



Artisan Aromatics

RESEARCH REPORT FOR ACHY BODY “SPA” BLEND

by

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INGREDIENTS: LAVENDER (*Lavandula angustifolia*), EUCALYPTUS (*Eucalyptus smithii*), GINGER (*Zingiber officinalis*), Silver Fir (*Abies alba*)

This report follows the same format as your previous report and the same general comments concerning skin benefits and skin irritation that were made in the first report can be applied here also.

LAVENDER ESSENTIAL OIL RESEARCH

See the section on “Lavender” from your first research report (Calm and Balanced Blend) and note the actions that have been demonstrated for this essential oil.

You may also be interested in these excerpts for **H. M. A. Cavanagh and J. M. Wilkinson (2002) Review Article: Biological Activities of Lavender Essential Oil: Phytotherapy Research, Vol. 16, pp. 301-308:**

There does seem to be, however, considerable anecdotal and case report data for a beneficial effect of lavender in pain. Using a quasiexperimental cross-over study Brownfield (1998) showed that massage with lavender oil (*L. angustifolia*) reduced the patients' perception of pain and improved the perception of sleep quality and well-being in those suffering the effects of chronic rheumatoid arthritis. It is worth noting that the effects reported in this study are related to the patient's own perception of pain, sleep or well-being as the quantitative data from a visual analogue scale did not reveal any reduction in pain levels or sleep improvement. Ghelardini *et al.* (1999) have further demonstrated that *L. angustifolia* oil, as well as linalyl acetate and linalool possess local anesthetic activity both *in vitro* and *in vivo*. These authors suggest that the mechanism of action is related to antimuscarinic activity and/or ion (Na or Ca²) channel blockade.

Lavender oil has also found several uses in midwifery where it can be added to bath water to relieve pain and discomfort following labor. In a large clinical trial it was shown that the mothers using lavender oil consistently reported lower discomfort scores 3 to 5 days post-natally (Dale and Cornwell, 1994; Cornwell and Dale, 1995). Lavender oil is also currently used in many delivery rooms for its general calming action. In the past, lavender poultices were applied to the small of the back during labor, to relieve muscle tension, or to the abdomen, to assist placental expulsion (Note: no scientific evidence for this latter application).



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IN THIS BLEND: Lavender (*L. angustifolia*) essential oil comprises 50% of this blend and has been used for its empirically demonstrated anti-inflammatory and analgesic effects and it's clinically well-known ability to reduce perceived pain in a variety of conditions including arthritis and other musculoskeletal conditions. It's calming, antidepressant, anxiolytic and balancing actions are also of benefit here as is its fragrance

SAFETY DATA: See the previous report for the **Calm and Balanced Blend**.

EUCALYPTUS ESSENTIAL OIL RESEARCH

Botanical Name: *Eucalyptus Smithii*

CITED AROMATHERAPY ACTIONS: analgesic, antibacterial, antiviral, antioxidant, balancing (calming vs. stimulating as needed), decongestant, mucolytic, expectorant.

Eucalyptus smithii, the eucalyptus used in the formula, has actions similar to the more commonly used *Eucalyptus* but it's less stimulating and probably has a better analgesic action making it a better choice for this formula than *Eucalyptus globulus*.

BACKGROUND: Various species of *eucalyptus* have been used as traditional medicines by the Australian aborigines since time immemorial. They have been used in this context to help with body aches and pains, for wounds (antibacterial properties) and for respiratory illnesses. All of the *Eucalyptus* species commonly used in aromatherapy are regarded as good decongestants mucolytics, and expectorants and are widely used for infectious respiratory illnesses. More research has been done on *E. globulus* than on *E. smithii*.

Antioxidant effects:

Eucalyptus citriodora shown to have antioxidant effects, including iron chelating, free radical scavenging and lipid peroxidation inhibition. Singh, H.P. et al. (2012) Assessment of in-vitro antioxidant activity of essential oil *Eucalyptus citriodora* and its major constituents. *LWT – Food and Science Technology*, 48, pp. 237-241.



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Analgesic and/or antiinflammatory effects:

Various eucalyptus species, including *E. globulus*, were shown to have anti-inflammatory and analgesic effects in rats. Analgesic effects were believed to be due to both peripheral and central actions. Silva, J. et al (2003) Analgesic and antiinflammatory effects of essential oils of *Eucalyptus*. *Journal of Ethnopharmacology*, 89, pp. 277-283.

