

**CYH–*Lavandula officinalis***

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Fundamentals of Herbal Medicine–HRB 600 Sec 200

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### Section One: Lavender At A Glance

1. Scientific name *Lavandula officinalis* also known as *Lavandula angustifolia*
2. Common name: lavender, English lavender (The Plant List, 2017)
3. Family name: Lamiaceae
4. Part(s) of the plant used:  
Most commonly used parts are the “leaves, petals, and flowering tips” (Plants for a Future, 2017). The flowers contain most of the essential oil (Grievess, M., 1931).
5. Native region and environment:  
Lavender can be found in “dry grassy slopes amongst rocks, in exposed, usually parched, hot rocky situations often on calcareous soils” (Plants for a Future, 2017). It’s native range is across Europe and the Mediterranean (Grieve, M., 1931).
6. Why you have chosen the plant?  
I’ve picked this plant because it is one that I will be studying in my apprenticeship this year. I spent some time harvesting it in July. I made a gallon of lavender oil from the flower heads.
7. A photo or two of your plant.



## Section Two: Historical Use of Lavender

Lavendula is native to the Mediterranean, southern Europe, and India<sup>1</sup> where it thrives on “dry grassy slopes amongst rocks, in exposed, usually parched, hot rocky situations often on calcareous soils” (Plants for a Future, 2017). Lavendula like many plants from the **Lamiaceae** family, has been associated with medicinal use for millennia. Lavender water was also used extensively by Mediterraneans in classical times for bathing. This makes the correlation of modern scientific names with ancient Latin, Arabic, or Greek sometimes difficult. The Greeks called Lavender Nardus, “from Naarda, a city of Syria near the Euphrates, and many persons call the plant ‘Nard.’ St. Mark mentions this as Spikenard, a thing of great value” (Fernie, W.T., 1897). Oil of Spikenard is mentioned in the bible as having been used to anoint the feet of Jesus. Lavandula is also very abundant on the islands of Hyères, which the Ancient Romans called the 'Stoechades,' after this plant (Grieve, M., 1931).

Lavendula has a long and storied history of use in both Spain and Morocco. One of the most famous physician-botanist-pharmacologist from Islamic history is Ibn al-Baytar. He was born in Malaga Spain in 1197 CE and traveled extensively throughout the Mediterranean. (El-Gharbaoui, Benítez, González-Tejero, Molero-Mesa, & Merzouki, 2017). Al-Baytar wrote the Compendium of Simple Medicaments and Foods in the 13th century CE, hereafter known as the Compendium. Researchers have looked at the historical usage of the Lamiaceae family for medicinal purposes. El-Gharbaoui et al. (2017) conducted a comparison of the usage of Lavendula in Andalusia, Spain and north east Morocco and compared that to usage documented in the Compendium. Their research shows that *Lavandula angustifolia* and *Lavandula stoechas* was more broadly used in Andalusia than Morocco.

Plant	Morocco	Andalusia	Compendium
<i>Lavandula angustifolia</i>	6	18	18
<i>Lavandula stoechas</i>	6	25	7

Number of medicinal uses (El-Gharbaoui et al., from Figure 2., 2017)

*Lavandula angustifolia* has been used in Andalusia for circulatory system problems, traumatic injuries, respiratory system maladies, and many undefined symptoms (El-Gharbaoui et al., 2017). *Lavandula stoechas* has been used in Morocco for nervous system and sense organ maladies, mental illness, and many undefined symptoms (El-Gharbaoui et al., 2017). Rheumatism and cold/cough symptoms were treated by Lavandula in Andalusia, Morocco, and as listed in the Compendium (El-Gharbaoui et al., 2017).

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<sup>1</sup> I had difficulty finding information about its usage in India despite consulting many sources.

