



# *Artisan Aromatics*

## RESEARCH FOR CALM AND BALANCED BLEND

by

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**Essential Oil Ingredients: frankincense, lavender, mandarin orange, neroli, ylang ylang.**

The report is broken down by ingredients and begins with the common name and botanical name of each ingredient followed by “Commonly Cited Aromatherapy Actions”, which lists actions for that ingredient that are frequently cited in books and articles on aromatherapy.

It's important to understand that authors of aromatherapy books have often taken information about the traditional herbal medicine actions of plants (which are often based mainly on anecdotal accounts) and they have just assumed that if it applied to a plant when it was used as a tea or a tincture it would also apply to the essential oil taken from the same plant. That's not always the case – now we do have research to support some of these actions but not others. Sometimes a commonly cited action may have no research support simply because no research has been done on that issue but in other cases there is research and it has failed to support the claimed action. This is a very confusing situation and I have included this information **just so you will know what's out there in popular books on the subject** – most people in aromatherapy still don't understand that not all of these actions have held up to investigation.

Following the “Commonly Cited Aromatherapy Actions” for each ingredient is a section called “Background” which will give you a bit of historical information and/or an overview of that essential oil.

After the “Background” section, you will find specific actions that have been attributed to that essential oil and an example or two of research studies that support the validity of that action. I have not researched every possible action of each essential oil, only those that are relevant to your uses (in a direct or indirect way). Each “action” is underlined. I have highlighted in blue the sections that pertain to specific mechanisms of actions. As we discussed on the phone, a lot of research studies that have been done on essential oils have not looked at the mechanisms of action – so, for example, it is not uncommon to find a dozen studies that have demonstrated an antiinflammatory action for a given essential oil but none has ever addressed the issue of how/why the oil exerts that action.



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Next, I have included some pertinent research (when available) that has been done on specific components of each essential oil (people tend to think of essential oils as single “things” - lavender essential oil is “a thing; and rosemary essential oil is a different “thing” – but actually any given essential oil is a complex mixture of many different organic chemical constituents and each of these constituents contributes to the actions of the oil.)

After presenting some examples of research on components, I have made a brief statement of what role the essential oil plays in the overall blend and finally I have included “Safety Data” for each oil, taken from three respected and widely used references in the field, Julia Lawless (The Illustrated Encyclopedia of Essential Oils); Tisserand and Balacs (Essential oil Safety); and Price & Price (Aromatherapy for Healthcare Professionals).

In addition to this report, you also have the data sheets on each essential oil for which I have made data sheets in the past. These are the sheets that I have developed for my students and they will also have information on which actions have research support and which don't as well as some citations for studies. These data sheets also contain information on the actions and uses of each essential oil from the perspective of Chinese Medicine. There is no data sheet for Mandarin orange.

A note on skin benefits: Essential oils are very widely used in skin care products and there is much in print about the putative benefits of specific essential oils for the skin and for specific skin problems. It is unfortunate that most of the claims about the benefits of various essential oils in skin care have not been researched. I have looked specifically for research on this issue and when I have found it I have included it. There is much better research generally on the effects of essential oils on mood/behavior, stress, immunity, antiviral/antibacterial actions and pain.

There may be proprietary research on the skin benefits of essential oils that has been done by cosmetic companies but this is not available to people outside of those companies. I think that a lot of the claims about skin benefits come from extrapolation of non-skin studies that show effects that sound like they would be good for the skin – for example, you can find studies showing that chamomile essential oil has anti-inflammatory effects so there is an assumption that it will be good for inflammatory skin conditions. Or, you have studies showing that lavender essential oil has an antiseptic effect so it's assumed that it will be useful for acne. A lot of essential oils have been shown to have antioxidant/free radical scavenging effects and this is often translated into benefits for the skin. In a lot of cases, these assumptions are probably correct – aromatherapists and cosmetologists have been using essential oils with some success



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for things like rosacea, acne and even sometimes eczema or psoriasis. Of course, the relaxant, ant-stress effects are of indirect benefit to skin.

