

Medicinal Benefits of Geranial

Medicinal benefits of Geranial include relieving migraine headaches, being a very effective anti-inflammatory and anti-fungal agent, and stimulating the immune system.

Geranial is a chemical compound found with neral in essential oils. These compounds are very similar in effect but have slightly different structures. Combined, they are called citral. Geranial is often called citral-A.

Geranial has a stronger lemon aroma than neral.

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Scientific research has investigated geranial and found a number of healthful properties. Here are a sample of published research reports about the benefits of geranial.

Anti-inflammatory: Medicinal Benefits of Geranial

Excessive inflammation can cause several inflammatory diseases. These include chronic hepatitis, rheumatoid arthritis, atherosclerosis, and even inflammatory brain disease. So controlling inflammation is an important function of essential oils.

An article ([Suppression of allergic and inflammatory responses by essential oils derived from herbal plants and citrus fruits](#)) in the *International Journal of Molecular Medicine* described a study of the anti-inflammatory activities of 20 essential oils. The study then examined the components of the most effective anti-inflammatory oil.

The researchers examined the effects of each essential oil in both rats exposed to an irritant and in cultures grown in the laboratory. They found lemongrass essential oil to be the most

effects anti-inflammatory.

The major components of lemongrass essential oil are geranial (40.16%) and neral (34.24%). These two compounds differ in the 3-dimensional arrangement of their atoms, but otherwise are very similar. Together they are called citral.

Testing showed that geranial was the most effective anti-inflammatory compound in lemongrass essential oil. The authors conclude by indicating that citral and geranial are promising anti-inflammatory agents.

Antifungal: Medicinal Benefits of Geranial

An article ([Antifungal Activities of the Essential Oils in *Syzygium aromaticum* \(L.\) Merr. Et Perry and *Leptospermum petersonii* Bailey and their Constituents against Various Dermatophytes](#)) in *The Journal of Microbiology* shows the antifungal properties of geranial.

In this experiment 5 strains of fungal growths were incubated in Petri dishes. These growths were exposed to certain essential oils at concentrations of 0.05, 0.1, 0.15, and 0.2 mg/ml. In addition, components of the oils (citronellal, neral, and geranial) were applied to fungal growths.

The results showed that geranial had the most dramatic effect against fungal growths. The authors conclude that “the antifungal properties of LPO [lemon-scented teatree oil] against TM, MC, and MG [strains of fungi] may likely be attributed to the effects of geranial.”

Immune System Stimulation: Medicinal Benefits of Geranial

An article ([Immunomodulatory activity of geranial, geranial acetate, gingerol, and eugenol essential oils: evidence for humoral and cell-mediated responses](#)) in the journal *Avicenna Journal of Phytomedicine* described the effects of geranial on

the formation of antibodies in rats.

In this study seven groups of rats were used. The rats were given various amounts of several compounds orally over a period of 15 days. One group received a placebo. Another group received a standard drug (Cyclophosphamide) that slows cell growth. The other groups receive 5 different dose levels (from 50 to 800 mg/kg) of the test substance (including geranial).

Researchers “challenged” the rats with red blood cells from sheep on day 7 by injection in the right hind foot pad. Injection of foreign red blood cells will cause inflammation. Researchers measured the thickness of the foot pad before the injection and on day 15. Blood from the rats was withdrawn on day 14 and analyzed for antibodies.

The results showed a significant dose related increase in response to the foreign sheep red blood cells for all test substances (including geranial). The authors concluded that the compounds from plant essential oils had “significant immunostimulant activity” because they were able to “enhance the proliferation of lymphocytes [which help fight diseases or foreign invaders].”

Migraine: Medicinal Benefits of Geranial

An article ([Lippia alba \(Mill.\) N. E. Brown hydroethanolic extract of the leaves is effective in the treatment of migraine in women](#)) in the journal *Phytomedicine* describes treating women with recurring migraine headaches. The authors previously showed that extracts of the plant *Lippia alba* (bushy matgrass) containing primarily geranial and carvenone were effective in reducing the intensity and frequency of headaches.

This study worked with 21 women with a clinical diagnosis of migraine. The researchers initially assessed the frequency and severity of the patients migraines. They used the [HIT-6](#) and [Migraine Disability Assessment Test](#) questionnaires.

In this experiment, the patients took one drop of tincture of *Lippia alba* per kilogram of body weight per day, twice a day. Then patients continued to take other medicines (such as analgesics or NSAIDs) when needed. The experimental treatment continued for 60 days.

After 60 day the researchers again assessed the frequency and severity of the patients migraines. The results showed:

- very significant ($p < 0.001$) reduction in the HIT-6 scores (from an average of 64 to 59)
- very significant ($p < 0.001$) reduction in missed days of work or school (from 19 to 5)
- significant ($p = 0.03$) reduction in perceived pain (from 7 out of 10 to 6 out of 10)

The authors conclude that the tincture of *Lippia alba* containing primarily geranial and carvenone “is effective in controlling both symptoms and impact of migraine in women.”

Summary

A number of essential oils contain citral which is a combination of Citral A (or Geranial) and Citral B (or Neral). Geranial has the stronger lemon aroma and has many medicinal benefits. You can find citral in several lemon-scented essential oils, especially litsea cubeba (mountain pepper), lemongrass, lemon myrtle, lemon teatree, and melissa (lemon balm).

Research studies have shown geranial is an effective anti-inflammatory and anti-fungal agent, it stimulates the immune system and can help relieve migraine headaches.