Lavandula was also being used in Europe as one of the “ingredients of the 'Four Thieves' Vinegar' used in the Middle Ages” to protect against the plague. It was one of the first garden plants brought to the new world by early English settlers. Lavender can be used “to dry up the moisture of a cold braine” (Rohde, E., 1922, para. 112), where it is “especially good use for all griefes and paines of the head and brain” (Rohde, E., para. 112, 1922). Pliny the elder mentioned that *Lavandula stœchas* was used in powdered form for coughs, sciatica, and vertebrae pain (Bostock, J., 1855). The flowers of *Lavandula stochchus* were used medicinally in England until about the middle of the eighteenth century, where a simple oil of lavender was used for dressing wounds (Grieves, M., 1931).

### Section Three: American Usage in the 18th-19th Centuries

Given the 600-year history of Lavandula usage for a wide variety of symptoms, but especially Rheumatism and cold/cough symptoms in Europe and the Mediterranean (El-Gharbaoui et al., 2017), I expected to see the practice continued into 18th and 19th century America. However, this was not the case. At some point another herbal remedy must have been more effective or fashionable for such symptoms. While Lavandula is a common herb and listed in many pharmacopoeia of the era, its use is diminished. “Lavender is an aromatic stimulant and tonic, but is seldom given in its crude state” (Remington & Wood, 1812, p. 14).

Most commonly, Lavandula is used in *compositus* (Druitt, 1860; Fenner 1888; Remington & Wood, 1918; Scudder, 1870; Thomas, 1866; Wood, 1846), which is Latin for compound. A compound formula consists of multiple ingredients mixed together to use in treatment. In the Elements of Materia Medica and Therapeutics, we see that Lavandula “flowers are carminative, mildly stimulant, and somewhat tonic” (Pereira, J., 1954, p. 241). They “are sometimes employed as errhines in the Pulvis asari compositus” (Pereira, J., 1854, p. 240). Errhines are introduced into the nose and “cause augmented secretion of nasal mucus, frequently excite sneezing, and by long-term use thicken the mucous membrane, blunt the sense of smell, and alter the tone of voice” (Pereira, J., 1854, p. 241).

In the Eclectic Materia Medica (Felter, 1922), spirit of lavender (an alcohol diluted lavender oil) is suggested externally as a “soothing lotion for the headache of debility and in fevers” or burned in a sick room to disguise unpleasant odors. Where as lavender “is frequently added to carbonate of ammonium, and constitutes ‘smelling salts’ for the relief of headache and tendency to fainting” (Felter, 1922). Internally *Lavandula compositus* “are extensively employed to allay gastric uneasiness and nausea, in flatulent colic, hysteria, nervous debility, general languor and

tendency to fainting” (Felter, 1922, p. 442). Lavender compound tincture is often added to give color and taste to “less agreeable medicines” (Felter, 1922),

William Cook also suggests *Lavandula* as “used mostly as an adjunct to other agents in nervous agitation and restlessness, with prostration—their own action being soothing, and rendering stronger articles more acceptable to the stomach” (Cook, 1869). Compound spirit recipes included *Lavandula* oil for treating flatulence, nausea, and fainting. Tremors and nervous disorders were commonly treated with lavender compositus, referred to as its medicinal name Palsy drops (Croker, T.H. ,1765). The flowers were used to make “the famous Spirit of lavender called palsy drops, and the sweet lavender water are made with them. The spirit of lavender called palsy drops is thus made best” (Hill, 1812). Finally, it is during the 19th century, we see *Lavandula compositus* (comp.) for sale in catalogs aimed at physicians (Bullock & Crenshaw, 1851, p. 17; Pike, 1856, p. 54).

Because I had read previously that *Lavandula* has been used to treat injuries and for dressing wounds (Grieves, M., 1931), I started a search for use of *Lavandula* during the Civil War. I thought it may have been used by surgeons on the battle field. I looked through many army and surgical indexes. Although *Lavandula* is frequently listed on standard supply lists where “it is urged that medical officers make requisition only for such medicines in the following table as are deemed indispensable” (Chisolm, 1861, p416, Hospital Supply Table ). I had difficulty finding discussion of its actual usage. There were mentions of *Lavandula* for the treatment of “bruises, sprains, rigidities of the joints, and incipient chilblains” (Cooper, 1842, p. 659) and mouth ulcers (Durkee, S. 1864, Erichsen, J.E., 1867, Neligen, J.M. 1852) caused by sexually transmitted diseases.