The authors of a comprehensive review article that looked at the research evidence for claims that various botanical constituents benefit the skin came to the same conclusion that I have come to – while cosmetic companies throw around claims for these products, especially citing antioxidant properties and the idea that these things affect collagen – there is little evidence to support ANY of the claims being made for these products. This article was published in the British Journal of Dermatology. Vitamin E was the most promising ingredient they reviewed and does have some research behind it – we usually add a small amount to all our massage oils and I can send you a little data on Vit. E if you want.

A note on skin irritation: almost anything applied to the skin has some potential to produce irritation or allergic reaction in someone somewhere and essential oils are no exception so there are numerous reports of various essential oils causing contact dermatitis or allergic reaction. Because of their much higher-than-normal frequency of use massage therapists and other spa workers have the greatest risk of developing skin irritation or allergy to any skin care products that they use. Many essential oils will have research studies showing that a few people have developed sensitization to it and/or that some strong or undiluted amount of it has caused irritation/dermatitis. One study details the case of a woman who developed airborne sensitivities to essential oils following dermal sensitization to the oils but this is the only such case that I am aware of. I do not include essential oils that are known for carrying significant risks of skin reactions in the dilutions used. There is ylang ylang in this blend which has shown some potential for sensitization in some people but there is only a very small amount of it in the blend. If you are worried about this ingredient, even though the amount is small, it can be removed – the “C” bottle in your sample is the same formula except that there is no ylang ylang in it.



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## FRANKINCENSE ESSENTIAL OIL RESEARCH

Botanical Name: *Boswellia carterii*

**COMMONLY CITED AROMATHERPY ACTIONS** - (asterisks indicate strong actions):  
antibacterial, anticatarrhal(\*), antidepressive (\*), anti-infectious, anti-inflammatory (especially in the respiratory tract), antioxidant, cicatrizant, energizing without being stimulating (\*), expectorant, immunostimulant (\*), calming(\*), deepens breathing and promotes relaxation (\*)

**BACKGROUND:** Frankincense resin has been universally used as religious incense since time immemorial and it is widely agreed that it induces deep relaxation and almost euphoric states when combined with meditation. The resin has also been chewed by Bushmen in its native regions for as long as anyone can remember because it imparts a sort of relaxed stamina and enhances endurance which is useful when pursuing wounded game for days. I always take the essential oil when I go backpacking as I can inhale a bit when I'm getting tired and it will restore my energy. I have used it with marathon competitors and other athletes as it deepens breathing and improves stamina and endurance. I am using it with good results in client facilities such as hospices and nursing homes because it is calming and reduces anxiety.

Although there are many properties attributed to this essential oil, it is most often used in aromatherapy for its ability to calm without sedating and to reduce anxiety and stress and improve stamina. It is also used in skin care, especially for aging skin.

Some aromatherapists have used it in skin care because of its ability to reduce anxiety and modulate stress, factors that impact the condition of the skin.

A great deal of the research that has been done on frankincense regarding its anti-inflammatory, analgesic, and anti-cancer properties has been done on various types of extracts of the plant that contain the boswellic acids found in the plant as it grows in nature. The boswellic acids are relatively heavy molecules that cannot be extracted by distillation so they are not found in the essential oil, a fact that has been overlooked by many people in aromatherapy. The studies that I have included below have all been done on the essential oil, not on other types of extracts. I have included some studies on *Boswellia sacra* and *Boswellia serrata* because these two species are so



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closely related to the frankincense most often used in aromatherapy (*Boswellia carterii*) that the results should be generalizable.

## Analgesic Effects:

1. Frankincense reduced pain perception in mice. Menon, M.K. and Kar, A. (1971) Analgesic and psychopharmacological effects of the gum resin of *Boswellia serrata*. *Planta Med.* 19, 333–341.
2. See also study #2 under “Anti-inflammatory”

## Anti-anxiety:

1. Frankincense has been found to reduce terminal agitation and pain and facilitate emotional release in hospice settings (Roberts, D. 2010, Aromatherapy, *The Bridge: Evidence-based Integration of Medicine and Healing, Vol. 3, No. 1. . .*
2. Frankincense essential oil shown to exert anxiolytic effect similar to diazepam. Pehtakar, S. R. (2011) Screening of Frankincense oil for Antianxiety Activity in Mice. Dissertation

