

LEMONGRASS

Latin Name: *Cymbopogon syn. citratus*

Botanical Family: Poaceae syn Gramineae

Other Common Names: West Indian Lemongrass

Extraction Information

Country of Origin: Nepal, West Indies

Part of Plant Used: Grass

Extraction Method: Distillation

Oil Content: 0.25 – 0.6%

Color of Oil: Clear, Light Yellow

Blending Information

Odor Description: Lemony, Strong

Blending Factor: 1

Note: Top

Energy: warming, drying

Blends Well With: Peppermint, Litsea cubeba, Cypress, Cedarwood, Lavender, Ylang ylang, Geranium, Patchouli, Palmarosa, Ginger

Indicated For: acne, oily skin, boils, athlete's foot, Herpes simplex, has a special tightening effect on the elastin fibers in the corium and in the subcutis, applicable to breast treatment (tightening), Ringworm

Safety Information: Use on a 0.6% dilution to avoid skin sensitization. Always use gloves when using lemongrass to clean. Can cause extreme sensitization or dermatitis.

Contraindications: Pregnancy/ Trying to conceive/ Oral use is cautioned for individuals on diabetes medication.

GRAS status:

Botany: *Cymbopogon citratus* is a perennial grass with sturdy stems and broad aromatic leaves.



History + Myth

Lemongrass was traditionally used during religious festivals in Greece and Turkey.¹ Today, lemongrass is a source of citral which can be further processed and used to create perfume ingredients as a precursor to Vitamin A production. Demand for whole oils has expanded with their use as a masking fragrance in deodorants, waxes, polishes, detergents, and insecticides. The essential oil has been found to be highly antifungal.

Click or tap here to enter text.

Click or tap here to enter text.

Therapeutic Actions

Analgesic, Antibacterial, antidepressant, antifungal, anti-inflammatory, antimicrobial, antiseptic, antiviral, astringent, carminative, febrifuge, galactagogue, immune stimulant, insecticidal, nervine, peripheral analgesic

Click or tap here to enter text.

Click or tap here to enter text.

Chemical Feature:

Rich in Aldehydes (up to 80%: geranial, citral, and neral) and Monoterpenes

Chemical Composition

Chemical composition of *Cymbopogon citratus*

Chemical Family	Specific Components
Monoterpenes	myrcene (10.2-18%), limonene (0.4%)
Aldehydes	geranial (45.2%), neral (32.4%), citronellal (0.2%)
Alcohols	α -terpineol (0.9%), citronellol (0.3%), geraniol (5.5-40%)
Esters	geranyl acetate (1.2%)
Trace components	(Akhila, 2010) camphene, camphor, α -camphorene, Δ -3-carene, caryophyllene, caryophyllene oxide, 1,8-cineole, citronellal, citronellol, n-decylaldehyde, α,β -dihydropseudoionone, dipentene, β -elemene, elemol, farnesal, farnesol, fenchone, furfural, iso-pulegol, isovaleraldehyde, limonene, linalyl acetate, menthol, menthone, methyl heptenol, ocimene, α -oxobisabolene, β -phellandrene, α -pinene, β -pinene, terpineol, terpinolene, 2-undecanone, neral, nerolic acid, and geranic acid

NOTE: citral is a mixture of two stereoisomeric monoterpene aldehydes: trans-isomer geranial (40-62%) and cis-isomer neral (25-38%)* (Devi, et al. 2011 and Shah, et al. 2011) *Percentages reflect those found in *C. citratus*.

Chemistry of *Cymbopogon citratus* obtained from: Koffi, et al. 2009

The West Indian lemongrass oil (*C. citratus*) differs from the East Indian type (*C. flexuosus*) by the occurrence of substantial quantities of myrcene (12-18%).

Core Aromatic Applications:

General Properties: an excellent household cleaner, can be added to castile soap to clean wood floors, bathrooms, dishes, counters, add to jojoba and clean wood tables, good airborne to reduce microbes and bacteria in the air, can be used with borax for laundry.

Circulatory system: poor or sluggish circulation, varicose veins

Digestive system: Candida⁴

Lymph/Immune system: lowered immune response, compromised immunity, lymph drainage

Musculoskeletal system: muscular aches and pains, tired and sore muscles, sprains, bruises, weakness of connective tissue⁵, pain in joints

Nervous system: Nervous exhaustion

Respiratory system: antiseptic, sinus congestion, lowered immune response for respiratory illness, respiratory infection⁶

Skin: acne, oily skin, boils, athletes foot, Herpes simplex, has a special tightening effect on the elastin fibers in the corium and in the subcutis⁷, applicable to breast treatment (tightening)⁸, Ringworm⁹

Psyche + Emotion: fatigue, grieving process, strengthening during weak emotional period, transition, release work

Ayurveda: Lemongrass is used to stimulate agni without aggravating pitta. Relieves gas and cramps by regulating samana and apana vayu. It is drying to avalambaka kapha and helps to expectorate excess phlegm. Clearing to hot lung infections with yellow mucus. Lemongrass has an affinity for rasa and raktadhatu helping with painful menses due to inflammation or spasm in uterus from high pitta and vata.¹⁰ **Note: Use the herb in a tea or tincture or other ayurvedic preparation.