*Lavandula* used for the treatment of women and children, aside from hysteria, is one area of usage I did not expect to find. This was not a use mentioned by my deep history last week. Scudder (1870) says “lavender is the child's stimulant, and nothing, so far as I am aware, exercises so kindly an influence upon the digestive apparatus and the nervous system”. Evanson (1843) suggests its use as a carminative, in a compound where the stimulant effect “can be increased, when depression attends”. It was also used in compound to treat amenorrhoea, or abnormal absence of menstruation (Ashwell, S. 1848, p. 72) and to reduce pain caused by cancer of the womb (Ashwell, S. 1848, p. 298-299), in cases where opiates are not advised.

### Section Four: Warnings, Contraindications, General Safety of Lavender

After looking through numerous sources, I can only find a short list of problematic constituents, contraindications, or adverse events with Lavender use. I do think that is because Lavender is generally a safe herb to take, even for children and pregnant women. It was after all known as “the child's stimulant” (Scudder, 1870). I started my search by looking at the ABPA Botanical Safety Handbook 2nd ed. (Gardner & McGriff, 2013). They list no contraindications, other precautions, or drug-herb interactions; as also reported in the monograph on lavender oil published by the European Medicines Agency (EMA/HMPC/530968/2012). They both note that there is a risk of allergic reaction through contact dermatitis in rare cases. The Botanical Safety Handbook also includes an editor’s note that there have been some reports of lavender essential oil as the cause of gynecomastia in boys; however “those reports have been the subject of criticism” (p. 503) due to other essential oils potentially providing estrogenic activity.

#### Cautions & Warnings

I found cautions or warnings for the following potential adverse effects:

1. Caution is suggested using lavender “with concurrent use of CNS depressants and anticonvulsants possibly leading to synergistic narcotic and sedative effects. Caution as also advised in regard to coumarin, a lavender constituent, theoretically causing bleeding in combination with anticoagulant therapy.” (Denner, 2009, p. 61)
2. “Patients with open wounds, skin problems, high fever, severe infections and severe heart and circulation problems should not have full baths with lavender oil” (EMA/HMPC/530968/2012). **\*\*\* Note: this warning contradicts studies on using lavender oil in a bath for treating perineal trauma in postnatal women.**

I found the following potential adverse effects from Basch et. al., 2004 (p. 68):

1. *Dermatologic*: There have been case reports of mild dermatitis following the use of topical lavender oil. One individual developed an itchy dermatitis on his face after using lavender oil on his pillow. Patch testing subsequently confirmed a positive allergy to lavender. There have been reports of photosensitization and changes in skin pigmentation after the use of topical products containing lavender oil.
2. *Neurologic/CNS*: Central nervous system depression has rarely been reported with aromatherapy, and additive narcotic effects have been noted in rats when taken orally concomitantly with barbiturates or chloral hydrate.
3. *Hematologic*: Reversible neutropenia has been noted after high oral doses of perillyl alcohol (POH), a monoterpene constituent of lavender, in

patients with untreatable malignancies (on multiple chemotherapy regimens).

4. *Gastrointestinal*: Nausea, vomiting and anorexia have been reported after large oral doses of lavender (>5.0 g/day),<sup>21,22</sup> and after large doses of the lavender constituent perillyl alcohol (POH).