## Anti – Cancer:

1. Frankincense essential oil suppressed cell viability in bladder transitional carcinoma J82 cells but not in normal bladder cells. Comprehensive gene expression analysis confirmed that frankincense oil activates genes that are responsible for cell cycle arrest, cell growth suppression, and apoptosis in J82 cells. Conclusion: Frankincense oil appears to distinguish cancerous from normal bladder cells and suppress cancer cell viability. Microarray and bioinformatics analysis proposed multiple pathways that can be activated by frankincense oil to induce bladder cancer cell death. Frankincense oil might represent an alternative agent for bladder cancer treatment. Frank, M.B. et al. (2009) Frankincense oil derived from *Boswellia carterii* induces tumor cell specific cytotoxicity. *BMC Complementary and Alternative Medicine* 2009, 9:6 doi:10.1186/1472-6882-9-6



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2. Ni, et al. (2012) Frankincense essential oil prepared from hydrodistillation of *Boswellia sacra* gum resins induced human pancreatic cancer cell death in cultures and in a xenograph murine model. *BMC Complimentary and Alternative Medicine*, 12. P. 253.

## Anti-Inflammatory:

1. Frankincense essential oil shown to have anti-inflammatory actions. Sharma, A. et al. (2010) Anti-inflammatory and analgesic activity of different fractions of *Boswellia serrata*. *International Journal of Phytomedicines*, Vol. 2, #1
2. This study on essential oil of *Boswellia serrata*, a species closely related to *Boswellia carterii* and also referred to as “frankincense” showed prompt anti-inflammatory and analgesic response due to inhibition of 5-lipoxygenase enzyme (aka 5-LOX). This is an important study because excesses of 5-LOX have been linked to a host of inflammatory diseases. 5-lipoxygenase is the key enzyme in leukotriene biosynthesis and catalyzes the initial steps in the conversion of arachidonic acid to biologically active leukotrienes. Leukotrienes are considered as potent mediators of inflammatory and allergic reactions and regarding their pro-inflammatory properties the inhibition of the 5-lipoxygenase pathway is considered to be interesting in the treatment of a variety of inflammatory diseases.
3. One component that is found in frankincense essential oil in small amounts is incensole acetate (see below) and this has been found to have anti-inflammatory properties. Incensole acetate has been shown to be an inhibitor of a protein involved in cytokine production. Cytokines are immunomodulation agents involved in the inflammatory process and a number of inflammatory skin diseases are associated with over-production of cytokines. **Moussaieff, A. & Mechoulam R. (2009) *Boswellia* resin: From religious ceremonies to medical uses; a review of in-vitro, in-vivo and clinical trials.** *Journal of Pharmacy and Pharmacology*, Volume 61, Issue 10, pages 1281–1293. See below for more properties of incensole acetate.



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## Immune System:

1. Frankincense essential oil shown to have strong immunostimulant activity based on activation of resting lymphocytes into active lymphocytes (this is called “lymphocyte transformation”). Mikhaeil, B. R. et al. (2003) Chemistry and immunomodulatory activity of frankincense oil. *Naturforschung*, 58 c. pp 230-238.

SKIN: Although frankincense essential oil is widely used by aromatherapists for skin care (it is said to be especially nourishing to mature skin) and there are multiple US patents filed for skin care preparations that contain frankincense as a key ingredient, a research of several medical/scientific data bases yielded not a single good study on the effects of frankincense on skin. Jane Buckle recommends it in her book on clinical aromatherapy for treatment of eczema but refers only to a study or two showing general anti-inflammatory effects of the essential oil as justification for the recommendation. Ryman recommended it in her 1999 book for its excellent actions on skin and for removing scars and stretch marks: I don't have the book on hand but I doubt she has any specific references to support that as it is typical of recommendations that you see in other popular sources, offered without supporting references.

## COMPONENTS OF FRANKINCENSE:

### Alpha- pinene – 40 to 60%:

1. Alpha pinene shown to have a relaxing effect based on increased alpha wave activity - Sugano, 1988 and 1989.
2. Alpha-pinene is a terpene and terpenes in general have been shown to increase skin permeability to certain types of drugs and other substances – if you need more on this I can look for specifics. Their mechanisms of action involve increasing the solubility of substances in skin lipids, disruption of lipid/protein organization, and/or extraction of skin micro-constituents that are responsible for barrier maintenance.
3. Alpha-pinene shown to have relaxing effect as evidenced by an increase in alpha brain waves. Hongratanaworakit, T. (2004) Physiological effects in aromatherapy. Songklanakarin J. Sci. Technol., 26(1): 117-125.



