

Lavender Oil

- **Helps to relieve restlessness and aids sleep**
- **May help to relieve pain**
- **Documented to be metabolized differently than the most common P450 enzymes**
- **Well tolerated and non-habit-forming**
- **Non-GMO and organic**

Lavender (*Lavandula angustifolia*) has been used, both internally and by olfaction, for centuries as an herbal medicine to promote relaxation, calm the mind, and induce restful sleep. Recently, several high-quality human clinical trials have confirmed the efficacy of oral supplementation with lavender oil at a dose of 80 mg once daily for symptoms of anxiety, comorbid depression, restlessness, agitation, cognitive impairment, and disturbed sleep.^{[1][2][3][4][5][6][7]}

Much clinical research now suggests that oral lavender has equal effect compared to common anxiolytic pharmaceutical drugs used in the treatment of anxiety (paroxetine and lorazepam), without causing sedation, withdrawal symptoms, or any other unsettling side effects.^{[1][4][5]}

The anxiolytic effects of lavender oil have been suggested to be due to the active ingredients linalool and linalyl acetate, which have an ability to modulate GABAergic neurotransmission, thereby inducing a calming effect through general nervous-system inhibition.^[26] This attribute applies to oral, inhalation, and topical routes of administration.

Lavender may be used as a sleep aid, particularly when sleep is disturbed by underlying anxiety. Clinical trials with oral use of lavender oil have shown it to reduce morning tiredness as well as frequency and duration of waking up, while improving sleep quality and overall mood in participants suffering from anxiety, posttraumatic stress disorder, and chronic fatigue.^{[3][7]} Combining lavender-oil aromatherapy, worn as a patch on the chest, along with sleep-hygiene education has been shown to promote sleep quality and quantity.^[8] Diffused lavender-oil aroma nightly has been shown to improve sleep quality as assessed by the Pittsburgh Sleep Quality Index (PSQI) questionnaire in those with insomnia,^[9] as well as time spent in deep



sleep.^[10] Lavender essential oil aromatherapy has been shown to reduce stress response, lower resting heart rate, and increase the variability between heartbeats in midlife women with insomnia.^[11] It has also been shown clinically to increase power of theta and alpha brain activities, induce relaxation, lower blood pressure, and improve cognitive function.^{[12][13][14]} Lavender-and-orange essential-oil aromatherapy in the evening has been shown to improve cognitive function in Alzheimer's and other forms of dementia.^[15]

In a study of 140 women who recently gave birth, their anxiety, stress, and postpartum depression levels were significantly lower when they inhaled three drops of lavender three times daily, after just one month of use.^[16]

Lavender used topically exerts antimicrobial, nervine, antispasmodic, and analgesic properties.

It has been shown to reduce pain and shorten duration in recurrent aphthous ulcers.^[17] Aromatic-oil massage has been used in clinical studies and may alleviate pain of primary dysmenorrhea,^{[18][27]} help to cope with premenstrual syndrome symptoms,^[19] and alleviate acute migraine-related pain^[20] and osteoarthritic knee pain.^[21] Manual acupressure with lavender oil at 3% dilution in a carrier oil for eight sessions over three weeks has been shown to decrease neck-pain intensity, stiffness, range of motion, and stress level in those with nonspecific subacute neck pain.^[22]

Topical use and inhalation of lavender oil have been shown to lower stress and pain intensity associated with needle insertion in hemodialysis patients,^{[23][24]} during chemotherapy treatment^{[28][29]} and in healthy adults.^[25] This may have useful application in reducing pain and anxiety during administration of intravenous

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therapies. Lavender aroma has also been used to improve postoperative nausea and vomiting^[30] and menopausal hot flashes.^[31]

Diffusing ambient lavender oil may also be used for temporary relief from discontinuing medication for insomnia and reduce withdrawal side effects. In a clinical study on four benzodiazepine-dependent geriatric patients, there was a significant decrease in sleep duration by stopping benzodiazepine treatment, which was restored to previous levels by substitution of aromatherapy with lavender oil.^[32]

Lavender Interactions

Clinical trials suggest that there is a relatively low chance of interactions between lavender oil and certain medications. A randomized, double-blind, crossover trial examining the effect of lavender oil on liver-enzyme induction found that oral use of lavender oil at 160 mg for 11 days had no effect on cytochrome CYP enzymes, which are major pathways for drug activation, metabolism, and elimination: CYP1A2, 2C9, 2D6, and 3A4 activity.^[33] Another clinical trial demonstrated lack of interaction between lavender

oil and markers assessing the effectiveness of hormonal contraception.^[34]