When I looked for clinical studies on drug interactions, I found a 2013 study (Doroshenko et al., 2013) which found that orally administered Silexan™ (a lavender oil preparation sold in Germany) had no relevant effect on major cytochrome P450 enzymes and that Silexan™ was well tolerated. There are also several studies on the use of Lavender oil aromatherapy for women in labor and postnatal women (Hadi & Hanid, 2011; Marzouk, Barakat, Ragab, Badria, and Badawy, 2015; Sheikhan et al., 2012; Yazdkhasti & Pirak, 2016) which reported that the treatment was well tolerated and helped reduce perceived pain levels. Topically applied lavender oil is also being used to treat perineal trauma in postnatal women (Jones, 2011; Cornwell & Dale, 1995) with no known side effects and improved discomfort. Lavender oil aromatherapy has also been successfully used in pediatric patients suffering from post-tonsillectomy pain and perianesthesia discomfort with a “significant reduction in acetaminophen use” (Solani, et al., 2013) and no adverse effects reported (Nord, D. & Belew, J., 2009).

### Section Five: Problematic Constituents

According to Dr. Duke’s Phytochemical database [datafile] there are 81 phytochemicals found in *Lavandula angustifolia*. The top, measurable constituents are:

BORNEOL is a terpene derivative and found in most essential oils

LINALYL-ACETATE is a monoterpene compound found in essential oils

CAMPHOR is a terpenoid

LINALOL is a naturally occurring terpene alcohol

FENCHONE is a monoterpene and a ketone

CINNAMALDEHYDE is an organic compound that gives cinnamon its flavor

ETHEROXIDE is a monoterpene

HERNIARIN is methoxy derivative of coumarin

COUMARIN is a benzopyrene chemical class

Monoterpenes were listed as the chief chemical of concern found *Lavandula* (EFSA/SC/COMP/445rev45, p. 22) by the European Food and Safety Authority. One study found that the Linalyl-acetate monoterpene in *Lavandula* is responsible for the mutagenic activity of the essential oil (Zuzarte et al., 2011). An in vitro study concluded that the “oxygen containing

monoterpenes” (Di Sotto, Mazzanti, Carbone, Hrelia, & Maffei 2011) were responsible inhibiting filamentation of *Candida albicans* via the mechanism of action of cytoplasmic membranes disruption and cell death.

In a review of natural Coumarin compounds, Venugopala, Rashmi, & Odhav (2013) find that lavender essential oil is a source for Coumarins. They also note that there are 6 types of Coumarins which confer different pharmacological properties (Table 1). Some of the Lavandula Coumarins may or may not contribute to anticoagulant activity. Last week we learned that there could be a theoretical problem with taking lavender while using anticoagulant medicine. Until we identify which kind of Coumarins are found in Lavandula, we can't be certain. This would be a great area of future research!

### Section Six: Studies of Lavender in Practice

#### *Study One*

Kähler, C., Dereziński, T., Bocian-Sobkowska, J., Keckeis, A., & Zacke, G. (2017) Spicae aetheroleum in uncomplicated acute bronchitis: a double-blind, randomised clinical trial *Wien Med Wochenschr* December 2017 Pages 1-12. Accessed from <https://doi.org/10.1007/s10354-017-0612-0>

**Herb:** *Lavandula latifolia*

**Part used:** Tavipec® (Essential oil from steam distillation of the flowering tops and stalks)

**Controlled or uncontrolled study, or animal or *in vitro*:** a double-blind, randomized controlled clinical trial

**# of Subjects:** 269 (135 placebo, 134 Tavipec®)

**Any special details about the subjects:** The subjects had to be between the ages of 18 and 75.

They had to have a Broca index of 0.75 and 1.30. [Note: a Broca index is a weight measurement similar to BMI.] They had to have a bronchitis severity score (BSS) greater than or equal to 5. They had to have at least 10 coughing episodes per day in the day before the study. They had to NOT have asthma, pneumonia, not elevated temperature. Finally, patients were from both Austria and Poland. Due to the product being available in Austria and therefore possibly familiar with the taste, they selected ones who had not previously had the herb.

