



# Essential News

Essential Therapeutics

The Ultimate Professional Aromatherapy Range

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## Welcome to our Christmas Issue

In our last newsletter, we began the discussion about the prevalence and practice of the adulteration of essential oils.

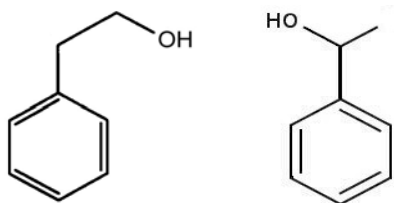
The story continues. To see part one of this story, please go to [www.essentialtherapeutics.com.au](http://www.essentialtherapeutics.com.au) and see the PDF of Essential News Vol. 21

With summer almost upon us, we've included a series of useful formulae for summer challenges, easy to prepare and effective.

With Christmas right around the corner, we have included a number of popular products on special, great for gifts or to help you make your own special creation.

Wishing you all a great Christmas and a wonderful Holiday Season!

Ron Guba, Editor



**Above Left:** Phenyl ethyl alcohol, as naturally occurring in Rose essential oil.

**Right:** Alpha-phenyl ethyl alcohol or styrrallyl alcohol, a by-product of synthetically producing phenyl ethyl alcohol. See story, page 2.

## AROMATIC HERESIES

### On Essential Oil Adulteration Part 2

I have always considered Aromatherapy as a form of herbal medicine or 'aromatic medicine', in this case using the specific plant-derived compounds that can be extracted via steam distillation.

There are a number of reputable herbal medicine companies in Australia. There are sometimes quality issues with herbs, but it is minor. Companies work on a 'level playing field', where the major selling points between them are about extraction strengths, quality of the herb (organic or not), customer service, price, etc.

Aromatherapy, on the other hand, is too much the unfortunate 'step child' of the fragrance, flavour and personal care product industry, where the vast bulk of essential oils (and synthetic aroma chemicals) are used. In this world, price and odour acceptance are far more important than any concerns about a product being 100% pure & natural and species specific. There is no particular consideration for the therapeutic use of natural essential oils. These fragrance and flavour raw material suppliers are the usual source for many 'aromatherapy' brands and products.

Unlike the level playing field of herbal medicine, we find a huge variation in the quality of 'Aromatherapy' oils offered to consumers, from the most grossly adulterated to truly authentic. From the perspective of real aromatherapy, or aromatic medicine, it should be obvious that only authentic, truly 100% pure & natural essential oils should be used. Save the other 'oils' for scenting Sorbent toilet tissue and the like.

Yes, adulteration is quite popular and the 'artists' are laughing all the way to the bank.

### What defines an essential oil that is truly suitable for therapeutic use?

In simple, straightforward terms, an essential oil that is:

- 100% pure and natural. Nothing synthetic or natural (such as cheaper essential oils) has been added.
- Species specific. A True Lavender oil, for example, must be derived from *Lavandula angustifolia*, not *Lavandula intermedia*, which are Lavandin clones.

Essential oils must have the correct composition. There are various standards for essential oils, such as the BP (British Pharmacopeia), ISO standards and more. These standards are more or less useful in stating a standard for composition of an essential oil, at least in considering a few main components. For less common essential oils, our own company, through research and analysis, has set our own standards for composition.



We in fact go beyond the common standards for all our essential oils, as the basic standards can still leave some room for adulteration and yet meet the standard.

As two examples, if a 'True Lavender' oil was shown to contain 4% camphor, this would be more than the BP 2008 standard limit of less than 1.2% and would be a sign of blending with an inexpensive Lavandin clone.

We were once offered a locally-produced German Chamomile essential oil. In this case, it was an authentic oil, but was unusual in that it contained a very high content of farnesene, far more than the acceptable standard. Hence, we did not purchase the essential oil, as it did not meet specifications.

With specific essential oils that are available in different chemotypes (where plants of the same species can produce essential oils of varying composition), such as Rosemary, these compositional differences must be accounted for.

**If these three points are fully met, then and only then, can we say we have an oil truly fit for therapeutic use.**

We can go on from there to consider other points concerning quality, such as the growing method, be it certified organic, sustainably wild-harvested, etc. But, the first three points must be true and correct.

Considering certified organic essential oils, you would think that an essential oil accepted as organic by an organic certifying body would in fact be 100% pure and natural. Unfortunately, this is not always the case.

**Crime Scene Investigation (CSI) case file # 12307:**

As one example, we recently were provided a sample of a certified organic Rose essential oil from an Aromatherapy company.

