

A Pediatrician's Panoramic View of Essential Oils  
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"Smell is a potent wizard that transports you across thousands of miles and all the years you've lived."  
Helen Keller

The Power of Smell

Essential Oils

- 1. What are Essential Oils?
- 2. Are Essential Oils safe?
- 3. Are Essential Oils effective?
- 4. Why are they so popular?
- 5. Counseling the EO parent.

What are Essential Oils?

Complex mixture of "aromatic" (olfaction) hydrocarbons.  
Derived from specific botanically defined raw materials.

Two methods of production:

- 1. **Steam Distillation**  
Essential Oil  
Hydrosol (Aromatic waters)
- 2. **Cold Press**  
Mechanical process without heating  
Exclusive to citrus oils.

The composition of EO's is variable:

Composition is dependent upon  
Geographical location                      Growing conditions  
Age of the plant                              Fertilizer usage  
Amount of watering                         Time of year or season of harvest

Example of variation: Lavender

	<u>French</u>	<u>Ukrainian</u>
Linalool	44.4 %	<b>27.5 %</b>
Linalyl acetate	41.6 %	43.3 %
Lavandulyl	3.7 %	2.1 %
B-caryophyllene	1.8 %	<b>5.9 %</b>
Terpinen-4-ol	1.5 %	2.1 %
Borneol	1.0 %	1.0 %
a-Terpinol	0.7 %	0.6 %
(Z)-B-Ocimene	0.3 %	<b>4.2 %</b>
3-Octanone	0.2 %	1.1 %
(E)-B-Ocimene	0.1 %	2.0 %

EO's function in plants:

Repel predators (deer, rabbits) and insects

Antimicrobial effect:

Bacterial, fungi, mold

Attract insects for pollination purposes.

Add aroma and flavor to the plant.

### **Historical Perspective:**

#### **5000 BC to 9<sup>th</sup> Century AD:**

Spices, Herbs, and oils (not essential oils)

Medicinally (healings / spirituality)

Perfumery

Embalming

Flavoring

#### **9<sup>th</sup> Century to the 20<sup>th</sup> Century:**

Steam distillation was introduced

Medicinally

Perfumery

Cosmetics/cosmetology

Food industry

#### **20<sup>th</sup> Century:**

1920's Maurice Rene Gattefosse

Considered the father of aromatherapy

Coined the term aromatherapy

1940's – 1970's Dr. Jean Valnet

Treated French soldiers with EO's in WWII

Presented as an alternative to modern medicine.

Influenced the spread and availability of EO's in Europe.

#### **Mid-1990's to present:**

Large increase in the use of essential oils

Use of EO's align with personal philosophy

Increase access to unfiltered information

Multi-level Marketing

Young Living

doTerra

## **Are Essential Oils Safe?**

Human safety Data is hard to find.

Little funding for plant derived chemicals

Hard to standardize EO's: High variability

Purity questions (adulteration)

Study designs are complicated or misleading

Considerations for safety/toxicity:

Route of Administration:

1. Ingestion

2. Topical

3. Inhalation

**Ingestion:**

Most acute toxic reactions are

CNS

Hepatic

Renal

The vast majority are accidental.

Aromatherapists do not recommend internal ingestion.

List of known common toxic agents:

Camphor Oil	2-Camphanone
Melaleuka (TTO)	Monoterpenes
Eucalyptus Oil	1,8-Cineole (Eucalyptol)
Citonella Oil	Geraniol
Cinnamon Oil	Eugenol
Clove Oil	Eugenol
Wintergreen Oil	Methylsalicylate
Pennyroyal	Pulegone

Common OTC products containing camphor:

Campho-phenique	Camphor 10.8%
Vicks Vapor Rub	Camphor 5%
	Eucalyptus 1.75%
	Menthol 2.75%
Caladryl Lotion	Non active amount

**TOPICAL TOXICITY:**

Factors

1. Composition of the oil.

2. Dilution of the oil.

3. Skin Absorption:

Infant

Normal vs. Abnormal

Topical Application: Adverse Reactions:

1. CONTACT DERMATITIS

EO dependent

Dilution Dependent

Carrier oils

Fractionated coconut oil

Olive oil

Almond Oil

Avocado Oil

**DILUTION TABLE:**

Carrier Oil Volume (ml)