**Dose & form of the intervention** Patients were instructed to take 2 150mg capsules 30 minutes before meals 3 times per day for 10 days,

**Hypothesis:** Primary goal was a reduction of BSS after 7 days. Secondary goal was results after 10 days.

**Measures** The doctor assessed the BSS score by summing responses to five major symptoms (i. e. cough, sputum, rales/rhonchi, chest pain during coughing, dyspnoea) with higher scores indicating more severe symptomatology, rated from 0 to 4 (0 = absent, 1 = mild, 2=moderate, 3 = severe, 4 = very severe). The doctors also assessed a Quality of Life (QoL) rating from a verbal response on a scale of 1-10.

**Other important details:** Apart from saline inhalation no other concomitant medications, herbal and complementary medicine use were allowed for symptom relief.

**Results:** The investigators found a reduction of the BSS score with both groups, but a significant difference (25%) from full dose versus placebo (4.79 drop versus 3.2 drop) after 7 days.

### **My Critique**

The investigators in this study appear to have conducted a strong study. They had a large number of participants (269) and groups were decided by a computer generated random number, prepared by Rancode Professional® (IDV Gauting, Germany). The data were collected by doctors using a special case report form on days 0, 7, and 10. The data were analyzed using the Mann–Whitney U-test for 2 populations (2-sided) in SPSS. This kind of statistical test does not assume that there are normal distributions in the groups. The sample size was large enough to give the investigators a power of 90% and an alpha-level of 5%. The article didn't specify how the double-blind data points were input and given to the investigators.

While I may not argue this is the most significant paper I have read on the use of Lavandula in human clinical trials, it was a good example of a well designed, conducted study. I also liked that it was not the Silexan™ product I have read about in other studies. I wondered about the Austrian participants who said that they had not tasted the product before and whether the taste was strong enough to differentiate from the placebo?!? Finally, I was excited to see the use of Lavandula used in the treatment of something other than nervous conditions - so this bronchitis study stood out for me. I feel that the article contained enough information (dosage, duration) for a practitioner to try the therapy in clinic.

### **Section Seven: Wildcrafting Lavender**

In the summer of 2017 I was able to spend some time learning about lavender and making medicine. First my cohort at [Cedar Mountain Herb School](#) went to the [Ananda Farm](#) in Camano Island, WA to learn about making harvesting lavender. In the Pacific Northwest, lavender blooms in mid July, depending on how much sun we have been getting. Its best to pick lavender when

the buds are just starting to open, but before the bees have done their business! The square stalks of lavender are easy to cut with a sickle if you have one handy. Its best to cut the stalks as near to the base as possible. Lavender is typically dried out before you process it in any way. But we did make a lavender flower essence by putting a few lavender flower tops with live (non-treated) water into a glass jar. Its important not to touch the materials as you add them to the jar. We left the lavender and water mixture sit out amongst the lavender plants for about 2 hours. You can make a daughter lavender essence by using a small tincture bottle with brandy and ad 5 drops of the “mother” essence. Using flower essences is definitely something I want to learn more about!

After this wonderful learning experience, I realized that I didn’t have enough lavender!!! After walking my dog around my wonderful Greenlake neighborhood, I discovered 3 beautiful *Lavandula angustifolia* bushes in bloom in a nearby city highway storage field. Thank you to the city of Seattle for planting lavender, mullein, roses, and many other wonderful plants in this forgotten spot. First I harvested about 1/3 of two plants, which was something I could get my 11 year old niece and 8 year old nephew to help with. Its best to leave most of the flowers so that the plant can continue to feed the bees and to not stress the plant which can be detrimental to its growth.

For processing the lavender, I made a few bundles to hang dry upside down. Its easy to tie the stems together. After they dry, you can shake out the dried flowers to use in soap, bath bombs, or sugar. With the fresh lavender, I removed the flower and chopped with a scissors and filled a jar (not packed). To this I added organic honey. This jar should sit in a dark spot for 4+ weeks, but be sure to turn the jar daily. Strain the flowers using cheesecloth and you have lavender honey which is great to add to tea during the cold months.