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## Incensole Acetate – small amounts

1. Small amounts of incensole acetate found in frankincense essential oil are believed to be responsible for, or at least contribute to, its calming and anxiolytic effects. Incensole acetate has been shown to be a specific ion-channel (TRPV3) agonist in the brain that produces a reduction in anxiety; it may account for the transcendent, calming effect of frankincense resin burned in religious contexts. TRPV3 channel has been found to be involved in mood regulation. Moussaieff, A. et al. (2008). Incensole acetate, an incense component, elicits psychoactivity by activating TRPV3 channels in the brain. *The FASEB Journal*, Vol. 22 No. 8, pp. 3024-3034.
2. Anti-depressant and anxiolytic effects of Incensole acetate suggested by reduced submissiveness in mice and probably related to modulation of the Hypothalamic-Pituitary-Adrenocortical Axis. One effect was a decrease in the level of stress hormones which have been shown to be a factor in the development of chronic stress-related illnesses such as heart disease, etc. Here's the author's summary in technical terms:

Incensole acetate (IA), a constituent of *Boswellia* resin ('frankincense'), was previously demonstrated to exhibit an antidepressant-like effect in the Forced Swim Test (FST) in mice following single dose administration (50 mg/kg). Here, we show that acute administration of considerably lower dose (10 mg/kg) IA to selectively bred mice, showing prominent submissive behavior, exerted significant antidepressant-like effects in the FST. Furthermore, chronic administration of 1 or 5 mg/kg per day of IA for three consecutive weeks' dose- and time-dependently reduced the submissiveness of the mice in the Dominant-Submissive Relationship test, developed to screen the chronic effect of antidepressants. This behavioral effect was concomitant to reduced serum corticosterone levels, dose-dependent down-regulation of corticotropin releasing factor and up-regulation of brain derived neurotrophic factor transcripts IV and VI expression in the hippocampus. These data suggest that IA modulates the hypothalamic-pituitary-adrenal (HPA) axis and influences hippocampal gene expression, leading to beneficial behavioral effects supporting its potential as a novel treatment of depressive-like disorders.

Moussaieff, A. et al. Incensole acetate reduces depressive-like behavior and modulates





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hippocampal BDNF and CRF expression of submissive animals. *J Psychopharmacology* December 2012 vol. 26 no. 12 1584-1593.

This study is important because the HPA axis is what is activated by the stress response and activation of the HPA causes increased levels of corticosteroids and can eventually lead to high blood pressure, diabetes, adrenal fatigue, immune suppression and a host of other chronic health problems. The possibility that frankincense essential oil may be able to modulate activation of the HPA means that it has great potential for the management of stress and a reduction in the likelihood of developing chronic health problems related to stress.

- Incense acetate protects against brain injury following stroke by reducing inflammation through inhibition of NF-kB (a protein complex involved in cellular responses to stimuli such as stress, cytokines, free radicals, and bacterial or viral antigens.)**  
Moussaieff, A. et al. (2012) Protective effects of incense acetate on cerebral ischemic injury. *SciVerse Science Direct* [www.sciencedirect.com](http://www.sciencedirect.com) (abstract available on [deepdyve.com](http://deepdyve.com)).

**IN THIS BLEND:** Frankincense is the “lynch pin” of this blend and the major essential oil ingredient, comprising 62.5% of the total essential oils used. It provides a base for calming without sedating, improves mood, and imparts a relaxed yet gently re-energized feeling while helping to calm the stress response and reduce activation of the HPA axis. All of this would be expected to result in improved immune function. Frankincense essential oil additionally aids in reducing pain and inflammation in joints and muscles and may also benefit the skin.

## SAFETY DATA:

**Lawless** - non-irritant, non-toxic, non-sensitizing

**Tisserand & Balacs** – very mildly irritant

**Price & Price** – no contraindications; gentle and effective; the absolute produced no skin irritation or sensitization in humans at 8% dilution.

I have personally used frankincense frequently and undiluted on small areas of skin for years without problems.