TCM: In Chinese medicine, lemongrass is indicated to dispel wind and free network vessels, warm center and relieve pain. Used for common cold with headache, diarrhea, wind-cold impediment pain, cold pain in stomach duct and abdomen, knocks and falls.¹¹

Keywords: Antimicrobial, Cleanses the air, strengthens connective tissue³

Research/ Additional Notes:

- Lemongrass (*Cymbopogon citratus*) exhibits antimycotic (antifungal) activity. *Cymbopogon citratus* showed strong antimycotic (syn. antifungal) activity against *Aspergillus fumigatus* and *Aspergillus niger* growth in vitro.¹²
- Lemongrass demonstrates antifungal activity against some respiratory pathogenic species of *Aspergillus*.
- The results show that Lemongrass oil produces a fungitoxic effect, which supports its possible use in medicine to cure mycotic infections.¹³
- Lemongrass exhibits anxiolytic, sedative and anticonvulsive activity. Our results are in accord with the ethnopharmacological use of *Cymbopogon citratus*, and after complementary toxicological studies it can support investigations assessing their use as anxiolytic, sedative or anticonvulsive agent.¹⁴
- Lemongrass exhibits anxiolytic activity.
- The results corroborate the use of *Cymbopogon citratus* in folk medicine and suggest that the anxiolytic-like effect of its EO is mediated by the GABA(A) receptor-benzodiazepine complex.¹⁵
- Lemongrass (*Cymbopogon citratus*) and *Eucalyptus citriodora* exhibit anti-inflammatory properties.
- Altogether, this work demonstrates the anti-inflammatory property of *C. citratus* and *E. citriodora* suggesting their potential role as adjuvant therapeutic alternatives in dealing with inflammatory-related diseases.¹⁶
- Lemongrass (*Cymbopogon citratus*) exhibits high antibacterial activity.
- Lemongrass (*C. citratus*) as well as its active component, citral, exhibited high antibacterial activity against *Haemophilus influenzae*, penicillin-susceptible and resistant *Streptococcus pneumoniae*, *Streptococcus pyogenes* and *Staphylococcus aureus* by gaseous contact. The authors concluded that the antimicrobial action of essential oils by gaseous contact is most efficient when exposed at high vapor concentration for a short time period.¹⁷
- Lemongrass (*Cymbopogon citratus*) exhibits anticandidal activity.
- Lemongrass oil exhibited the most effective killing activity and possessed the strongest inhibitory effect on *Candida* biofilm formation. In addition, lemongrass oil and its major constituents can inhibit germ tube formation, which might affect adherence. The data in this study indicates that lemongrass oil possessed antibiofilm activity and could modulate candidal colonization. Therefore, it is a promising essential oil to combat candidal colonization and infection.¹⁸
- Lemongrass (*Cymbopogon citratus*) exhibits potent antiviral activity against HSV-1 virus.
- Lemongrass possessed the strongest antiviral activity of the essential oils used in the study. At a concentration of 0.1% lemongrass showed the stronger antiviral activity than tea tree. The study concluded that lemongrass essential oil may be the most effective essential oil against HSV-1 infection. The topical use of essential oils, especially lemongrass, for the treatment of recurrent HSV-1 infections may be useful for recurrent ocular and dermal infection with HSV-1.¹⁹ (HSV-1 = Herpes simplex virus type-1)
- Lemongrass mixed in salt and warm water can be effective in treating *Trichophyton mentagrophytes* (*Tinea pedis*).²⁰
- Lemongrass, lemongrass oil and citronella oil preparations are used almost exclusively in combinations for disorders and discomforts of the gastrointestinal tract, muscle pain and neuralgia, colds, various nervous disturbances, and for conditions of exhaustion.²¹
- Lemongrass (*Cymbopogon citratus*) exhibits anti-inflammatory activity.²²