	1	2	2.5	3.75	5	10	15
Drops							
1	3.3%	1.7%	1.3%	0.9%	0.7%	0.3%	0.2%
2	6.7%	3.3%	2.7%	1.8%	1.3%	0.7%	0.4%
3	10.0%	5.0%	4.0%	2.7%	2.0%	1.0%	0.7%
4	13.3%	6.7%	5.3%	3.6%	2.7%	1.3%	0.9%
5	16.7%	8.3%	6.7%	4.4%	3.3%	1.7%	1.1%
6	20.0%	10.0%	8.0%	5.3%	4.0%	2.0%	1.3%
7	23.3%	11.7%	9.3%	6.2%	4.7%	2.3%	1.6%
8	26.7%	13.3%	10.7%	7.1%	5.3%	2.7%	1.8%
9	30.0%	15.0%	12.0%	8.0%	6.0%	3.0%	2.0%
10	33.3%	16.7%	13.3%	8.9%	6.7%	3.3%	2.2%

Topical Application: Adverse Reactions:

**2. Allergic Dermatitis**

EO Dependent

**3. Photo-dermatitis/Phototoxic**

Almost exclusive to Citrus oils (Cold Press)

Culprit: psoralen constituent

Can occur at very dilute concentrations

Not seen in distilled citrus oils

**Inhalation:****1. Incidental**

Flowers

Personal care products.

Household Products

Vaporization: Candles, Aromatic diffusers, Steam inhalation)

**2. Intentional:**

Balms or rubbing ointments

Steam inhalation

**Inhalation Toxicity: Adverse Reactions**

Primary Reactions:

Bronchial hyper-reactivity

Sensory Irritation

Sensory Hyperactivity

**Bronchial Hyper-reactivity:**

Multiple triggers

Dust mites, Pollen, molds etc.

Evidence that EO's can trigger BHR:

a-limonene, a-pinene, d-3-Carene, Eugenol

**Inhalation Toxicity: Sensory Irritation:**

- Common Chemical warning System.
- Stimulation of the trigeminal and vagus nerve afferent C fibers (in the nose, mouth, and throat.)
- Distinct from olfaction
- Able to detect non-odorous chemicals
  - Tear gas, capsaicin
- Evokes sensations: Irritation, tickling, burning, stinging, cooling, warming.

**Inhalation Toxicity: Sensory Hyper-reactivity**

Reaction to aromatics that cause upper and lower airway symptoms.

- |          |          |                              |
|----------|----------|------------------------------|
| Rhinitis | Sneezing | Hoarseness,                  |
| Sneezing |          | Coughing - Phlegm production |
| Dyspnea  |          | Eye irritation.              |

- No Ig-E mediated allergies.
- No bronchial obstruction on provocation,
- Little or no response to antihistamines.
- Thought to be Trigeminal and Vagus nerve sensitization.
- Commonly triggered by perfumes and flowers.

Karmin, W (2007)

3060 participants: Exposed to Pinimenthol

- 20% Eucalyptus
- 18% Pine needle Oil
- 3% Menthol

Report: Well tolerated

- 10 Skin Reactions
- 6 developed cough
- 5 Developed Obstructive Respiratory Tract Symptoms
- 4 Hyper-sensitivity of mucous membranes.

Vicks Vapor Rub:

- Applied to the upper lip of an 18 mo. old.
- Developed Severe Respiratory distress.
- Hospitalized in ICU for 5 days / Supportive care
- Discharged on 6<sup>th</sup> Hospital day. Made full recovery
- (Package label cautions against use in children less than 2 years of age.)

**Are Essential Oils Effective?**

Popular Views

1. Abundance of anecdotal reports and feelings in support of EO effectiveness.
2. Abundance of anecdotal information and feelings denying EO effectiveness.
3. Abundance of anecdotal reports and opinion in support of EO effectiveness.

Confused?      What does science tell us?  
                       What do studies show?

"Systematic reviews have been published. Due to the caveats, the evidence is not sufficiently convincing that aromatherapy is an effective therapy for any disease.

1. Agricultural studies:

May hold some promise as minimal risk pesticides.

2. Animal and *in vitro* studies:

Evidence of anti microbial activity

EO's In Acute Otitis Media in Rats

Cure rates were 50-81% vs placebo.

If the toxicity studies confirm the safety of microbiological EO components in the ear, then a significant advance can be made in the treatment of AOM. (J Inf. Dis 2005: 191 (1 June).

Efficacy studies are difficult to design:

Small sample size

Lack of adequate controls.