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## LAVENDER ESSENTIAL OIL RESEARCH

Botanical Name: *Lavandula angustifolia*

**COMMONLY CITED AROMATHERAPY ACTIONS:** analgesic\*, antiallergenic, antibacterial, antidepressant, antifungal, antiinflammatory, antispasmodic, anti-stress, anxiolytic\* (decreases anxiety), balancing (parasympathetic nervous system regulator), calming\*/sedative (in low amounts), tonic, mildly emmenagogue (which means that it will stimulate menstruation); essential oils that are strong emmenagogues are to be avoided during pregnancy but Tisserand and Balacs (widely recognized as experts on essential oils safety) specifically include this lavender on their list of essential oils that are safe to use during pregnancy and it is widely regarded as so by other experts as well.

**BACKGROUND:** Lavender essential oil (*Lavandula angustifolia*) is one of the most widely used essential oils in aromatherapy. A few years ago a study was released which claimed to find evidence that shampoos and bath washes containing lavender and tea tree essential oils caused gynecomastia (abnormal breast development) in boys. The study was carefully examined by other researchers, was found to be poorly designed, and is widely considered to be invalid.

### ANALGESIC ACTIONS:

1. Lavender essential oil shown to have analgesic and anti-inflammatory properties:  
Hajhashemi, V. et al. (2003) Anti-inflammatory and analgesic properties of the leaf extracts and essential oil of *Lavandula angustifolia* Mill. *Journal of Ethnopharmacology*, 89(1): 67-71.
2. Lavender essential oil found to have analgesic effects and to protect the GI tract:  
Barocelli, E. et al. (2004) Antinociceptive and gastroprotective effects of inhaled and orally administered *Lavandula hybrida* Reverchon "Grosso" essential oil. *Life Sciences*, Volume 76, Issue 2, 26 November 2004, Pages 213–223. Note: this study was done on a different species of lavender than the one in your blend but they are closely related.



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## ANTIDEPRESSANT ACTIONS:

1. This study shows decreased anxiety and depression as well as improved memory in rats with chemically induced memory deficits: Hritcu, L. et al. (2012) Effects of lavender oil inhalation on improving scopolamine-induced spatial memory impairment in laboratory rats. Phytomedicine, Volume 19, Issue 6, PP. 529–534:

Excerpt from study: Lavender is reported to be an effective medical plant in treating inflammation, depression, stress and mild anxiety in Europe and the USA. The present study investigated the effects of two different lavender essential oils from *Lavandula angustifolia* ssp. *angustifolia* Mill. (*Lamiaceae*) and *Lavandula hybrida* Rev. (*Lamiaceae*) on neurological capacity of male Wistar rats subjected to scopolamine (0.7 mg/kg)-induced dementia rat model. Chronic exposures to lavender essential oils (daily, for 7 continuous days) significantly reduced anxiety-like behavior and inhibited depression in elevated plus-maze and forced swimming tests, suggesting anxiolytic and antidepressant activity. Also, spatial memory performance in Y-maze and radial arm-maze tasks was improved, suggesting positive effects on memory formation. Taken together, multiple exposures to lavender essential oils could effectively reverse spatial memory deficits induced by dysfunction of the cholinergic system in the rat brain and might provide an opportunity for management neurological abnormalities in dementia conditions.

## ANTI-INFLAMMATORY:

1. Lavender essential oils decreased inflammation through inhibition of a cytokine (interleukin-1 Beta) and inhibition of superoxide anion generation (this is a free-radical involved in mediation of low-grade chronic inflammation and oxidative stress that could be involved in age-related physical decline). Treatment with the oil also caused an increased expression of heat shock proteins (these are proteins that protect cells against thermal and oxidative stress): Huang, M-Y et al. (2012) *Am. J. Chin. Med.* **40**, 845.



