

FLAGRANT FRAGRANCES
Are Essential Oils Sustainable?
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As a community striving for a wholistic healing paradigm, herbal practitioners need to be fully conscious of the ecological consequences of the products we use and promote. An extravagant amount of resources is necessary for the cultivation, harvest, distillation, and global distribution of essential oils. In a few cases, global demand is driving some plant species to the brink of extinction. Like so many of the privileges we First-Worlders enjoy, the substantial ecological costs of essential oils are hidden. On a planet burgeoning in population and limited in natural resources, these oils should be used sparingly.

Essential oils have gained widespread popularity in recent years, their use and appearance in a wide array of consumer and therapeutic goods skyrocketing. Concentrated plant essences stimulate deep breathing, positive feelings and the release of tension and anxiety. Numerous studies support the efficacy of essential oils for a range of conditions from skin disorders to headaches to treating antibiotic resistant bacteria. Essential oils are used in products as varied as candles, perfumes, cosmetics, bath and body care products, vitamins, candies and processed foods. Therapeutically, they are increasingly used for self care by individuals and professionally by massage therapists, herbalists, aromatherapists, and nurses in hospitals.

It often takes hundreds of pounds of plant material to make one pound of essential oil (as a visual reference, this is roughly 16 fluid ounces). Companies reach extensively across the globe to slake their sizeable needs. For example, one pound of essential oil requires:

- 50-60 pounds of eucalyptus. One company's sources are Australia, Tasmania, Brazil, California, China, India, Portugal, Russia and Spain¹.
- 200 -250 lbs of lavender. Sources include Bulgaria, England, France, USSR, Yugoslavia, Australia, USA, Canada, South Africa, Tanzania, Italy and Spain².
- 2,000 lbs of cypress.
- 5,000 to 10,000 pounds of rose blossoms. Primary cultivation sites for one company include: France, Tasmania, Spain, Italy, England, and China³.

(These figures are averages gleaned from numerous sources, figures vary among companies.)

Land Resources and Carbon Footprint

Modern monoculture farming techniques are typically used to grow the substantial quantities of plant material needed to produce essential oils, with large swaths of land dedicated to that single species. Intense mechanization, heavy fossil fuel reliance, synthetic fertilizers, intensive irrigation--the unpleasant panoply of modern agribusiness practices are utilized to ensure optimal oil production of crops. In many parts of the world arable land is becoming scarce. As global citizens we have not learned how to equitably distribute vital foodstuffs, and water resources are heading toward a crisis. I feel there are deep ethical concerns about devoting croplands to essential oils destined for use in first world luxury products such as scented candles, bath oils, perfumes, massage and for spa purposes.

Fossil fuels are again required for the heat distillation process. Typically, plant materials are heated above two hundred degrees from 2-24 hours to extract various oils. Chemical solvents may be used in other cases, which pose their own concerns of toxicity for people and the environment.

Steam distillation is not suitable for the delicate fragrances of rose, tuberose, gardenia, lily, jasmine, and frangipani flowers. A process called “enfleurage” employs fat as the primary saturation medium for these fragrances, which are later extracted into alcohol. Since the time of the Egyptians, animal fats have been the most cost effective and accessible substance for this process. Animal fats may raise more than a few ethical hackles, but unfortunately modern times have provided another cheap and increasingly ubiquitous fat source that is one of the environmental tragedies of our time—palm oil. Vast swaths of tropical rainforests have been razed to create palm oil plantations, particularly in Southeast Asia, endangering wildlife, disrupting indigenous communities, and contributing to global warming. Species such as the orangutan, Asian elephant, tiger, and Sumatran rhinoceros are threatened with extinction. The Union of Concerned Scientists warns that nascent standards for “sustainable” palm oil are not nearly strong enough and critical issues in its production are not being addressed ⁴.

Threatened and Endangered Species.

For those essential oils that are derived from wild harvested species, questions of sustainability are more disturbing. Some species are at risk, particularly those occupying dwindling habitats such as tropical forests. We all hope that botanical knowledge will help spare tropical forests, but unfortunately that does not seem to be the reality that is playing out. Impoverished rural residents will often do whatever is necessary to earn money and survive. *Cropwatch*, an independent watchdog organization for the natural aromatics industry, has published a list of threatened species⁵ (See partial list at end). Species such as rosewood and sandalwood are particularly at risk due to the long regeneration cycle of these trees. Despite these known threats, some brands continue to wild source these oils.

There is not an international standard for the term “sustainable harvest”, let alone enforcement. A few companies have gone to great lengths to promote sustainable harvest practices, but threats from illegal logging, smuggling and lack of funds seem to plague these efforts.

