INGESTION & NEAT APPLICATION OF ESSENTIAL OILS GUIDANCE

The term essential 'oil' is itself misleading. They are considered 'essential' in the sense that they carry a distinctive scent, or essence of the plant (European Chemicals Agency 2017). The term 'oil' relates to their behaviour in water; they are 'oil-like' in that they generally do not combine or 'dissolve' in water (although some 'water-loving' components do, hence floral waters and distillates, the majority of components do not). They are mostly lighter than water, therefore will float on the surface, or in some instances, where they are heavier and denser than water, the essential oil will sink (for example, vetiver and myrrh).

Essential oils are highly concentrated derivatives extracted from various parts of plants; leaves, twigs, blossoms and flowers, fruits, seeds, bark, roots, and so on. For example:

- It takes 2,500 – 4,000 kg of rose petals to produce 1 kg of essential oil.
- It takes 1.4 kg of fresh lavender to produce 15ml of lavender essential oil.
- One drop of essential oil is equivalent to 15-40 cups of medicinal tea, or up to 10 teaspoons of tincture (Krumbeck 2014).
- One drop of peppermint essential oil is equivalent to 26 cups of peppermint tea.

Thus, essential oils must be used and applied with caution, careful consideration and in moderation.

In terms of skin contact, therefore, it must be remembered essential oils alone are not emollient, they certainly do not have an 'oily' texture. This is why essential oils should always be dispensed in an emulsifying medium before being added to a bath (water itself is very drying to the skin, which can exacerbate irritation), and they should never be added to water and consumed internally as this is virtually the same as consuming them neat (water offers no protection to the lining of the mucous membrane or stomach).

Being highly volatile, essential oil components rapidly vaporise as they bind to moisture within the skin and surrounding atmosphere. Applied neat to the skin they are thus drying and potential irritants and sensitisers, so must be dispersed in a suitable emulsifying carrying medium before they are applied to the body; for example, in vegetable oil, cream, lotion, ointment or gel. Certain essential oil molecules can bind to proteins within the skin and may instigate an allergic reaction (whether applied neat or in a carrier medium).

Although Tea Tree and Lavender may be applied neat to very small areas of skin as first aid remedies for insect bites, minor burns, spots etc, repeated long term application is not recommended; these oils are the exception but have equal propensity to cause skin irritation if overused.

In summary, therefore, the IFA advises against the use of essential oils neat on the skin.

Essential oils absolutely must not be taken internally unless prescribed and administered by a primary healthcare practitioner, pharmacist, or herbalist who is also a trained and qualified essential oil practitioner - the IFA does not advocate the internal use of essential oils in any other circumstance, either via oral, rectal or vaginal means. Please see below for the legal implications of essential oil ingestion.

Ingestion

There are numerous cautionary contributory factors to consider when ingesting essential oils, whether ingestion is orally, via the rectum or vagina. It is likely that when administered orally 100% of the essential oil ingested will be absorbed into the body's internal system (unlike skin absorption, where the epidermis acts as a semi porous barrier), so dose is very significant. Essential oils should never be swallowed neat because they can cause severe mucous membrane irritation.

Although essential oils metabolise and are eliminated or excreted from the body quite quickly, there is increased risk of causing renal (kidney) and hepatic (liver) damage and internal irritation to other accessory organs of the digestive system. Some essential oils are oral toxins.

There is also increased risk of negative chemical interaction between the constituents of essential oils and other prescribed medication that may be being taken at the same time, which might potentiate or exacerbate their action. For example, sweet birch or wintergreen essential oil should never be administered internally if a person is also taking Warfarin, as these essential oils dangerously increase the anticoagulant and blood thinning potential of Warfarin and other anticoagulant medication. In other examples, Tisserand and Young (2014 p 58) warn of possible incompatibility between **oral** ingestion of chamomile German (blue), chaste tree, cypress (blue), jasmine sambac absolute and sandalwood (W. Australian) essential oils (Latin names not given) and tricyclic antidepressants, such as imipramine and amitriptyline, or opiates such as codeine, because these essential oils can potentiate the action of these drugs and other CYP1A2, CYP2C9, CYP2D6, CYP3A4 substrates **(*inhalation and topical dermal application of balsam poplar, chamomile blue, sage and yarrow may also potentiate the action of CYP2D6 substrate drugs*).**

UK Legislation Concerning the Oral Use of Aromatherapy Products

The IFA's Specialist Advisor from the Aromatherapy Trade Council (ATC) provides the following information regarding the supply of essential oils for internal use to the UK market.

"If you supply, or advertise to supply essential oils, or any consumer product for that matter, to the general public with the intention that it is to be ingested, then that product will meet the definition of a 'food' unless it meets the definition of a 'medicine'.

It is entirely possible to buy certified food grade essential oils and to fill, pack and store them on food registered and food hygiene compliant premises. However, when supplying them to the public, all of the regulations require that the intended use of the product is identified by the information on the packaging, together with appropriate instructions for use. Once a product intended to be ingested, like an essential oil, is marketed for internal use, is presented as a medicine, typically by making medicinal claims for its product benefits or those of its components, then it can only legally be supplied or advertised for supply as a licensed medicine. In practice this would be subject to a Traditional Herbal Registration (THR). Currently there for ingestion to treat mild depression and anxiety. Generally, essential oils are not considered to be medicinal by function, with the exception of Valerian essential oil, so will need to be licensed on the basis of their traditional use that does not rely on proof of efficacy.

There are essential oils (suitably diluted), currently marketed as food flavourings and there are some oils, like peppermint and oregano in capsule form, supplied as supplements to aid digestion.