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## ANTISTRESS ACTIONS:

1. Inhaling lavender essential oil enhances free radical scavenging activity and decreases the stress hormone cortisol and protects the body from oxidative stress. Oxidative stress is believed to be a factor in the development of many diseases, including cancer, heart disease, chronic fatigue and dementia. Atsumi, T. & Keiichi, T. (2007) Smelling lavender and rosemary increases free radical scavenging activity and decreases cortisol level in saliva. Psychiatry Research, Volume 150, Issue 1, Pages 89–96 :

## ANXIOLYTIC:

1. Orally administered lavender essential oil found to be as effective for treatment of Generalized Anxiety Disorder as lorazepam. Woelk, H. & Schlatfke, S. (2010) A multi-center, double-blind, randomized study of the Lavender oil preparation Silexan in comparison to lorazepam for generalized anxiety disorder. Phytomedicine Volume 17, Issue 2, Pages 94–99
2. Inhaled lavender essential oil shown to reduce anxiety similarly to diazepam. Bradley, B.F. et al. (2007) Anxiolytic effects of *Lavandula angustifolia* odor on the Mongolian gerbil elevated plus maze. Journal of Ethnopharmacology, Volume 111, Issue 3, Pages 517–525:
3. Both inhaled lavender and inhaled orange essential oils found to reduce anxiety (Mandarin orange essential oil is also a component of this formula). Lehrner, J. et al. (2005) Ambient odors of orange and lavender reduce anxiety and improve mood in a dental office. Physiology & Behavior, Vol. 86, pages 92–95:



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## CALMING AND BALANCING ACTIONS (AUTONOMIC NERVOUS SYSTEM REGULATOR):

1. Lavender shown to improve sleep quality and to show short-term modulation of parasympathetic nervous system activity. Chien, L. et al. (2012) The Effect of Lavender Aromatherapy on Autonomic Nervous System in Midlife Women with Insomnia. Evidence-Based Complementary and Alternative Medicine. Vol.2012, 8 pages, <http://dx.doi.org/10.1155/2012/740813>:
2. Essential oil of lavender associated with small but significant changes in autonomic activity and relaxation: Saeki, Y. (2000) The effect of foot-bath with or without the essential oil of lavender on the autonomic nervous system: A randomized trial. Complementary Therapies in Medicine, Volume 8, Issue 1, Pp 2-7 :
3. Inhaling lavender essential oil caused a significant decrease in indicators of autonomic nervous system arousal and increased theta and alpha brain wave activity. Subjects inhaling lavender described themselves as feeling fresher and more relaxed than subjects who did not inhale the essential oil. Sayowan, W. . . et al. (2012). The Effects of Lavender Oil Inhalation on Emotional States, Autonomic Nervous System, and Brain Electrical Activity. Journal of the Medical Association of Thailand, 95 (4):

**SKIN:** Lavender is widely used by aromatherapists and cosmetologists for skin problems such as acne and rosacea as well as for burns and it has been a frequent ingredient in products that have applied for patents. Other than anecdotal information, I have not found much to substantiate these claims, other than it has antiseptic properties and anti-inflammatory properties.

A study by Kim and Cho (1999) showed that topical lavender essential oil may inhibit immediate-type allergic reactions by reducing mast cell degranulation (in rats).



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## LAVENDER COMPONENTS:

### **Linalool –**

1. Linalool has sedative effect on autonomic nervous activity and mood states. Kuroda, K. et al (2004) Sedative effects of the jasmine tea odor and (R)-(-)-linalool, one of its major components, on autonomic nerve activity and mood states. *European Journal of Applied Physiology*, Vol. 95, pp. 107-114
2. Linalool and linalyl acetate play a major role in the anti-inflammatory properties of essential oils that contain them: Penana, A. T. et al, (2002) *Phytomedicine*, 9, 8, p. 721-726.

**IN THIS BLEND:** Lavender essential oil comprises 12.5% of the total essential oils used in the blend and is used here both for its contributions to the fragrance and its support of the effects of frankincense. There is a great deal of research supporting the relaxing, calming and stress reducing effects of lavender, making it a good (and frequent) choice for aromatherapy blends designed to promote these effects. Not surprisingly, subjects in studies of lavender's action have consistently reported improved mood, decreased stress and anxiety, and feelings of relaxation. In some studies, lavender has shown anxiolytic effects comparable to those of benzodiazepines without the side effects of those medications. Lavender appears to exert actions on the autonomic nervous system, specifically decreasing sympathetic nervous system arousal and modulating parasympathetic response to maintain balance of autonomic functions. Lavender essential oil also decreases inflammation and pain and benefits the immune system through the relaxation response.