Lavender Safety and Adverse Effects

Available evidence suggests that short-term therapy with lavender is relatively safe. In clinical studies, both 160 and 80 mg/d side effects from oral lavender oil were comparable to placebo, and lower than those of the drug paroxetine.^[4] Except for potential mild gastrointestinal symptoms and reflux, supplementation of lavender oil at daily doses of 80 or 160 mg has been shown to be devoid of adverse effects.^[2] There are some reports of adverse effects after topical application of lavender. Gynecomastia coincided with the topical application of products containing lavender and tea tree oils in three boys aged between 7 to 10 years, which resolved shortly after discontinuation of these products. In addition, studies in human cell lines indicated that the lavender oil had estrogenic and antiandrogenic activities.^[35] Lavender should be avoided in those with a known allergy. Ingestion should be avoided during pregnancy (due to emmenagogue effects) and breast-feeding. Lavender oil has low potential for drug abuse or dependency.^{[1][2]}

Table 1. Clinical Studies for Oral Lavender Oil

Indication	Design	Outcomes	Notes
Anxiety	A network meta-analysis of five studies, 524 participants taking oral 80 mg and 121 participants taking oral 160 mg lavender oil were evaluated against other comparators (placebo/paroxetine/lorazepam).	Consumption of 160 mg oral lavender oil resulted in higher decline of HAMA score in comparison to all comparators, except 0.5 mg lorazepam.	[1]
	A review of seven clinical trials using lavender oil at dosage 80 mg/d or 160 mg/d in patients with subsyndromal anxiety or generalized anxiety disorder. Treatment duration was 6–10 weeks.	Supplementation with 80 mg/d lavender oil decreased HAMA scores by 11.3 ± 6.7 at six weeks and between 10.8 ± 9.6 and 16 ± 8.3 at 10 weeks. Anxiolytic effect of lavender oil treatment was evident after 2 weeks.	[2]
	Randomized, double blind, placebo-controlled trial ($n = 170$). Participants with restlessness and disturbed sleep assigned to 80 mg/d lavender oil ($n = 86$) or placebo ($n = 84$) for 10 weeks. Patients with clinical psychiatric or neurological disorders were excluded from study.	Lavender-oil supplementation significantly reduced restlessness and improved sleep as compared to placebo (HAMA score decrease of 11.8 ± 7.7 for lavender oil, 9.6 ± 8.7 for placebo).	[3]

Indication	Design	Outcomes	Notes
Anxiety	Randomized, double-blind, double-dummy trial of 539 adults with generalized anxiety disorder assigned to supplement 160 mg or 80 mg oral lavender oil, 20 mg paroxetine, or placebo once daily for 10 weeks.	HAMA total scores decreased for both dosages as compared to placebo ($p < 0.01$). A reduction in the HAMA total score by $> 50\%$ in 60% of participants in the 160 mg-daily lavender oil group ($p < 0.001$), 52% in the 80 mg-daily lavender oil group ($p < 0.05$), 43% in the paroxetine group, and 38% in the placebo group. Lavender oil had a pronounced antidepressant effect at 160 mg dose, significantly improving mental health compared to placebo ($p < 0.001$). There was no difference on HAMD scores between the lavender oil groups and paroxetine group. Both doses of lavender oil improved quality of life and comorbid depression compared to placebo.	[4]
	Multicentre study compared oral lavender oil (80 mg/d) against a standard benzodiazepine (lorazepam 0.5 mg/d) in 77 adults with generalized anxiety disorder over six weeks. Outcome measured by HAMA score.	Lavender oil and lorazepam decreased HAMA score similarly, by 45% (11.3 ± 6.7 points) and 46% (11.6 ± 6.6), respectively, from baseline. At the end of the study, 40% of the lavender-oil group and 27% of the lorazepam group were in remission. Lavender oil prolonged total sleep time and reduced the latency to fall asleep and the waking-up duration, effects comparable to that of lorazepam. No daytime sedation was noted with lavender ingestion.	[5]
Depression	A small retrospective case series study of eight participants with major depressive disorder were given 80 mg/d oral lavender oil capsules as adjunctive therapy.	Improvement in sleep-onset and sleep-maintenance insomnia, improvement in depression, and decrease in psychomotor agitation in three of eight participants, compared to no effect in other participants. In six of eight participants, a reduction in major mental depression was observed within three weeks of supplementing lavender oil adjunct to antidepressant therapy. A reduction in restlessness and agitation was reported during the treatment period.	[6]
	Somatization disorder, PTSD, or neurasthenia	An open-label, phase II trial evaluated the effect on subthreshold anxiety of 80 mg of oral lavender oil in 47 participants with somatization disorder, PTSD, or neurasthenia after six weeks. Lavender oil showed 57.4% reduction in depressed mood, 51.1% reduction in sleep disturbances, 61.7% reduction in restlessness, and 44.7% reduction in anxiety during treatment compared to baseline ($p < 0.001$), as well as significant improvements in cognitive functioning as assessed by the SF-36 mental health assessment ($p < 0.001$). Waking-up frequency ($p = 0.002$), waking-up duration ($p < 0.001$), and morning tiredness ($p = 0.005$) were reduced, while efficiency of sleep ($p = 0.018$) and mood ($p = 0.03$) improved.	[7]