Aromatic compounds

Poor study designs

Lack of standardized of EO's

Comparison of Ciprofloxacin and Lamigex in the treatment of Acute Otitis Externa. (Iran)

J Microbiol Immunol Infect. 2014 Jun;47(3):211-6.

70 Seventy patients were randomly

Ciprofloxacin 0.3% ( $n = 35$ )

Lamigex ( $n = 35$ ) drop.

AGE: 18-60 years.

Administration: 3 drops every 12 hrs. x 1 week

Patients were examined

1. For AEO symptoms. (tenderness, itching, erythema, edema and discharge)
2. Ear discharge cultures at baseline as well as the end of trial.
3. Pain severity was recorded days 3 and 7.

Results: No significant Difference:

1. Improvement of assessed symptoms:
2. The rate of pain improvement.
3. The numbers of positive cultures were reduced by the trials  
end for all tested microorganisms were not significantly different between the groups.

Conclusion

The herbal combination drop that was investigated in the present study exhibited good efficacy in reducing the burden of infection as well as AEO symptoms.

Is it enough to recommend or change clinical practices? Not Yet

Catnip Oil: Insect repellent  
 Report by Iowa State University  
 Repellent activity against Aedes aegypti  
 Active ingredient: Nepetalactone  
 Results: More effective than DEET at lower concentrations.

Why small number of products:

Paucity of human toxicity data.

Catnip has a offensive odor.

Usually combined with other EO's:

Lemongrass, Lemon, Citronella, Castor, Rosemary, Clove, Cedar,

Hard to find an oil that will attach to skin: Vegetable Glycerin Oil

## SO WHY DO PEOPLE USE ESSENTIAL OILS?

WHY DO INDIVIDUALS USE EO'S?

1. Some don't care about scientific research?
2. People want options not orders.
3. Parent's want to control their medicine cabinets.
4. There is a cultural dissatisfaction with conventional medicine.

Ineffective

Adverse Effects

Impersonal

Costly

### How do we respond?

We need to be able to credibly discuss the use, effectiveness and safety of EO's

1. Basic understanding of EO's
2. Realize generalizing is not appropriate.
3. Engage in the conversation.

### The Decision Making Process:

1. As a Complimentary or Alternative supplemental therapy.

	Essential Oil			
			<b>Effective</b>	
		<b>Yes</b>		<b>No</b>
	<b>Yes</b>	Tolerate		Tolerate
<b>Safe</b>				
	<b>No</b>	<b>Strongly</b>		<b>Strongly</b>
		<b>Discourage</b>		<b>Discourage</b>

2. As a Substitute Therapy

	Essential Oil			
			<b>Effective</b>	
		<b>Yes</b>		<b>No</b>
	<b>Yes</b>	<b>Strongly</b>		<b>Strongly</b>
<b>Safe</b>		<b>Discourage</b>		<b>Discourage</b>
	<b>No</b>	<b>Strongly</b>		<b>Strongly</b>
		<b>Discourage</b>		<b>Discourage</b>

**Takeaway Thoughts:**

1. First, do no harm!!
2. Ask about the use of complimentary or alternative medicine when appropriate.
3. Engage in a dialogue about CAM usage
  - A. Don't be judgmental
4. There is no situation where recommendation of an essential oils is warranted.
5. If the patient /parent is going to use essential oils:
  - A. As an compliment to convention medicine:
    - If the essential oils is safe-Tolerate
    - If the essential oils is unsafe: Strongly discourage
  - B: As a substitute for conventional medicine: Strongly discourage.



## A GUIDE FOR ESSENTIAL OIL USE IN CHILDREN

### Avoid Using All routes on Children

**Birch (sweet)** *Betula lenta*

**Wintergreen** *Gaultheria fragrantissima*, *Gaultheria procumbens* –  
(due to methyl salicylate content)

### Avoid using (all routes) on children under 2

**Hyssop** *Hyssopus officinalis* (pinocamphone chemotype) -

**Massoia** *Cryptocarya massoy*, *Cryptocaria massoia*, *Massoia aromatica*

### Avoid using (all routes) on children under 6

**Anise/Aniseed** *Pimpinella anisum*

**Anise (Star)** *Illicium verum*

\***Cajuput** *Melaleuca cajuputi*, *Melaleuca leucadendron*

**Cardamon** *Elettaria cardamomum*

\***Cornmint** *Mentha arvensis*, *Mentha canadensis*

**Fennel (bitter), Fennel (sweet)** *Foeniculum vulgare*

\***Galangal (lesser)** *Alpinia officinarum*, *Languas officinarum*

\***Ho Leaf/Ravintsara** *Cinnamomum camphora* (cineole chemotype)