Many species of the genus *Eucalyptus* (Myrtaceae) are used in Brazilian folk medicine for a variety of medical conditions. Monoterpenoids components present in the essential oils from *Eucalyptus* are commercially available for the treatment of the common cold and other symptoms of respiratory infections (Juergens et al., 1998a).

It was previously reported that the monoterpene components of the oils of *Eucalyptus*, such as eucalyptol, are potent inhibitors of the inflammatory mediators, such as pro-inflammatory cytokines (Juergens et al., 1998a). Furthermore, the production of leukotriene B₂, prostaglandin E₂, and other arachidonic acid metabolites in human monocytes were inhibited by eucalyptol (Juergens et al., 1998b). Essential oil extracts from the *Eucalyptus* species can be associated with anti-inflammatory properties at least due to the presence of the above component (Silva et al, 2003). Excerpt from Karina, C.P. et al. (2007) Effect of the activity of the Brazilian polyherbal formulation: *Eucalyptus globulus* Labill, *Peltodon radicans* Pohl and *Schinus terebinthifolius* Radd in inflammatory models. *Revista Brasileira de Farmacognosia*, 17, 1 Print version ISSN 0102-695X

Immune system effects:

Overall, our data, demonstrating that *Eucalyptus* essential oil from *Eucalyptus globulus* is able to implement the innate cell-mediated immune response, provide scientific support for an additional use of this plant extract, besides those concerning its known antiseptic and anti-inflammatory properties. Thus, the present study stimulates further investigations also using single components of essential oil extracts from various species of *Eucalyptus* for development of a possible new class of immuno-regulatory agents useful as adjuvant in immuno-suppressive pathologies, in infectious disease as well as in tumour chemotherapy. Excerpt from Serafino, A. et al (2008)

Stimulatory effect of *Eucalyptus* essential oil on innate cell-mediated immune response. *BMC Immunology*, 9, 17 or <http://www.biomedcentral.com/1471-2172/9/17>.



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Research on Constituents of *Eucalyptus smithii*:

1,8 cineole (eucalyptol) – this is the main constituent (about 80%):

...this monoterpene inhibited the nociceptive response in several tests and without the involvement of the opioid system.. Certainly, the potent anti-inflammatory action can be associated with the excellent peripheral analgesic effect demonstrated by Santos and Rao (2000). Several studies have shown its effect on the production of inflammatory mediators through the inhibition of the COX and suppression of arachidonic acid metabolism and cytokine (TNF- α and IL-1 β) production (Santos and Rao, 2000, 2001; Santos et al., 2001; Juergens et al., 2003, 2004). Zhou et al. (2007) showed that 1,8-cineol might suppress the expression of many genes important for inflammation by inhibiting early growth response factor-1 (Egr-1) synthesis and nuclear localization.

It has been observed that 1,8-cineol acts directly on sensory nerves (Khalil et al., 2004) and blocks nerve excitability in a concentration-dependent manner (Lima-Accioly et al., 2006), suggesting an anesthetic property. This monoterpene can also produce cooling sensations by directly activating the TRPM8 channel, which can contribute to its analgesic activity, as some agonists for TRPM8 have analgesic effects in vivo, suggesting a role for TRPM8 in pain relief (Behrendt et al., 2004; Proudfoot et al., 2006). Additionally 1,8-cineol strongly activates the TRPV3 ion channel and induces both acute desensitization and tachyphylaxis by long-term exposition (Sherkheli et al., 2009); this mechanism might be the molecular basis of its analgesic action.

Excerpt from Guimaraes, A.G. et al.(2013) Monoterpenes with analgesic activity a systematic review. *Phytotherapy Research*, 27: pp. 1-15.

MAIN CONSTITUENTS OF *Eucalyptus smithii*

1,8 cineole 70-85%

α -pinene – 8–9%

limonene

cymene

IN THIS BLEND: *Eucalyptus smithii* comprises 20% of the total essential oils used in the blend. It adds to and compliments the pain-relieving, antiinflammatory effects of lavender.

SAFETY DATA:

Lawless (*Eucalyptus globulus*) - non-toxic, non-irritant in dilution, non-sensitizing
(toxic if taken internally)

Tisserand & Balacs – unlikely to present any hazard in aromatherapy; it is not on their list of essential oils that are safe to use in pregnancy but they have no contraindications against its use by pregnant women.



