

LEMONGRASS OIL



The most popular use of lemongrass, worldwide, is for the production of lemongrass essential oil.

- ◆ When extracted from the plant, the oil has a strong lemon-like scent because of its high citral content (over 75% of the plant).
- ◆ Essential oils have a global market value of over \$US322 billion dollars per year with an annual growth rate of 7.5 percent.
- ◆ Guatemala and India are the two-leading exporters of lemongrass oil while the United States of America and Russia are the two leading importers, importing over 77 tons per year each.

Oil Extraction

- ◆ The most common method used to extract lemongrass oil is direct steam distillation which captures the highest amounts of lemongrass compounds.
- ◆ Lemongrass oil is extracted from dried and fresh herbs through the process of steam distillation which produces oil and hydrosols (aromatic waters).
- ◆ In addition, the lemongrass waste remaining after distillation is used to make paper products.

Benefits and Uses of Lemongrass Oil

- ◆ Lemongrass essential oil can be used as an antiseptic, analgesic, astringent, antidepressant, antimicrobial, antibacterial, and an insecticide.
- ◆ **Cosmetics**—> Used in body products as perfumes, to help prevent skin parasites, oily skin and to strengthen and clean hair. It is also used in products to prevent body odors.
- ◆ **Health/Therapeutics**—> Used to strengthen the immune system, maintain healthy cholesterol levels, reduce fever, control obesity, treat stomach disorder, treat diabetes and cancer, relieve pain, and remove harmful toxic wastes. It is also used in aromatherapy to relieve anxiety and stress.
- ◆ **Culinary**—> The stalks and leaves have been used in Asian cooking for centuries and has recently gained popularity in the new "Foodie" culinary industry.
- ◆ **Household** - Due to its anti-bacterial and anti-fungal properties, lemongrass can also be used as an ingredient in homemade natural household cleaning products.

Agriculture Benefits of Lemongrass for Crop Production

- ◆ Due to its root system, lemongrass can be used as ground cover to retain soil moisture and to control soil erosion .
- ◆ Planted on borders or as a divider of crops, it prevents invasive plants and weeds from growing in crop areas.
- ◆ When planting various types of greens lemongrass can be used as a divider between crops to assist in repelling whiteflies and aphids.
- ◆ Lemongrass can also be used as a feed additive to improve poultry growth rate.

Agricultural Benefits of Lemongrass Oil

Some important components in lemongrass that are effective in agriculture are:

- ◆ Citral: An anti-microbial which prevents bacterial and fungal growth on plants. Lemongrass oil is 75% citral.
- ◆ Acetate: The most active ingredient in lemongrass essential oil. As a bio-pesticide lemongrass oil is used to trap yellow jackets.
- ◆ Limonene: A highly effective insecticide for controlling insects, mites, microorganisms and mealy bugs.
- ◆ Terpeneol: An anti-bacterial that can be used an insect attractant especially for female Mediterranean sand flies.

References

1. Agriculture, Forestry and Fisheries Department. Directorate: Plant Production. REPUBLIC OF SOUTH AFRICA. 02 -2012. Lemongrass Production. <https://www.nda.agric.za/docs/Brochures/EssOilsLemongrass.pdf>
2. How to build and essential oil distiller: <https://www.youtube.com/watch?v=5H1UVv8FaO8&feature=youtu.be>.
3. Lemongrass +Palmaroja +Distillation: https://youtu.be/SPcWFrH_EFg
4. How To Make A Home Made Distillery (PART 2) | Making essential oils: https://www.youtube.com/watch?v=1TpX_CpmVY
5. Shutes, Jade. "Lemongrass: Cymbopogon citratus." The School For Aromatic Studies, Access 2020: <https://aromaticstudies.com/lemongrass-cymbopogon-citratus/>
6. Zheljzkov, V.D., Cantrell, C.L., Astatkie, T., Cannon, J.B. 2011. Lemongrass productivity oil content and composition as a function of nitrogen sulfur and harvest time. Agronomy Journal. 103(3):805-812. <https://acsess.onlinelibrary.wiley.com/doi/full/10.2134/agronj2010.0446>
7. "Essential Oil Biopesticide and Fungicide". Aromatic Benefits of Lemongrass in Agriculture Sector, Essoil, Root, 19-08-2016, <https://www.essentialnaturaloils.com/aromatic-benefits-of-lemongrass-essential-oil-in-agriculture-sector>.
8. Joy, P.P et al., (2006). Lemongrass. [http://nhb.gov.in/model-project-reports/Horticulture%20Crops/Lemongrass/Lemongrass1.htm#:~:text=350%20to%20400%2Fkg%20\(price,\(vide%20Graph%2DI\)](http://nhb.gov.in/model-project-reports/Horticulture%20Crops/Lemongrass/Lemongrass1.htm#:~:text=350%20to%20400%2Fkg%20(price,(vide%20Graph%2DI))
9. Untapping the Power of Nature: Essential Oil Extraction Methods: <https://www.newdirectionsaromatics.com/blog/articles/how-essential-oils-are-made.html>.

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THE MAKING OF LEMONGRASS OIL



Planting



Plot Preparation



Irrigation



Harvesting



Distillation



Processing

Building Distiller



LEMONGRASS

- ◆ The Cymbopogon, or lemongrass, genus includes more than 55 species of grasses native to tropical Asia and southern India.
- ◆ East Indian and West Indian are the two most common types of lemongrass.

East Indian Lemongrass: Cymbopogon flexuosus
Height: Grows up to 7 feet in height.
Foliage: Dark-green
Seed Production: Quick
Growth Rate: Fast
Origin: South India

West Indian Lemongrass: Cymbopogon citratus
Height: Grows up to 4ft. in height and 3 feet wide.
Foliage: Blush-green leaves
Seed Production: Slow to produce seeds
Growth rate: Fast **Origin:** Malaysia
 Largely grown in Central and South America and

- ◆ The lemongrass plant has been used as an anti-inflammatory, an antifungal, and a sedative.
- ◆ In the Caribbean it is often consumed as a hot or cold tea.
- ◆ Although not approved by the Food and Drug Administration, lemongrass reportedly has a wide variety of therapeutic effects and has been used to treat stomachaches, diarrhea, gas, bowel spasms, vomiting, fever, influenza, headaches and other types of pain.
- ◆ Since 2011 the University of Mississippi has conducted research on the use of lemongrass as a biofuel.



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