\***Marjoram (Spanish)** *Thymus mastichina*

**Bay Laurel** *Laurus nobilis* avoid

\***Cornmint** *Mentha arvensis*, *Mentha canadensis*

\***Myrtle (red)** *Myrtus communis*

**Myrtle (aniseed)** *Backhousia anisata*

\***Niaouli** (cineole chemotype) *Melaleuca quinquinervia*

**Peppermint** *Mentha x Piperita*

\***Rosemary** (1,8-cineole chemotype) *Rosmarinus officinalis*

\***Rambiazana** *Helichrysum gymnocephalum*

\***Sage (Greek)**, *Salvia fruticosa*, *Salvia triloba* Sage (White)

\***Sage (White)** *Salvia apiana*

\***Sanna** *Hedychium spicatum*

\***Saro** *Cinnamosma fragrans*

### Avoid topical use on children under 2

**Basil (lemon)** *Ocimum x citriodorum* –

**Benzoin** *Styrax benzoin*, *Styrax paralleloneurus* and *Styrax tonkinensis*

**Black Seed** *Nigella sativa*

**Cassia** *Cinnamomum cassia*, *Cinnamomum aromaticum*

**Clove Bud, Clove Leaf, Clove Stem** *Syzygium aromaticum*, *Eugenia caryophyllata*, *Eugenia aromatica*

**Ginger Lily** *Hedychium coronarium*

**Garlic** *Allium sativum*  
**\*Laurel Leaf** *Laurus nobilis*  
**Lemongrass** *Cymbopogon flexuosus, Andropogon flexuosus, Cymbopogon citratus, Andropogon citratus*  
**Lemon Leaf/Lemon Petitgrain** *Citrus x limon, Citrus limonum*  
**May Chang** *Litsea cubeba, Litsea citrata, Laura*  
**Melissa/Lemon Balm** *Melissa officinalis* –  
**Myrtle (honey)** *Melaleuca teretifolia*  
**Myrtle (lemon)/Sweet Verbena** *Backhousia citriodora*  
**Oakmoss** *Evernia prunastri*  
**Opopanax** *Commiphora guidottii*  
**Oregano** *Origanum onites, Origanum smyrnaeum, Origanum vulgare, Origanum compactum, Origanum hirtum, Thymbra capitata, Thymus capitatus, Coridothymus capitatus, Satureeja capitata*  
**Peru Balsam** *Myroxylon balsamum, Myroxylon pereiraw, Myroxylon peruiferum, Myrospermum pereirae, Toluifera pereirae*  
**Saffron** *Crocus sativus* - avoid topical use on children under 2  
**Sage (Wild Mountain)** *Hemizygia petiolata*  
**Savory** *Satureia hortensis, Satureia montana*  
**Tea Leaf/Black Tea** *Camellia sinensis, Thea sinensis*  
**Tea Tree (lemon-scented)** *Leptospermum petersonii, Leptospermum citratum, Leptospermum liversidgei*  
**Treemoss** *Pseudevernia furfuracea*  
**Tuberose** *Polianthes tuberosa*  
**Turpentine** *Pinus ayacahuite, Pinus caribaea, Pinus contorta, Pinus elliotii, Pinus halepensis, Pinus insularis, Pinus kesiya, Pinus merkusii, Pinus palustris, Pinus pinaster, Pinus radiata, Pinus roxburghii, Pinus tabulaeformis,*  
**Verbena (Lemon)** *Aloysia triphylla, Aloysia citriodora, Lippa citriodora, Lippa triphylla*  
**Ylang-Ylang** *Cananga odorata* **Styrax** *Liquidambar orientalis, Liquidambar styraciflua*

### **Avoid using (all routes) on children under 10**

**\*Eucalyptus** *Eucalyptus camaldulensis, Eucalyptus globulus, Eucalyptus maidenii, Eucalyptus plenissima, Eucalyptus kochii, Eucalyptus polybractea, Eucalyptus radiata, Eucalyptus Australiana, Eucalyptus phellandra, Eucalyptus smithii*

### **Avoid using (all routes) on prepubertal children**

**Chaste Tree** *Vitex agnus castus* -

\* indicates essential oils that are high in 1,8-cineole and can potentially cause respiration to slow in children.

