

Frankincense essential oil and claims for its cancer curing activity made by distributors of Young Living and DoTerra.

By Martin Watt

Update Sept. 2014: Since writing this article a few weeks ago, there has at last been some action from the FDA over the illegal medicinal claims made on the distributors sites of Young Living and DoTerra.

<http://www.fda.gov/ICECI/EnforcementActions/WarningLetters/2014/ucm416023.htm>

<http://www.fda.gov/ICECI/EnforcementActions/WarningLetters/2014/ucm415809.htm>

This article has been hard for me to write. This is because I know that many years of research have shown some herbs do have anti cancer activity. Some essential oils might also have such activity if they are used as medicines. Therefore for me to be critical of research on plant extracts does not come easy. Despite this, I have been horrified to see the outrageous and illegal claims made on the web blogs of Young Living and Do Terra distributors. They are promoting Frankincense oil as a treatment for **cancers (2)**. These claims are made on the basis of research of dubious merit and uncontrolled, unevaluated administration in humans.

I have no problem with fundamental research into plant extracts giving scope for further investigation. What I have a problem with is when that research is grossly distorted **in order to sell products**. It is especially important to know that the research below is sponsored by Young Living, a company notorious for giving their distributors false information during their seminars. Those distributors then repeat and disseminate dangerous and baseless claims.

Specific research papers cited below:

1) Extraction of biologically active compounds by hydro distillation of species gum resins for anti-cancer therapy. <https://www.oapublishinglondon.com/article/385>

2) *Boswellia sacra* oil suppresses breast cancer cells
<http://www.biomedcentral.com/1472-6882/11/129>

Update Sept. 2014: The scientific studies reported above, were clearly not evaluated by experts or they would have noticed several flaws. The Peer reviewers in scientific journals are often asked to check research papers on subjects that they know nothing about. Hence the reason there is so much fake research floating around even in so called "reputable" publications. It is like getting blood out of a stone trying to get them to publish retractions.

Problems with the published research.

Expertise or lack of:

The research papers above have the names of Gary Young and CL Woolley on them. Gary Young is qualified in nothing but being a quack, yet he has managed to get his name into scientific research papers. This is a concern because it will enhance his

apparent credibility with other science publications. CL Woolley has a degree in chemistry but has no experience within the main essential oil industries or in their analytical expertise. He works for Young Living and seems to have a background in nutrition, not essential oils. Anyone can learn to use a GLC machine, but to be able to interpret the results takes years of experience within the trade.

Methods:

All of the research contained in the above papers is conducted on lab cultured cells. While this is normal procedure, any promising results cannot be assumed to be the same if treating humans with the same substances. Such experiments in drugs trials cannot progress until animal trials are undertaken, toxicological, embryological and other adverse effects are studied. This has to take place long before use in humans is permitted. With true traditional medicine we do not have that level of trials but rather depend on generations of acquired knowledge. **The use of this Frankincense oil is certainly not traditional medicine.**

Unlicensed human trials:

The authors of both the trials above state: "safety and toxicity studies of the oil and pre-clinical validation of the *in vitro* results will be required." Ignoring this, several Young Living and Doterra distributors [5](#) have indicated on blogs that humans may take the essential oil internally for cancer. There is no indication that human trials have been approved by any medical or University ethical committee. Instead, Young Living seems to be conducting the trials privately under the heading of "traditional use". It is disturbing that the company's founder Gary Young, who was charged with practising medicine illegally, is involved with this research. He was also involved with a clinic in Ecuador where on the blog of a participant, she stated that: "essential oils were administered to her as **intravenous drips**" [3](#). A therapy that has absolutely no basis in historical or modern medicine. Such activity is among the worst type of dangerous quack medicine one can come across.

Toluene:

In the analytical data of [2](#) above, I noticed **Toluene was contained in this oil at 0.1 percent** which equals **1000 parts per million**. This is a concern due to the known neurotoxicity of that chemical. [6](#) There are numerous research papers that have been published on this chemical due to its past widespread use in industrial processes.