Purity

Many botanicals are not available ‘organically grown’. Fortunately, it appears uncommon for herbicides and pesticides to be used in the cultivation of essential oil crops. Nevertheless, in countries with low environmental standards, or agricultural sites compromised by proximity to industrial areas or traffic arteries, pervasive air, soil and water borne pollutants can lead to products of questionable purity. If these compounds are present in raw botanical material, what happens when this material is concentrated? The closer each of us is to touching, growing, harvesting and processing plant materials, the more we can be assured of their quality, as well as fair labor practices.

Many unsubstantiated claims have been made about essential oils. According to *Cropwatch*, there are no standards for “pure”, “therapeutic grade”, or even “organic”. The Organic

Consumers Association (OCA) has been working to promote organic standards for the bodycare industry, but states, “The word ‘organic’ is not properly regulated on personal care products as it is on food products, *unless the product is certified by the USDA National Organic Program*”⁶.

AFNOR certification and what that actually means is best discussed in the article, “The ‘Therapeutic Grade’ Essential Oils Disinformation Campaign”⁷.

Safety.

As an herbalist I want people to be excited and passionate about plants. Yet, the combination of passion and enthusiasm does not always translate to wise action or outcomes. Due to the highly concentrated nature of essential oils, they no longer resemble the whole herb. Essential oils have warnings similar to many harsh household chemicals or hazardous substances and have special requirements for their safe disposal, i.e.- they should never be put down a drain where they can enter the water supply or impact vegetation or wildlife^{8,9}. Several herbs which are very safe and commonly used in their whole form, such as cinnamon, thyme, or marjoram, can be quite irritating to the skin when applied as essential oils. A Taiwanese study of lavender, eucalyptus, and tea tree oils disconcertingly found that these essential oils can produce harmful indoor air pollutants such as volatile organic compounds (VOCs) and other secondary pollutants¹⁰. Essential oils are flammable, several cause photosensitivity, others are made from plants known to contain toxins, and a few are even carcinogenic. Cropwatch’s Tony Burfeld wrote an excellent paper to the National Association for Holistic Aromatherapy on this topic¹¹.

Essential oils are generally not considered safe for use:

- internally
- undiluted directly on the skin
- on children
- on pets
- by pregnant women before the first trimester. Only the safest oils should be used by pregnant women.

Essential oils are safest used in dilution, twelve drops in one ounce of carrier oil is effective for adults (this is referred to as a 2% dilution)¹². Using essential oils in higher concentrations has not proven to be more effective; it is simply a waste of precious resources.

Essential oils need to be stored in a cool place. They do have a shelf life which varies depending on the type of oil; resins generally last only 2 years while other essential oils may be fine for twenty years¹³. As with all botanical materials, oxidation can degrade and deteriorate what was once vital. (Note: don’t throw the old oils away, just don’t use them on your body. It will make a great cleaning agent around the house. But be careful how you use it, they can dissolve plastic and rubber)

Alternatives to Essential Oils

I have used essential oils in my practice and in my first aid kit, but based on these concerns I have drastically reduced their presence. If we are going to use essential oils, I believe we should

truly consider them as precious, not a drop to be squandered. I have come to the realization that an essential oil is often like ‘using a sledgehammer to crack a nut’. There are a myriad of less resource intensive and more locally available therapies that will achieve the same end effectively and more safely. Wildcrafters or herbalists gathering or growing plant materials for a small local market are generally going to be more sensitive to plant population dynamics than those harvesting for a global market.

Essential oils are often used to support emotional well being. As we all know, the real change comes not from an external fix but from the changes we make within ourselves and our lives. Slowing down, sharing quality time with supportive friends or family, simplifying our lives to decrease stress, truthful communication, addressing and working on our emotional shadows and wounds are at the root of healing and transforming ourselves.

Despite the appeal of ‘miracle’ cures and fixes, those things outside of ourselves such as essential oils, herbs, reiki, or flower essences only play a supporting role to the hard inner work of transformation. Flower essences are an exponentially more sustainable approach to plant medicine, as they use small amounts of plant material very efficiently and rely on the sun for extraction. They are a more local solution for those seeking herbal support for emotional healing. Relying on the synergy of local plants benefits not only our local community— local plants share our environment, are exposed to the same environmental stressors that we are and have adapted themselves to thrive in these conditions...which means they possess and offer to us the energetic strengths we need. There are many common problems from anxiety to skin imbalances to headaches to sore muscles to allergies where essential oils may be proposed. A little research will likely reveal another therapy more appropriate for the well being of our bodies **and** the planet.