This Rose oil, upon GC/MS analysis, clearly showed that it contained almost 45% of phenyl ethyl alcohol and 0.12% of alpha-phenyl ethyl alcohol (see page 1).

The alpha form is a by-product of making synthetic phenyl ethyl alcohol, meaning that well over 40% of synthetic phenyl ethyl alcohol was added to this 'blended' oil.

Now, phenyl ethyl alcohol is a component in natural Rose oil. But, because it is quite soluble in water, phenyl ethyl alcohol primarily ends up in the water of distillation and only a few percent is present in the real essential oil.

In contrast, Rose **absolute**, where the Rose petals have been first extracted with hexane and a final extraction with ethanol, the phenyl ethyl alcohol is present in a high concentration.

Perhaps the Rose oil started out as an 'organic' oil. But, somewhere along the chain of supply, the oil was adulterated and the original organic certification simply was passed on.

Organic certifying associations are best at certifying food products. In the case of essential oils, there is neither the demand or expertise to prove through full analysis that an essential oil is in fact authentic. As long as the certifying paperwork can be produced and verified, an adulterated essential oil can be accepted and passed off as "organic".

**Below:** GC/MS analysis results of three Rose samples:

1. Authentic Rose Bulgarian oil
2. Authentic Rose Bulgarian absolute
3. Adulterated 'Organic' Rose oil



Compound	Percent		
<b>Rose Sample --</b>	<b>1</b>	<b>2</b>	<b>3</b>
benzyl alcohol	0	0.81	----
alpha-phenyl ethyl alcohol (synthetic)	0	---	0.12
linalool	0.07	---	0.65
phenyl ethyl alcohol	2.28	70.32	<b>44.76</b>
alpha-terpineol	0.32	---	0.18
citronellol	37.42	13.00	22.71
neral	0.67	0.20	0.45
geraniol	17.01	5.39	10.25
geranial	1.09	0.36	0.77
citronellyl acetate	0.46	0.13	0.24
eugenol	1.36	1.98	0.84
methyl eugenol	1.45	0.80	0.84
germacrene D	---	0.43	---
(E,E)- farnesol	1.51	0.57	0.90
n-hexadecanol	2.92	2.55	1.62
n-nonadecane	11.88	0.56	5.71

## How are essential oils adulterated?

This subject would be worthy of a book!  
For a summary, we can start at the top and work our way down to the most gross adulteration.

### Real essential oil blends.

This is not adulteration, but a way of producing a more economical essential oil. In the case of Lavender, one can take a variety of authentic clonal True Lavender oils from Russia, Bulgaria, etc. and blend them together, based on price, availability and composition to create an authentic oil that is less expensive than 'vintage' oils. These blends can be likened to 'cask wine' – less expensive, but still the real thing.

### CSI case file # 23408:

Where this becomes fraudulent is when a cheaper essential oil or blend is promoted as something more expensive and of a higher quality.

A recent analysis of a sample of essential oil being sold and promoted locally as 'True Lavender French population' (more of a 'vintage' oil, grown from wild lavender seed) was in fact a much less expensive clonal Chinese True Lavender oil. This is something like refilling that empty bottle of a really good Penfolds vintage wine with the cheapest red!



### Essential oil blends

A common practice of the subtle artists. In this case, some of the named essential oil will be used. Then, a variety of different, less expensive essential oils or essential oil fractions will be added.

Some simple examples are the addition of Lavandin oils to True Lavender, adding Gurjun Balsam oil to Patchouli; Clove Stem oil plus isolated eugenol & eugenyl acetate added to Clove Bud and adding



cheap Chinese *Eucalyptus globulus* and white camphor oil to Rosemary, to name but a few.

**We will conclude** this story in the next issue, with more Fun and Profit with Adulteration - and what you can do about it.

## Summer Formulae

The Antipodean summer is soon upon us and with holidays, lots of sun, happy insects and more, this season brings it own enjoyments and challenges.



Following are some straightforward summer formulae to help with the issues summer can bring.

Enjoy your summer!

## Aloe Sunburn Gel

Melanin is our body's own wonderful sunscreen – some of us have more and some of us less. For those whose pigment genes come from far Northern climes, sun protection is a must.

Aside from the variety of UV absorbing sunscreen chemicals, look to the micro fine zinc oxide sunscreen products for the most natural & effective sun protection. Zinc oxide offers better protection because it forms a protective barrier on top of the skin. Sunscreen chemicals instead absorb into the upper levels of the skin. These chemicals do help protect against sunburn, but less so against long term damage, such as skin aging and wrinkling and importantly, the indirect DNA damage that is the main cause of melanoma.