It is not uncommon for 100-250 ppm of toluene to be seen in essential oils, but 1000 ppm is extreme. The researchers claim that the toluene is a naturally occurring constituent of some essential oils, for example, it has been found following dry distillation of tolu balsam. However, if it was the result of degradation changes during processing, or as a result of contamination of the source material, is unknown. I was extremely sceptical about it being a natural source and so contacted two essential oil analysts and a leading world expert in essential oils analysis. In all cases they confirmed that they had seen trace amounts of toluene in some essential oil samples. What they did not know was if it was a natural occurrence, or **a contaminant from cleaning procedures, paint coatings, water used, even in tobacco smoke.**

As frankincense resin is gathered from wild trees by tribes in the area, the potential for contamination from several of these sources is feasible, even possibly smoking as sacks are being filled. The water used in distillation is also a potential source as it has been found contaminating groundwater. It has even been found in water from wells 265 feet deep. A search using the term 'toluene' here will produce numerous references: <http://nlquery.epa.gov/epasearch/epasearch>

The volume of oil being taken internally by customers of Young Living and DoTerra distributors is not clear. Therefore their exposure to toluene is also vague. **In the case of pregnancy this oil should not be taken internally.** Smokers will dramatically increase the levels of toluene in their blood if they also consume this oil.

Toluene is a restricted chemical in most countries due to its **toxicological effects at low doses, foetal toxicity and abortive activity (1.)** See also: <http://www.cdc.gov/niosh/docs/90-101/>

A study of workers routinely exposed to toluene found **"a clear genotoxic effect associated with toluene exposure". (4)**

American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) (2007) is 20 ppm. **Female reproductive system damage and pregnancy loss are the main risk factors.**

The Occupational Safety and Health standard exposure limit for toluene in workplace air is **200 ppm averaged over eight hours.** However, the American Conference of Governmental Industrial Hygienists (ACGIH) recommended limit for toluene in workplace air is 50 ppm. **Ingestion would give a far higher rate of exposure.**

Botanical names:

Another issue with this and other related research are the Botanical names given to the oils tested. In this case it is named as *Boswellia sacra*, yet it is well known by expert botanists that Frankincense trees are notoriously variable. Therefore, to give a precise botanical name is unreliable due to interspecies variability. One tree may be identified by a botanical expert but a tree a hundred feet away can be substantially different, especially in chemical profile. The resin is gathered from these wild trees and is mixed for commercial resale. It is a fundamental problem with all the published research on Frankincense type oils **that the researchers have little real idea on the precise botanical identity of the resins they use.**

Other research on Frankincense:

There have been many studies over the years on the therapeutic effects of Frankincense. Several researchers have indicated that they believe Boswellic acids are responsible. However, this group of chemicals is usually obtained by extraction with solvents such as alcohol. There may of course be other anti cancer substances in the different types of resins which have yet to be identified. If so the research on boswellic acids cannot be directly applied to the use of the essential oils **as is being widely claimed.**

Conclusions:

With the research being promoted by Young Living and DoTerra distributors, we see **preliminary** studies on a particular oil being seized and hyped in order to sell products. Academic research on essential oils is rarely taken forward to controlled clinical trials. That is necessary in order to establish if preliminary research is sound, or if the substance is safe for use as recommended.

Chewing Frankincense resin has an Ancient history for treating a variety of illnesses. When chewed it contains a different combination of chemicals to that found in the distilled or extracted oils. It also contains chemicals not found in the oils. In addition,

it is known that saliva in the mouth can cause chemical changes in substances. Therefore, the fact that an unrefined resin or herb has acknowledged medicinal activity, does not mean that a refined extract such as an essential oil will have the same activity.

Hot distillation is man-made chemistry. Heat changes the chemicals of essential oils occurring in plant tissues. This means that any traditional medicinal use of the herb should be subject to fresh evaluation when the distilled essential oil is used instead of the herb. Heat can create both beneficial as well as hazardous substances. In the case of the research above, we see a possible example of this effect with toluene.

While I accept that using the toxicological data of a single chemical in an essential oil can be misleading due to the synergistic activity of all the other chemicals, in this case we just do not know if the toluene is a natural chemical or a contaminant. If it is a contaminant, then using this oil for treating cancers is unwise. The effects of the whole oil may be beneficial in the short term, **but the long term effects of the toluene are sinister.**

I have always (with a handful of exceptions) advised against the internal use of essential oils as medicines because I know what can be in them. In the case of the research on Frankincense oil there now remains a question about the claims of "therapeutic quality" frequently made by both Young Living and DoTerra for their oils when compared to other suppliers.

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