As I understand it the majority of health claims made for essential oils and products containing them intended for internal use would meet the MHRA (UK Medicines Regulator) criteria for presentation as a medicine contrary to the Human Medicines regulation 2012.

The current practice of supplying, or advertising for supply, essential oils for an internal use to the general public, that are intended for external use for an aromatherapeutic purpose and regulated by the General Product Safety Regulation 2005, irrespective of whether they are certified food grade or not, is as I understand it illegal.

The above only applies in the UK and the consumer safety regulations in other member states of the EU and overseas may be different and does not apply to practitioners who supply essential oils or other products for internal use to their clients under the 'herbalists exemption', regulation 3(6) of the Human medicines regulation 2012."

Skin Reaction

There are three main forms of skin reaction to essential oils:

- **Irritation**
- **Sensitisation**
- **Photo-toxicity**

Irritation

Irritation may manifest as localised inflammation, affecting the skin or mucous membrane. The respiratory tract is particularly susceptible to inflammatory and non-inflammatory irritation from essential oils (experienced as drying, burning, stinging, tingling, tickling). Some essential oils are useful for conditions affecting the respiratory system (sore throats, bronchitis etc.) but should only be applied via inhalation methods, in low doses for a short duration, to avoid respiratory irritation. Phenols and aromatic aldehydes tend to be the most irritant essential oil compounds. For example, **eugenol** (**basil**, **cinnamon bark**, **clove**), **thymol** (**basil**, **thyme**), **carvacrol** (**thyme**, **oregano**, **savoury**), **cinnamic aldehyde** (**cinnamon leaf**).

Sensitisation

Sensitisation is not the same as 'sensitive skin'. Sensitisation is a contact hypersensitive or allergic reaction and/or severe irritation that involves the immune system (T-lymphocytes and macrophages). T-lymphocyte cells become sensitised through an adaptive, exaggerated or inappropriate immune response; once sensitised, even a small amount of the potential antagonist substance can cause a reaction. **Sensitisation is *not* dose dependent and is difficult to predict**. Also, a sensitised reaction may be delayed, symptoms manifesting sometime after application.

The saturation point of chemical exposure can be reached through contact with products other than essential oils, such as cosmetics, perfumes, household cleaning materials etc.;

there can also be a potential insidious cumulative effect especially where the same products are used repeatedly.

Symptoms of sensitisation are various and may include skin irritation, rashes, headaches, migraine, anxiety, heart palpitations, feelings of unease, shortness of breath and dry mouth.

All essential oils are potential sensitisers and therefore should be applied in moderation, with regular breaks or abstinence from use (two to three weeks use followed by a week's non-use), and periodical rotation of the essential oils applied (substituting one for another appropriate oil), especially if using regularly over a long period of time. Essential oils should never be applied 'neat' to skin.

Toxicity

Toxicity refers to the strength of a poison and the degree to which a substance can damage or destroy an organism, whether the whole organism, such as a plant or animal, or a substructure of the organism, such as a cell or organ, for example, liver (hepatotoxicity), kidney (nephrotoxicity). Damage may be reversible or irreversible, depending on the level of biological disruption and whether the regeneration capacity of the affected cells has been compromised.

Toxicity is dose dependent and is influenced by factors such as the route of administration (skin absorption, ingestion, inhalation), length of time of exposure, frequency of exposure, the genetic makeup of the individual and their general state of health. Localized toxicity usually affects the organs of elimination (stomach, liver, kidneys, intestines, lungs and skin). A toxic reaction instigated by essential oil molecules can manifest at the point of topical application or systemically.

Some essential oil molecules, which may otherwise be non-toxic, can bind with compounds contained in medication (most of which are toxic substances) or certain foods, or with certain enzymes and be metabolized into a toxic substance or relocate to an area within the body where they may cause damage. Camphor and methyl salicylate compounds, and clove, cinnamon and eucalyptus essential oils are most frequently cited as causes of systemic toxicity in humans. Most reported essential oil poisoning incidents involve children under six years old who accidently ingest the oils.

Chemical components within essential oils can become toxic when they oxidise and degrade. Old essential oils are more likely to be toxic than those that are freshly extracted and appropriately stored (this is especially applicable to citrus and pine oils). Essential oils containing phenols, aromatic aldehydes, and oxidized terpenes are the main culprits for causing dermal toxicity and irritation.

Photo-toxicity

This is an excessive reaction to sunlight (or UV light, including UV light emissions from sun-tanning lamps) induced by certain chemicals present within the superficial layers of the skin. Phototoxic substances (such as furanocoumarins found in a few essential oils, for example, bergamot and angelica root) absorb UV light, which in turn causes the production of abnormally dark pigmentation (brown patches), that may last for years, and reddening and burning of the surrounding skin, which is often slow to heal. A

phototoxic reaction only occurs if the sensitising agent is present. Avoid phototoxic essential oils on skin exposed to sunlight or UV light and sun-tanning lamps.

When applied sensibly and in moderation, essential oils are extremely beneficial. Ensure the authenticity and age of your essential oil before applying (once opened, essentials have approximately a 12 month shelf life; citrus oils, usually only 6 months). Store in a cool, dark place away from sunlight. Always ensure lids are replaced immediately after use. Wash any residue essential oil from your fingers to avoid contact with your eyes or other sensitive areas of your body.

Example of an extreme adverse reaction:
https://www.allure.com/story/negative-reaction-to-essential-oils-tanning-bed
https://www.facebook.com/graetel.anderson/posts/10100850320518299

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This explanation has been provided by Heather Godfrey on behalf of the International Federation of Aromatherapists (IFA).