HAMA: Hamilton Anxiety Scale; HAMD: Hamilton Depression Scale

References

- Yap, W.S., et al. "Efficacy and safety of lavender essential oil (Silexan) capsules among patients suffering from anxiety disorders: A network meta-analysis." *Scientific Reports*, Vol. 9, No. 1 (2019): 18042.
- Kasper, S., et al. "Silexan in anxiety disorders: Clinical data and pharmacological background." *The World Journal of Biological Psychiatry*, Vol. 19, No. 6 (2018): 412–420.
- Kasper, S., I. Anghelescu, and A. Dienel. "Efficacy of orally administered silexan in patients with anxiety-related restlessness and disturbed sleep—A randomized, placebo-controlled trial." *European Neuropsychopharmacology*, Vol. 25, No. 11 (2015): 1960–1967.
- Kasper, S., et al. "Lavender oil preparation Silexan is effective in generalized anxiety disorder—A randomized, double-blind comparison to placebo and paroxetine." *International Journal of Neuropsychopharmacology*, Vol. 17, No. 6 (2014): 859–869.
- Woelk, H., and S. Schläpke. "A multi-center, double-blind, randomized study of the lavender oil preparation silexan in comparison to lorazepam for generalized anxiety disorder." *Phytomedicine*, Vol. 17, No. 2 (2010): 94–99.

6. Fišler, M., and A. Quante. "A case series on the use of lavender oil capsules in patients suffering from major depressive disorder and symptoms of psychomotor agitation, insomnia and anxiety." *Complementary Therapies in Medicine*, Vol. 22, No. 1 (2014): 63–69.
7. Uehleke, B., et al. "Phase II trial on the effects of Silexan in patients with neurasthenia, post-traumatic stress disorder or somatization disorder." *Phytomedicine*, Vol. 19, No. 8–9 (2012): 665–671.
8. Lillehei, A.S., et al. "Effect of inhaled lavender and sleep hygiene on self-reported sleep issues: A randomized controlled trial." *Journal of Alternative and Complementary Medicine*, Vol. 21, No. 7 (2015): 430–438.
9. Lewith, G.T., et al. "A single-blinded, randomized pilot study evaluating the aroma of *Lavandula angustifolia* as a treatment for mild insomnia." *Journal of Alternative and Complementary Medicine*, Vol. 11, No. 4 (2005): 631–637.
10. Goel, N., et al. "An olfactory stimulus modifies nighttime sleep in young men and women." *Chronobiology International*, Vol. 22, No. 5 (2005): 889–904.
11. Chien, L.-W., et al. "The effect of lavender aromatherapy on autonomic nervous system in midlife women with insomnia." *Evidence-Based Complementary and Alternative Medicine*, Vol. 2012 (2012): 740813.
12. Diego, M.A., et al. "Aromatherapy positively affects mood, EEG patterns of alertness and math computations." *The International Journal of Neuroscience*, Vol. 96, No. 3–4 (1998): 217–224.
13. Sayorwan, W., et al. "The effects of lavender oil inhalation on emotional states, autonomic nervous system, and brain electrical activity." *Journal of the Medical Association of Thailand*, Vol. 95, No. 4 (2012): 598–606.
14. Duan, X., et al. "Autonomic nervous function and localization of cerebral activity during lavender aromatic immersion." *Technology and Health Care*, Vol. 15, No. 2 (2007): 69–78.
15. Jimbo, D., et al. "Effect of aromatherapy on patients with Alzheimer's disease." *Psychogeriatrics*, Vol. 9, No. 4 (2009): 173–179.
16. Kianpour, M., et al. "Effect of lavender scent inhalation on prevention of stress, anxiety and depression in the postpartum period." *Iranian Journal of Nursing and Midwifery Research*, Vol. 21, No. 2 (2016): 197–201.
17. Altaei, D.T. "Topical lavender oil for the treatment of recurrent aphthous ulceration." *American Journal of Dentistry*, Vol. 25, No. 1 (2012): 39–43.
18. Apay, S.E., et al. "Effect of aromatherapy massage on dysmenorrhea in Turkish students." *Pain Management Nursing*, Vol. 13, No. 4 (2012): 236–240.
19. Uzunçakmak, T., and S.A. Alkaya. "Effect of aromatherapy on coping with premenstrual syndrome: A randomized controlled trial." *Complementary Therapies in Medicine*, Vol. 36 (2018): 63–67.
20. Sasannejad, P., et al. "Lavender essential oil in the treatment of migraine headache: A placebo-controlled clinical trial." *European Neurology*, Vol. 67, No. 5 (2012): 288–291.
21. Nasiri, A., et al. "Effect of aromatherapy massage with lavender essential oil on pain in patients with osteoarthritis of the knee: A randomized controlled clinical trial." *Complementary Therapies in Clinical Practice*, Vol. 25 (2016): 75–80.
22. Yip, Y.B., and S.H.-M. Tse. "An experimental study on the effectiveness of acupressure with aromatic lavender essential oil for sub-acute, non-specific neck pain in Hong Kong." *Complementary Therapies in Clinical Practice*, Vol. 12, No. 1 (2006): 18–26.
23. Taşan, E., et al. "The effect of diluted lavender oil inhalation on pain development during vascular access among patients undergoing haemodialysis." *Complementary Therapies in Clinical Practice*, Vol. 35 (2019): 177–182.
24. Ghods, A.A., et al. "The effect of topical application of lavender essential oil on the intensity of pain caused by the insertion of dialysis needles in hemodialysis patients: A randomized clinical trial." *Complementary Therapies in Medicine*, Vol. 23, No. 3 (2015): 325–330.
25. Kim, S., et al. "The effect of lavender oil on stress, bispectral index values, and needle insertion pain in volunteers." *Journal of Alternative and Complementary Medicine*, Vol. 17, No. 9 (2011): 823–826.
26. Koulivand, P.H., et al. "Lavender and the nervous system." *Evidence-Based Complementary and Alternative Medicine*, Vol. 2013 (2013): 681304.

