

Essential Oils and Other Plant Materials used in Soaps.

This article covers safety issues surrounding the use of plant-based ingredients.

From both a moral and legal point of view, home soap producers should find this information of relevance. Unfortunately, some soap makers seem to have the idea that “natural” is safe. This is evident by the numbers of people selling soaps containing essential oils such as cinnamon bark, benzoin and verbena. These (and other hazardous oils) have been restricted by the international cosmetics and fragrance trade for more than 30 years.

Commercial soap, perfume and cosmetics manufacturers have been aware of problems associated with using certain plants for a long time. Records of some adverse effects date back to the early 1900s. For example, use of expressed bergamot oil in perfumes was known to cause skin reaction in sunlight (photosensitization) in the early 1900s. In the 1960s, in an attempt to standardize information on harmful ingredients, the international cosmetics trades formed organizations to provide science-based advice to manufacturers.

Two main organizations now issue guidelines on both natural and synthetic hazardous materials. They are the Research Institute for Fragrance Materials (R.I.F.M.) and their sister organization, the International Fragrance Research Association (I.F.R.A.). These organizations collect scientific information from a number of sources, and their member companies report adverse reactions to product ingredients. When such information is obtained, experts assess it and results are published in a number of international scientific journals and circulated to member companies.

I often read posts from soap makers that address the issue of sensitive skin and avoidance of irritation. This is good and a necessary concern but it could be a misleading as skin sensitivity and irritation are not the major potential problem – sensitization is far more serious. Irritation is a temporary thing - withdraw the irritant and in a short time things are back to normal. This is not the case with sensitization - once you become sensitized, it can stay with you for life.

The guidelines issued by the above mentioned organizations address the maximum safe levels of ingredients for use in products ranging from perfumes and cosmetics to soaps and detergents. These guidelines are tweaked a bit based on logical assumptions that a person might use the same product for years, which could trigger sensitization.

Those who have kept up with the recent exposure on the chemical industry might have picked up on why allergies are much more common today than they were generations past. We can use that information to show why soaps and cosmetics made by people such as you who are reading this article are likely to be safer than many commercial preparations. I expect to see an increase in the demand for such products – for products produced **without** the use of synthetic fragrance oils! And I think there will be customers asking what is in that soap you are selling!

Safe use of essential oils, absolutes and resins are pretty well covered by the guidelines, **however, it is not uncommon to see the actual herb (fresh or dried) being used in home made soaps** and there are few guidelines on this manner of use. One should not assume that lack of guidelines means there are no dangers in use of fresh or dried plant materials, and soap makers must be aware of these side effects as some herbs can cause severe skin reactions. A good example is yarrow - the fresh plant can be a powerful photosensitizer, whereas the dried plant is not. With yarrow essential oil we just don't know because it hasn't been tested.

Martin Watt, in his publication “Plant Aromatics” (see below) reports that people should not use untested oils like yarrow for skin application. If we do choose to use it and our product causes a reaction, we might find ourselves in harm's way. Another example is fresh chamomile, which can cause allergic reactions, whereas the oil rarely does this. Cinnamon bark oil can cause severe skin reactions, but a sprinkle of bark powder in soap should be safe for most people, although a

small number may react.

As we can see, the safe use of plant materials is not simple and does require a good knowledge of the subject. We can rarely rely on herbals and aromatherapy books to provide sound information on such matters but still, we are responsible for the products we produce and ignorance is not an excuse a professional can use in their defense – when we sell a product, we are professionals.

It is true that with soaps we have to consider that most of the ingredients will be washed off the skin. However, if the soap contains a lot of fixed oils and other emollients, these may cause some fragrance ingredients to remain on the skin even after the soap has washed off. This is not going to cause a problem short term, but as stated above, we must consider that some people will use the same soap every day for years. With that frequency of use a condition called **sensitization** can and does occur. Constantly exposing the skin to known sensitizing agents is a bad idea and one that could get us into some legal problems. Even with the mild essential oils such as lavender it is not a good idea to use high volumes of the oil in soap because of the possibility of sensitization with long-term use.

When we look at the levels of essential oils RIFM recommends for soaps we might think they are too low – in fact, they are. For example, for lavender oil they recommend a maximum of 0.3%. At this low level of use with most oils we will be lucky to smell them. That is why the commercial soap makers add synthetic fragrances to boost the odor. There are other reasons why commercial producers keep the levels low, and one reason is to keep the cost down, but as stated above, another consideration is potential frequency of use. The maximum level that lavender oil has been tested without causing skin problems is much higher than 0.3%. So what does this all mean in practice? It means that if we want to produce a salve soap for occasional use, we can use a much higher percentage of lavender oil. On the other hand, for a regular soap we intend to sell on a routine basis, we should stick to no more than 0.3%.