References

1. Bown, D. (2001). *Herbal*. London: Barnes and Noble.
2. Tisserand, R and Young, R. (2014). *Essential Oil Safety*. 2nd edition. Churchill Livingstone/Elsevier.
3. Gumbel, D. (1993). *Principles of Holistic Therapy with Herbal Essences*. Brussels: Haug International, pg. 204.
4. Abe, S., et al. (2003). Anti-Candida albicans activity of essential oils including Lemongrass (*Cymbopogon citratus*) oil and its component, citral. *Nippon Ishinkin Gakkai Zasshi*, 44 (4): 285–291.
5. Gumbel, D. (1993). *Principles of Holistic Therapy with Herbal Essences*. Brussels: Haug International, pg. 204.
6. Inouye, S., Yamaguchi, H., and Takizawa, T. (2001). Screening of the antibacterial effects of a variety of essential oils on respiratory tract pathogens, using a modified dilution assay method. *J Infect Chemother*, 7(4): 251–254.
7. Gumbel, D. (1993). *Principles of Holistic Therapy with Herbal Essences*. Brussels: Haug International, pg. 204.
8. Gumbel, D. (1993). *Principles of Holistic Therapy with Herbal Essences*. Brussels: Haug International, pg. 204.
9. Wood, M. (2008). *The Earthwise Herbal: A complete guide to old world medicinal plants*. Berkeley, CA: North Atlantic Books.
10. Pole, S. (2006). *Ayurvedic Medicine: the Principles of Traditional Practice*. Philadelphia, PA: Churchill Livingstone.
11. Zhou J, Xie G, and Yan, X. (2011) *Encyclopedia of Traditional Chinese Medicines – Molecular Structures, Pharmacological Activities, Natural Sources and Applications: Isolated Compounds T-z, References for Isolated Compounds Tcm Original Plants and Congeners*. Berlin: Springer-Verlag.
12. Bansod S and Rai M. (2008) Antifungal Activity of Essential Oils from Indian Medicinal Plants Against Human Pathogenic *Aspergillus fumigatus* and *A. niger*. *World Journal of Medical Sciences* 3 (2): 81-88
13. Al Yousef, S A. (2013). Antifungal Activity of Volatiles from Lemongrass (*Cymbopogon citratus*) and Peppermint (*Mentha piperita*) Oils Against Some Respiratory Pathogenic Species of *Aspergillus*. *Int.J.Curr.Microbiol.App.Sci* 2(6): 261-272
14. Blanco MM, Costa CA, Freire AO, Santos JG Jr, Costa M. (2009) Neurobehavioral effect of essential oil of *Cymbopogon citratus* in mice. *Phytomedicine*. 16(2-3):265-70.
15. Costa CA, Kohn DO, de Lima VM, Cargano AC, Florio JC, Costa M. (2011) The GABAergic system contributes to the anxiolytic-like effect of essential oil from *Cymbopogon citratus* (lemongrass). *J Ethnopharmacol*. 137(1):828-36
16. Gbenou JD, Ahounou JF, Akakpo HB, Laleve A, Yayi E, Gbaguidi F, Baba-Moussa L, Darboux R, Dansou P, Moudachirou M, Kotchoni SO. (2013) Phytochemical composition of *Cymbopogon citratus* and *Eucalyptus citriodora* essential oils and their anti-inflammatory and analgesic properties on Wistar rats. *Mol Biol Rep*. 40(2):1127-34
17. Inouye S, Takizawa T, Yamaguchi H. (2001). Antibacterial activity of essential oils and their major constituents against respiratory tract pathogens by gaseous contact. *Journal of Antimicrobial Chemotherapy* 47, 565-573.
18. Taweechaisupapong S, Aieamsaard J, Chitropas P, Khunkitti W. (2012). Inhibitory effect of lemongrass oil and its major constituents on *Candida* biofilm and germ tube formation. *South African Journal of Botany* 81 (2012) 95–102
19. Minami M, Kita M, Nakaya T, Yamamoto T, Kuriyama H and Imanishi J. (2003). The Inhibitory Effect of Essential Oils on Herpes Simplex Virus Type-1 Replication In Vitro. *Microbiol. Immunol.*, 47(9), 681-684
20. Inouye S, Uchida K, Nishiyama Y, Hasumi Y, Yamaguchi H and Abe S. (2007). Combined effect of heat, essential oils and salt on the Fungicidal Activity against *Trichophyton mentagrophytes* in Foot bath. *Jpn. J. Med. Mycol*. Vol 8, 27-36

21. German Commission E. Lemongrass, Citronell Monograph. Retrieved on January 10, 2011 from:
<http://cms.herbalgram.org/commissione/Monographs/Monograph0226.html>

22. Abe S, Maruyama N, Hayama K, Ishibashi H, Inoue S, Oshima H, Yamaguchi H. (2003). Suppression of tumor necrosis factor-alpha-induced neutrophil adherence responses by essential oils. *Mediators of Inflammation*, 12(6), 323/328