Before choosing essential oils these are the important questions to ask:

- Is there a less resource intensive therapy?
- Is there a more locally produced therapy?
- How much do you really know about the essential oil?
- What is the safety data particular to this essential oil?

If you are going to buy an essential oil:

- Is there a latin name on the oil to verify the species?
- Where on the earth is it coming from?
- Does it come from a threatened species?
- What methods are used to extract it?
- What are the claims associated with this oil?
- Are there scientific studies supporting the indications for which you are using it?

Below is an **incomplete list of essential oils and herbs to avoid due to threats to the species** (mostly summarized by common name or genus, however some threats are species and/or location specific) For detailed information, go to [Cropwatch Threatened Species](#) list:

Rosewood oil

Frankincense oil
Amyris oil
Sandalwood oil
Thyme oil (Thymus moroderis, Thymus baetigus, Thymus zygis gracilis are threatened)
Jatamansi oil
Chaulmoogra oils
Gentian
Kenyan cedarwood oil, Himalayan cedarwood oil, Cedrus atlantica (Cedar atlas oil)
Agarwood
Greater wormwood oil
Anise scented myrtle oil, Havoso tree oil, Origanum oils (species include Origanum barygli, Origanum dictamus, Origanum vetter)
Buchu oils (Agathosma betulina, Agathosma crenulata)
Cinnamon oils

RECOMMENDED READING:

Links to high quality educational materials, sources of essential oils, associations and scientific studies :

- <http://www.greenscentsations.com/aromatherapylinks.html> Mindy Green is an aromatherapist, herbalist, author and lecturer. She is an advocate for the wise use of essential oils. She use to work for Aveda Corp. and founded a line of essential oils.
- *Cropwatch* is a highly regarded, independent watchdog organization for the natural aromatics industry. They have extensive materials and a “Pesticides in Essential Oils” database.
<http://www.cropwatch.org/index.htm>
- “The Adulteration of Essential Oils-and the Consequences to Aromatherapy & Natural Perfumery Practice”, Tony Burfield <http://www.cropwatch.org/cwfiles.htm>
- “Conservation and Aromatherapy—Is There A Problem?” by Dr. Keith Shawe
<http://www.users.globalnet.co.uk/~nodice/new/magazine/shawe/shaw.htm>
- A critique of Raindrop Therapy:
<https://www.naturesgift.com/aromatherapy-information/essential-oil-safety/rdt/>
<http://aromatherapycouncil.org/?p=44>

SOURCES:

- 1 Aura Cacia’s Eucalyptus Essential Oil Profile from Frontier Natural Products Online.
http://www.auracacia.com/auracacia/aclearn/eo_eucalyptus.html
- 2 Directorate Agricultural Information Services, Department: Agriculture, Forestry, Fisheries. “Essential Oil Crops: Lavender Production”, Republic of South Africa. 2009.
<http://www.nda.agric.za/docs/brochures/essoilslavender.pdf>
- 3 Aura Cacia’s Rose Essential Oil Profile from Frontier Natural Products Online.
http://www.auracacia.com/auracacia/aclearn/eo_rose.html
- 4 http://www.ucsus.org/global_warming/solutions/stop-deforestation/palm-oil-and-forests.html#.VFSSuMkQNYw

- 5 <http://www.cropwatch.org/Threatened%20Aromatic%20Species%20v1.10.pdf>
- 6 <http://www.organicconsumers.org/bodycare/index.cfm>
- 7 Kirkham K. & Burfield T. "The 'Therapeutic Grade' Essential Oils Disinformation Campaign"
Adapted from part of Kirkham, K & Burfield T (2006) "Naked aromatherapy-the truth laid bare"
Aromatherapy Today vol 36, pp 28-33, as further updated in *Cropwatch Newsletter* August 2007.
<http://www.cropwatch.org/Therapeutic%20Grade%20Essential%20Oils%20corrected.pdf>
- 8 <http://www.aromaweb.com/articles/essentialoildisposal.asp>
- 9 <https://www.mountainroseherbs.com/learn/essential-oils-warning>
- 10 <http://www.sciencedirect.com/science/article/pii/S1352231006009939>
- 11 Burfield, Tony, "Opinion Document to NAHA: a Brief Safety Guidance on Essential Oils" August-October, 2004 Updated from a document written for IFA, September 2004.
<http://www.douban.com/note/17016305/>.
- 12 <http://mountainroseblog.com/dilutions-conversions/>
- 13 Green, Mindy "Incorporating Essential Oils into an Herbal Practice", American Herbalist Guild Webinar, March 28, 2012.