Sunburn is not a regular 'burn', but an inflammatory reaction caused by UV (mostly UVB) light damaging DNA within skin cells. These damaged cells release chemicals that cause the blood vessels to expand and leak fluids, causing inflammation, pain and redness.

On the following page is a formula with Aloe Vera gel, essential and herbal oils and vitamins that will serve to reduce skin damage, reduce inflammation and speed healing. A formula like this is best applied soon after sun exposure for the greatest benefit, before all the symptoms appear. Apply 2 to 3 times per day until the skin has healed.

Aloe Sunburn Gel	For 100mL	%
Double Strength Aloe Vera Gel	about 84mL or grams	84%
Centella Infused Oil	5mL	5%
Rose Hip or Hemp Seed Oil	5mL	5%
True Lavender essential oil	1.5mL (about 48 drops)	1.5%
Kunzea essential oil	1.5mL	1.5%
Calendula CO2 extract	1.5mL	1.5%
Vitamin E acetate	1ml	1.0%
Amiox (Rosemary antioxidant)	0.5mL (~ 15 drops)	0.5%

Bite-Be-Gone Peppermint Gel	For 100mL	%
Amigel or Double Strength Aloe Gel	About 9mL	89.4%
Peppermint or Peppermint Arvensis essential oil	1.0mL (about 32 drops)	10%
Kunzea essential oil	0.3mL (about 10 drops)	3%
German Chamomile essential oil	0.3mL (about 10 drops)	3%

To prepare the formula, simply add all the ingredients to the Aloe Gel and mix well.

## Insect Bites and Stings

Summer weather of course brings life to mosquitoes and other little biting critters. I always travel with my 'first aid' collection of essential oils and the best first aid essential oil for acute pain, headache pain and bites & stings is a bottle of quality Peppermint oil.



Both Peppermint (*Mentha piperita*) and Japanese Mint oil (Peppermint Arvensis - *Mentha arvensis* - with a higher content of menthol) are suitable.

Simple first aid for mosquito bites and the like is to apply a small drop of Peppermint oil to the area as needed. The cooling anesthetic effects of menthol quickly relieve pain and itching and helps to prevent any secondary infection. Infected insect bites can be a real problem in tropical climates.

Here is another formula, using a gel base.

Kunzea and German Chamomile oils have been added for their anti-inflammatory effects, but feel free to just try Peppermint or Peppermint Arvensis oil.

To prepare, simply blend in the essential oils into the gel.

## Insect Repellants

You can help save yourself the itching by making your own natural, DEET-free insect repellent.

Neem oil is an excellent insect repellent in general for mosquitoes, midges and other biting insects.



In one Indian study, Neem oil used at only 1% to 4% in Coconut oil gave up to 91%

protection from mosquito bites for up to 12 hours after application.(1) In another study, only 2% Neem oil gave 100% protection from sand fly bites for seven hours and longer.(2)

Lemon Eucalyptus oil (*Eucalyptus* or *Corymbia citriodora*) is another effective repellent. The US Centers for Disease Control recommends this oil as a non-toxic alternative to DEET and has been tested in various research studies.(3,4) Lemon Eucalyptus essential oil is quite similar to Citronella oil in composition, which has also been shown to be effective.(5)

Lemon Eucalyptus oil is superior to Citronella in that it also contains a small amount of para-menthane-diol (PMD). Purified PMD produced from Lemon Eucalyptus oil has now been well researched to be an excellent long-lasting insect repellent compound, approved for use as a non-toxic and non-irritant repellent at least as effective as DEET.(6,7)

Following is a spray formula for easy application.

To prepare, mix the Neem and Lemon Eucalyptus oil into Essential Solubiliser. Mix this well into the water and then add the Citricidal. This formula will be fine for a good one to two years.

Continued on next page

<b>Lemon Neem Repellent Spray</b>	<b>For 100mL</b>	<b>%</b>
Neem Oil	5mL	5%
Lemon Eucalyptus Oil	5mL	5%
Essential Solubiliser	20mL	20%
Citricidal (preservative)	0.5mL	0.5%
Water	About 70mL	69.5%

Summer formulae continued:

Neem oil has been shown to be effective for up to 12 hours, while Lemon Eucalyptus oil, being volatile, will evaporate in one to two hours.

This is not a fully 'proven' formula. You may find that it requires application every two hours - or longer.

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- (7) Moore SJ et al. *A low-cost repellent for malaria vectors in the Americas: results of two field trials in Guatemala and Peru* Malar J. 2007; 6: 101



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