I also made a couple of pints of lavender medicinal oil (not the same as lavender essential oil, which requires a still). To make this, I chopped the flower tops and added to a crock pot with organic olive oil. I left the crockpot on low (my low setting is 165°) for 3 days, with the top off, basically until it stops bubbling. I plan to use this lavender medicinal oil in many different products including anti-bug spray, sunburn salve, and foot fungus cream.

I also added some of the fresh flower tops to 100 proof vodka to make a room spray! Again the flower and alcohol mixture needs to mature for 2+ weeks. Finally, instead of wasting the stalks, I decided to make bundles which can used as fire starters for when you are camping!

## Section Eight: Lavandula In Action & Comparison

Although there are many actions for Lavender, I decided to focus this exercise on its use as a nervine, which acts on the nervous system. There are three subgroups of nervines: tonics which strengthen and restore nervous system function; relaxants which ease anxiety and tension by soothing mind and body; and stimulants which stimulate nerve activity (Hoffman, 2003, page 244). When choosing my comparison herbs, I was happy to find a composite formula with synergistic nervine effect which can serve “as a nerve tonic in chronic fatigue syndrome, nervous exhaustion and insomnia, for which last it is often prescribed as an infusion with other relaxant herbs in Mességué’s (1981) ‘tea of happiness’: 2 parts vervain, chamomile *Matricaria recutita* and lime flowers *Tilia x vulgaris*; 1 part peppermint *Mentha piperita* and (additional to Mességué’s four herbs) lavender *Lavandula angustifolia*” (Tobin, Denham, Whitelegg, & Rowling, 2016, page 334). I decided to look at the energetics of Chamomile (*Matricaria recutita*) and Vervain (*Verbena officinalis*) to understand how their nervine effect may differ and in which situations should each be given. I started out looking at the monographs which were surprisingly unhelpful on this occasion, because the indications for the three herbs were almost identical. Also these herbs are mentioned as being mild enough to use with children and adolescents in several instances. This required further investigation!

### #1 *Lavandula angustifolia*

Actions: Carminitive, **Nervine**, Antibacterial, & Antifungal

Energetics - Bitter, drying, cooling

Herbal Indications -Traditional herbal medicinal product for relief of mild symptoms of mental stress and exhaustion and to aid sleep (European Medicines Agency, 2016).

Situation - If the young person reported problems sleeping and slight headache in the aftermath of a severe head cold. I would recommend lavender tea as a relaxant when a child is irritable and suffering from insomnia. The drying effect of the herb would help clear out any mucus from the nasal passages or lungs. The antibacterial and antiviral activity has a proven effect in reducing days affected. It would also act as a mild pain reliever from headache or coughing. The nervine effect is gentle enough for children and will help with their insomnia.

### #2 *Verbena officinalis* aka Vervain

Actions: **Nervine**, diaphoretic, diuretic, expectorant, hypotensive, sedative, antispasmodic, febrifuge, relaxant, emetic (in high doses)

Energetics - Acrid, slightly cooling, and drying

Herbal Indications - Traditional herbal medicinal product for relief of mild symptoms of mental stress and to aid sleep.

Situation - If the person reported trouble sleeping during premenstrual times of the month, with night sweats, water weight gain and bloating, I would recommend a Vervain tea. The diaphoretic and diuretic actions would reduce the night perspiration and water retention common with PMS. The cooling energetics of the herb help cool down the body in the case of menopausal heat flashes and the drying energetics of the herb would support the diuretic actions (Grieve, , para. 3).

### #3 *Matricaria recutita* aka Chamomile

Actions: **Mild nervine**, sedative, anti-spasmodic, analgesic, anti-inflammatory, antiseptic, anti-emetic, carminative, anti-microbial, vulnerary, anti-ulcer, & anti-allergic.