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Price & Price – no contraindications known

Note: Eucalyptus (usually *E. globulus*) is found in many over-the counter products for colds and for relieve of muscle pain and is considered a safe and effective muscle pain remedy for adults, although it has been shown that exposure to eucalyptus globulus can cause babies to collapse if it is put right under their nose and there was one case in Australia of eucalyptus toxicity in a child who was covered with a home remedy that contained a lot of eucalyptus globulus. In your blend the eucalyptus smithii is very well diluted and I have personally not heard of any difficulties with any eucalyptus used in such dilutions – putting “Not for Use on children” on the label is also an option.

GINGER ESSENTIAL OIL RESEARCH

Botanical Name: *Zingiber officinalis*

COMMONLY CITED AROMATHERAPY ACTIONS: **analgesic**; antiseptic; **anti-nausea/anti-emetic**; antispasmodic; antitussive; **carminative**; **digestive**; **aphrodisiac**; antibacterial; cephalic; diaphoretic; expectorant; febrifuge; rubefacient; stimulant; stomachic; tonic (general and sexual; antioxidant (actions in bold script indicate strong/best properties)

BACKGROUND: Ginger has a long history of use as a culinary and medicinal herb. It is a major herbal remedy in Chinese medicine where it is used for its digestive, strengthening and warming properties; as a tonic, for rheumatism and for moist conditions (such as colds that produce excess mucous). In Chinese Medicine it is considered a major tonic for the yang qi, hence its reputation an aphrodisiac (deficient yang qi is considered a major cause of low libido/sexual dysfunction in men). Its warming and analgesic properties have made it a popular constituent of formulas for muscular aches and pain and arthritis and it is one of the essential oils that is most frequently used in hospital settings due to its ability to relieve nausea.

ANALGESIC ACTIONS:

A combination of ginger and orange essential oils was found to produce short-term pain reduction in patients with knee pain. Yip, Y. B. & Tam, A. (2008) An experimental study on the



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effectiveness of massage with aromatic ginger and orange essential oil for moderate-to-severe knee pain among the elderly in Hong Kong. [*Complementary Therapies in Medicine*](#), Vol. 16, Issue 3, pp. 131-138.

Ginger powder shown to be as effective as ibuprofen and mefenamic acid (a non-steroidal anti-inflammatory used to treat menstrual pain) in relieving the pain of menstrual cramps. Because the components of the essential oil are likely to be among the more active constituents of the plant it is probably reasonable to generalize the results from studies using the powdered form of the plant. Ozgoli, G, et al. (2009) Comparison of Effects of Ginger, Mefenamic Acid, and Ibuprofen on Pain in Women with Primary Dysmenorrhea. *The Journal of Alternative and Complementary Medicine*, 15 (2), pp: 129-132.

.ANTIINFLAMMATORY ACTIONS:

Ginger essential oil found to decrease pain and inflammatory response in rats: “The antiinflammatory activities of compounds obtained from GEO have been reported by other investigations using ginger extract. These antiinflammatory actions could be owing to the inhibition of prostaglandin release, and hence ginger may act in a way similar to other nonsteroidal antiinflammatory drugs which interfere with prostaglandin biosynthesis. Gingerol has been reported to have antiinflammatory actions, which include suppression of both cyclooxygenase and lipoxygenase metabolites of arachidonic acid. Furthermore, constituents of essential oils obtained from many other plants have been proposed to have antiinflammatory activity. Vendruscolo, A. et al. (2006) Antiinflammatory and antinociceptive activities of zingiber officinale roscoe essential oil in experimental animal models. *Indian J Pharmacol*, 38:58-9.