**SAFETY DATA:** Lawless – non-toxic, non-irritant, non-sensitizing

Tisserand & Balacs – very mildly, irritant, non-toxic

Price & Price – no known contraindications; no irritation or sensitization at 16% dilution



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Although generally considered by most aromatherapists to be an essential oil with minimal safety issues and one that is good for the skin and frequently found in cosmetic products, there are reports of individuals developing contact dermatitis from this essential oil, especially with repeated use. I have used this essential oil more than any other for over 30 years with no problem and have had no reports of problems from my students, many of whom are massage therapists.

## MANDARIN ORANGE ESSENTIAL OIL and NEROLI Essential OIL RESEARCH

**BOTANICAL NAME:** *Citrus reticulata* (Mandarin) and *Citrus aurantium var. amara*.

**COMMONLY CITED AROMATHERAPY ACTIONS:** antifungal, antispasmodic, calming\*, sedative, digestive, tonic, digestive and lymphatic stimulant (Mandarin) – Antidepressant, calming, tonic (Neroli)

**BACKGROUND:** Mandarin orange and neroli essential oils are frequently used in aromatherapy, primarily for their calming effects (both), antidepressant effect (neroli especially) and beneficial effects on the digestive system (Mandarin especially). Mandarin is also believed to help strengthen the function of the liver and is used with children and the elderly. Both have had a variety of uses in skin care and are said to tone the skin and help alleviate scars and stretch marks. These two have not been as extensively researched as many other essential oils.

### ANXIOLYTIC/CALMING ACTIONS:

1. Mandarin essential oil reduced anxiety and obsessive-compulsive behaviors in rats: Gargano, A.C. et al. (?) Essential oils from *Citrus latifolia* and *Citrus reticulata*.



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2. Neroli essential oil shown to reduce anxiety when inhaled by mice: Jaeger, W. et al (1992) Percutaneous absorption of lavender oil from a massage oil. Journal of the Society of Cosmetic Chemists, Vol. 43, p 49-54.

IN THIS BLEND: Mandarin and neroli are used in small amounts; mandarin comprises 12.5% of the total essential oils used and neroli comprises 6.25% percent. They are both used for their contribution to the fragrance and for their calming effects.

## SAFETY ISSUES:

### Mandarin:

Lawless – non-irritant, non-toxic, non-sensitizing; possibly phototoxic (may cause severe sunburning or permanent hyperpigmentation)

Tisserand & Balacs – very mild irritant, not phototoxic, non-sensitizing

Price & Price – no irritation or sensitization at 8% dilution (note: this refers to the percent dilution in vegetable oil, not to its percentage as a component in the total essential oils used to make the pure essential oil blend); may be phototoxic.

The only issue raised by any of these authors is possible phototoxicity: however, the total dilution of these two components in vegetable oil when used as a massage or body oil is less than 1% and so is below the maximum levels recommended by Tisserand and Balacs when using phototoxic essential oils in commercial products.

## YLANG YLANG ESSENTIAL OIL

**BOTANICAL NAME:** *Cananga odorata* var. genuina

Ylang Ylang comprises about 6% of the total essential oils in the blend and was included in this small amount primarily to add a floral note to the fragrance. It does have antidepressant and calming properties that are consistent with the other ingredients so it will not work against those ingredients.





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## SAFETY:

Lawless – non-toxic, non-irritant, a few cases of sensitization reported

Tisserand and Balacs – very mildly irritant, possibly sensitizing

Price and Price state “no contraindications known to normal aromatherapy use “, but they also so state that it “has been recognized as an allergen and removed from certain cosmetics”.

In one European study of 1606 patients ( de Groot, A. C. & Frosch, 1997) including some with known sensitivities to fragrance materials, about 2.6 % showed sensitization (allergy) to Ylang Ylang #1 and 2.5% showed sensitization to Ylang Ylang #2. We have used ylang ylang “complete” in your blend (I and II are different “fractions” of ylang ylang while “complete” is a “whole” essential oil). Very high concentrations (10% dilution in 90% carrier) of ylang ylang were used in the study– in the case of your product, ylang ylang complete comprises only 6.25% of the total essential oils in the essential oil blend and then when the whole blend itself is added to the massage oil base and is only 2.5% of the total product – so the amount of ylang ylang in your massage/body oil is much less than 1% of the total product (which includes the essential oil blend and the base of vegetable oils that it is added to).

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1/28/14