-natural, it's safe and risk-free for both adults and children.

Is Citronella Oil Safe?

Citronella oil is Generally Recognized as Safe (GRAS) by the US Food and Drug Administration (FDA).²¹ The EPA also considers oil of citronella safe, as it has very little or no toxicities. If ingested, the major compounds of citronella are eliminated through urination.²²

As I said earlier, avoid using pure citronella oil on your skin. Not only can this oil cause skin irritations or allergic reactions in people with sensitivities, it has been found to raise heart rate in some individuals.²³

Pregnant women should be careful with using citronella oil, as their skin is extra sensitive during those nine months. One research found that there was a loss of spontaneous contractions in the uterus upon the in vitro use of citronella oil. While citronella may be used cautiously as a fragrance during this time, it is important to consult a physician first.²⁴

Also, citronella oil should not be used on babies and young children due to their delicate skin. Parents should also be careful when administering the oil near the noses of children.²⁵ Seek the advice of your pediatrician before using citronella oil on your children.