Each softgel contains:

Organic lavender (*Lavandula angustifolia*) essential oil 80 mg

Nonmedicinal ingredients: Organic olive oil and natural vitamin E (D- α -tocopherol) (from non-GMO sunflower) in a softgel composed of annatto extract (in sunflower oil), bovine gelatin, glycerin, and purified water.

Directions of use: Adults: Take 1 softgel daily with food and a full glass of water or as directed by your health-care practitioner.

Cautions and warnings: Consult a health-care practitioner prior to use if you are taking prescription medications. Consult a health-care practitioner if symptoms persist or worsen. May impair ability to drive and use machines; affected patients should not drive or operate machinery.

Contraindications: Do not use if you are pregnant or breast-feeding.

Known adverse reactions: Hypersensitivity (e.g. allergy) may occur; in which case, discontinue use. Lavender burps have been reported in a small number of users and is a normal effect of the product.

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27. Ou, M.-C., et al. "Pain relief assessment by aromatic essential oil massage on outpatients with primary dysmenorrhea: A randomized, double-blind clinical trial." *The Journal of Obstetrics and Gynaecology Research*, Vol. 38, No. 5 (2012): 817–822.
28. Yayla, E.M., and L.Ozdemir. "Effect of inhalation aromatherapy on procedural pain and anxiety after needle insertion into an implantable central venous port catheter: A quasi-randomized controlled pilot study." *Cancer Nursing*, Vol. 42, No. 1 (2019): 35–41.
29. Ozkaraman, A., et al. "Aromatherapy: The effect of lavender on anxiety and sleep quality in patients treated with chemotherapy." *Clinical Journal of Oncology Nursing*, Vol. 22, No. 2 (2018): 203–210.
30. Karaman, S., et al. "A randomized placebo-controlled study of aromatherapy for the treatment of postoperative nausea and vomiting." *Complementary Therapies in Medicine*, Vol. 42 (2019): 417–421.
31. Nikjou, R., et al. "The effect of lavender aromatherapy on the symptoms of menopause." *Journal of the National Medical Association*, Vol. 110, No. 3 (2018): 265–269.
32. Hardy, M., et al. "Replacement of drug treatment for insomnia by ambient odour." *The Lancet*, Vol. 346, No. 8976 (1995): 701.
33. Doroshenko, O., et al. "Drug cocktail interaction study on the effect of the orally administered lavender oil preparation silexan on cytochrome P450 enzymes in healthy volunteers." *Drug Metabolism and Disposition*, Vol. 41, No. 5 (2013): 987–993.
34. Heger-Mahn, D., et al. "No interacting influence of lavender oil preparation silexan on oral contraception using an ethinyl estradiol/levonorgestrel combination." *Drugs in R&D*, Vol. 14, No. 4 (2014): 265–272.
35. Henley, D.V. et al. "Prepubertal gynecomastia linked to lavender and tea tree oils." *The New England Journal of Medicine*, Vol. 356, No. 5 (2007): 479–485.