Above, I mentioned Martin Watt's reference publication, "Plant Aromatics." (now out of print) This publication contained data on safe use of essential oils including; Skin Irritation, Skin Sensitization, Photosensitization, Toxicity, Other Safety Issues. Some of this information can be got direct from the ifra.org website.

Why would a home soap or cosmetic maker want to have such reference material? A couple of reasons come to mind. One, we can sleep better knowing we are not exceeding those tested and published safe levels of dilution - this is nice information to have if we are accused in or out of court of causing harm. If we are faced with a situation where we used a 6% dilution of an essential oil and the scientific data shows it should not be used above a 3% dilution and that it caused problems at 6%, we have a weak position of defense. The second reason is one we should keep in mind any time we are dealing with human beings - **cause no harm**. Whether our reasons for exercising caution are legal or ethical the results will be the same if we cause harm.

Now let's look at some urban myths - the aromatherapy trade has no shortage of them. Here are just a few:

Rosemary oil causes epileptic seizures. There is no valid evidence that this happens – period!

Do not use this or that oil if you are pregnant. This is one of the most common warnings in aromatherapy. Martin Watt has researched this in great detail and assures me there is no evidence of any such hazard from the external use of any essential oils apart from possibly wintergreen and birch. We can find warnings on oils that are internationally approved food flavorings, but the amounts used are minute and this does not necessarily mean that oil is safe for dermal application at any time.

If there should be any warning on a soap containing essential oils it should read "do not use if you are breast feeding". This is because a baby's sense of smell could be blocked by the use of a strong fragrance on mom. This sense of smell in the early days is vital for a baby to know who

mom is and where the next meal is coming from.

Below are a few examples of warnings issued by a Canadian aromatherapy organization, but you will see similar warnings from many other sources:

Benzoin - *Styrax benzoin*: "May irritate sensitive skin".

In reality Benzoin is a well - recognized skin sensitizing agent and its use in cosmetic products is restricted by RIFM. See also the article on Benzoin at <http://www.aromamedical.org>

Clary sage - *Salvia sclarea*: "Avoid with low blood pressure".

There is no sound evidence to support this warning; it is urban rumor.

Rose - *Rosa Centifolia* or *Rosa Damascena*:

"Avoid during first trimester of pregnancy; in very low dilutions thereafter".

This is a safe food flavoring and when used in proper dilution, it is safe for dermal application. In Turkey, pregnant women working in the fields gathering roses believe their fragrance "produces a happy and healthy baby". There is no sound evidence to support this warning.

Verbena - *Lippia citriodora*: "May irritate sensitive skin".

This warning is dangerous. This oil has been recognized as a powerful skin sensitizing agent for over 30 years. RIFM (1998-12-18) prohibits use of this oil in all consumer products. The workers filling the stills have to wear gloves to avoid skin reactions.

So to summarize:

1. For both legal and ethical reasons, soap makers should obtain correct information on the possible adverse effects of essential oils and other plant ingredients they intend to use in their products.
2. We cannot believe all of what we read in the popular books on aromatherapy. Authors who do not address the true safety issues write many of these books. Some publishers want to push books out, they are not concerned about the accuracy of what they print, nor do they know where to go to check on the accuracy of the information. Most publishers have escape clauses in the contract with the author so they can get off the hook if someone sues them for printing dangerous advice.
3. Do not assume that if a plant has been used safely as a tea for a long time, that an essential oil from the same plant will be safe. The two are completely different products with different properties. In fact, we should avoid assumptions when we can obtain science-based information.
4. We should learn all we can about skin irritation and how it can be avoided, and we must consider sensitization as a serious condition. There is no way to guarantee sensitization will not occur but we can reduce the possibility if we have the facts.
5. Obtain accurate safety from trade safety publications and/or <http://www.botanical-dermatology-database.info/> and <http://rifm.org>

I wish to thank Martin Watt for allowing me access to his research material during preparation of this article.

Y'all keep smiling,
Butch Owen...) <http://www.AV-AT.com>

Update: On 1 October 2010, Butch sold the above company to John Croskey. John has not changed sources of acquisition or quality control standards. Butch is now happily retired in Tennessee, and in addition to still using essential oils for his family, he is into growing natural herbs, organic vegetables, fruits and berries .. and hunting and fishing.