Energetics - Bitter, sweet, neutral, moist (The Herbal Academy) **Note: I had trouble finding monographs which agreed upon the energetics for chamomile. Some feel that it is drying and warm (Felter & Lloyd, 1898) others reported more neutral and moist!?!?**

Herbal Indications - “Chamomile in the form of an aqueous extract has been frequently used as a mild sedative to calm nerves and reduce anxiety, to treat hysteria, nightmares, insomnia and other sleep problems” (Srivastava, J.K., Shankar, E., & Gupta S. 2010, page 1).

Situation - If the person reported problems sleeping due to stomach or skin irritation and did not have a fever, I would recommend Chamomile tea to ease symptoms. The bitter energetics can help wonderfully with the digestive tract. The neutral and moist energetics are very effective to reduce inflammation. Chamomile is both an effective digestive relaxant and anti-inflammatory. It can sooth stomach issues as well as skin problems like eczema or rosacea, all of which can be so irritating as to interrupt sleep.

## Section Nine: Lavender Dosing

Table 1: Lavender Dosing

	Commission E Monograph	Natural Medicine Monograph	European Medicines Agency	Medical Herbalism	Denner	Longwood Herbal Task Force	Journal of Herbal Pharmacotherapy (Modern Standard)
<b>Infusion</b>	10grams (1-2 teaspoons) flowers OR 0.5-0.2mL Lavender oil (1-4 drops) on a sugar cube	N/A	1-2grams in 150ml water; 3 x daily; 0.5-0.2mL Lavender oil (20-80mg)	4grams (1 teaspoon) dried flowers, 3 X daly, same as Commission E	N/A	1.5grams flowers / 100ml	10grams (1-2 teaspoons)
<b>Tincture</b>	N/A	3mL (60 drops); 1:5 in 50% alcohol daily	2-4mL; 3 x daily; 1:5 in 50-60% POH	N/A	N/A	N/A	800-1200mg/m <sup>2</sup> 4X in 50:50 POH soybean oil for cancer treatment!
<b>Inhaler</b>	N/A	0.15-0.5mL (3-8 drops) applied to cotton ball or directly to hands	N/A	N/A	2,10-0.2mL (1-4 drops) in 2-3 C water	1-10mL in a carrier oil for massage aromatherapy	0.1-0.2mL (1-4 drops)
<b>Topical bath</b>	20-100grams	3mL (20% Lavender oil + 80% grapeseed oil)	1-3grams	N/A	120mg	85-170g (1/4-1/2C) dried flowers	0.3mL (6 drops) of Lavender oil OR 85-170g (1/4-1/2C) dried flowers
<b>Pediatrics</b>	N/A	1mL Lavender oil + 20mL almond oil applied topically	Not for children under 12	N/A	N/A	N/A	NA
<b>Silexan</b>		80-150mg daily		N/A	N/A	N/A	NA

Lavender flowers and lavender oil can both be taken orally in the form of an infusion or used topically. There are some Lavender oil supplements sold specifically for oral usage (Silexan<sup>TM</sup> and Tavipec®) in Europe. An infusion of dried lavender flowers is used in a dosing range of 1-10grams in water up to 3 X daily or 2-5mL of tincture (1:5, 50% POH) daily. This herb appears to be a gentle nervine and sleep aid at low doses. Its reputed to be gentle enough for children, and though none of the monographs gave dosing instructions for oral use, I would use Clark's rule (child's weight/150) multiplied by the adult dose) for safe use over the age of two. Higher doses may be dried for more acute issues, such as needing to pass a kidney stone. Lavender is used in bath form to treat soreness and perineal trauma. For Lavender oil a range of 0.3 to 6mL in a full tub of water. If using dried flowers, 80-170grams sprinkled into a full bath. Finally, Lavender oil can be inhaled during aromatherapy at doses that range from 0.05 - 0.2mL. Lower doses can be applied to a cotton ball or hands and higher doses can be used in a carrier oil. Overall the lowest doses of Lavender are used internally for a gentle nervine and topically for mild antibacterial effects. Larger doses are sometimes used to treat more acute problems.

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