This study showed anti-inflammatory and analgesic effects from internal use of powdered ginger. I have included it because it is the essential oils in the powder that are likely to exert much of the effect and the authors give a good discussion of the results:

“One of the features of inflammation is increased oxygenation of arachidonic acid which is metabolized by two enzymic pathways—the cyclooxygenase (CO) and the 5-lipoxygenase (5-LO)—leading to the production of prostaglandins and leukotrienes respectively. Amongst the CO products, PGE₂ and amongst the 5-LO products, LTB₄ are considered important mediators of inflammation. More than 200 potential drugs ranging from non-steroidal anti-inflammatory drugs, corticosteroids, gold salts, disease modifying anti-rheumatic drugs, methotrexate, and cyclosporine are being tested. None of the drugs has been found safe; all are known to produce from mild to serious side-effects. Ginger is described in Ayurvedic and Tibb systems of medicine to be useful in inflammation and rheumatism. In all 56 patients (28 with rheumatoid arthritis, 18 with osteoarthritis and 10 with muscular



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discomfort) used powdered ginger against their afflictions. Amongst the arthritis patients more than three-quarters experienced, to varying degrees, relief in pain and swelling. All the patients with muscular discomfort experienced relief in pain. None of the patients reported adverse effects during the period of ginger consumption which ranged from 3 months to 2.5 years. It is suggested that at least one of the mechanisms by which ginger shows its ameliorative effects could be related to inhibition of prostaglandin and leukotriene biosynthesis, i.e. it works as a dual inhibitor of eicosanoid biosynthesis.” Srivastava, K. C. & Mustafa, T. (1992) *Ginger (Zingiber officinale)* in rheumatism and musculoskeletal disorders. *Medical Hypotheses*, Vol. 39, Issue 4, pp. 342-348

CONSTITUENTS OF GINGER ESSENTIAL OIL:

Gingerol:

Gingerol (a component of the essential oil) has been found to be a very effective agent against UVB- induced reactive oxygen species production and has shown promise as a therapeutic agent against UVB induced skin disorders and possibly as a COX-2 inhibitor:

1. Jagetia GC et al. (2003) Influence of ginger rhizome (*Zingiber officinale* Rosc.) on survival, glutathione and lipid peroxidation in mice after whole-body exposure to gamma radiation. *Radiation Research*, 160: 584–592,
2. Kim HW et al. (2005) Suppressive effects of mioga ginger and ginger constituents on reactive oxygen and nitrogen species generation, and the expression of inducible pro-inflammatory genes in macrophages. *Antioxid Redox Signal*, 7: 1621–1629.

IN THIS BLEND: Ginger essential oil accounts for 15% of the total essential oils used in the blend. It has been included for its excellent anti-inflammatory and pain-relieving properties and for its warming action. I like the warming action at this level but try out the sample (in a whole body massage if possible) and if you think it's too warming we can decrease the ginger.

SAFETY DATA:

Lawless – non-toxic, non-irritant except in high concentrations, slightly phototoxic, may cause-sensitization in some individuals.



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Tisserand & Balacs: non-toxic, very mildly irritant, not phototoxic, no mention of sensitization; it IS on their list of essential oils that are safe in pregnancy,

Price & Price – no known contraindications at normal dose; no irritation or sensitization at 4% dilution; insignificant phototoxicity.

SILVER FIR ESSENTIAL OIL RESEARCH

BOTANICAL NAME: *Abies alba*

COMMONLY CITED AROMATHERAPY ACTIONS: analgesic, anticatarrhal, antiseptic, expectorant, rubefacient, stimulating, uplifting, tonic

BACKGROUND: Silver fir has a long history of use in Europe where it is highly esteemed as an herb for respiratory problems and muscular and rheumatic. There is not much research on Silver Fir essential oil but its ability to relieve muscular aches and pains is well-known and it is a frequent choice by aromatherapists for pain-relieving blends.

What little research there is on *Abies alba* is in the field of ethnobotany and mostly just documents its use in traditional cultures for the above noted problems. There has been some research on the essential oil's antimicrobial properties and it appears to be one of the least active essential oils against bacteria and fungi, although some studies have shown at least some action against selected bacteria and fungi.

I don't think it would be worth the "billing time" for you to have me go on a hunt for obscure studies, which we might or might not find, but I can if you want me to...just let me know.



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IN THIS BLEND: Silver fir accounts for 15% of the total essential oils used in the blend and is included for its historical use as an agent that relieves muscular and rheumatic pain.

SAFETY DATA:

Lawless – non-toxic, non-irritant except in high concentrations, non-sensitizing

Tisserand & Balacs – non-toxic, very mildly irritant, non-sensitizing; it is not on their list of essential oils that are safe to use in pregnancy but they give no precautions against its use in pregnancy.

Price & Price – no contraindications known for normal aromatherapy use

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2/12/14