# Safe Essential Oil Use With Babies & Children

## 1. Babies and Children should never ingest essential oils

Keep all essential oils out of reach of children and babies.  
Certain essential oils could be toxic if ingested.

According to Robert Tisserand, Essential Oil Safety;

*The majority of cases of essential oil poisoning involve accidents with young children, often between 1 and 3 years of age. Approximately 75% of cases in the USA are in children up to 6 years old.*

Accidental ingestion: Do not induce vomiting. Consult poison control for treatment advice.

## 2. Dilution is very important for ALL essential oils

There is no exception in this category.

No matter what brand you use, what essential oil it is, or how much you are using, it is not safe to use ANY essential oil neat (without a carrier oil or some other dilution material).

It is also important to note that when adding essential oils to baths of children, they must first be diluted in a water soluble carrier, such as raw unfiltered honey or vegetable glycerin. Adding essential oils straight to bath water, without a carrier, runs you the risk of causing irritation to the skin.

Essential Oils should be kept away from the child's face.

## 3. Essential oils should not be used in or around the nose in children.

Suggest massaging the feet with young children rather than the chest and back, for the safest application of essential oils.

## 4. Slowly introduce one essential oil at a time

Allergies are no fun. When introducing essential oils to babies, you have to remember that you haven't yet discovered the things they are allergic to. It's important to introduce essential oils one at a time and sparingly, to both watch your baby for any sort of reaction and to allow your baby's body to slowly become introduced to that essential oil.

Do not introduce more than one essential oil in one day. If your baby is going to have a reaction to an essential oil they will likely show signs of a reaction in the first 15-30 minutes after inhalation or dermal application.

## 5. What age is safe to use what oils?

[Essential Oil Safety – By Robert Tisserand and Rodney Young.](#)

**It is not advised to use essential oils on babies less than 3 months of age because their skin is not mature yet and therefore more permeable and sensitive to essential oils.**

**Hydrosols are a much gentler and safer option for babies, where essential oils can't be used.**

### **Essential oils safe for topical use/diffusion on babies 3+ months**

The maximum recommended amount of essential oils not exceed .2% of the recipe, or 1-2 drops of essential oil per ounce of carrier oil.

**Chamomile, Roman and German** (*Anthemis nobilis*, *Matricaria rectutita*)

**Dill** (*Anthum graveolens*)

**Lavender** - (*Lavendula angustifolia*)

**Yarrow, Blue** (*Achillea millefolium*)

### **Essential oils safe for topical use/diffusion on babies 6+ months**

The maximum recommended amount of essential oils used on should not exceed .5% of the recipe, or 3-5 drops of essential oil per ounce of carrier oil.

**Bergamot** (*Citrus bergamia*) bergamot essential oil is a phototoxic oil and can cause phototoxic reactions on your skin, if used before going out in the sunshine. diffusion and wash-off products are safe from this though.

**Carrot Seed** (*Daucus carota*)

**Cedarwood, Atlas/Virgina** (*Cedrus atlantica*, *Cedrus deodora*, *Juniperus virginiana*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Cinnamon bark** (*Cinnamomum verum*) this is safe for **diffusion ONLY**.

**Cinnamon leaf** (*Cinnamomum verum*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Citronella** (*Cymbopogon nardus*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Coriander** (*Coriandrum sativum*)

**Cypress** (*Cupressus sempervires*)

**Fir needle** (*Abies sibirica*)

**Geranium** (*Pelargonium graveolens*)

**Grapefruit** (*Citrus paradisi*)

**Helichrysum** (*Helichrysum angustifolium*)

**Lemon** (*Citrus limon*) this is safe for diffusion. Though this is safe for topical application, sweet orange is suggested instead, because it's less harsh on the skin. If cold pressed rather than steam distilled, this essential oil is a potential photosensitizer.

**Mandarin** (*Citrus reticulata*)

**Neroli** (*Citrus aurantium*)

**Palma Rosa** (*Cymbopogon martinii*)

**Petitgrain** (*Citrus aurantium*)

**Pine** (*pinus divaricata*, *pinus resinosa*, *pinus strobus*, *pinus sylvestris*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Ravensara** (*Ravensara aromatica*)

**Rosalina** (*Melaleuca ericifolia*)

**Rose Otto** (*Rosa damascena*)

**Sandalwood** (*Santalum spicatum*)

**Spruce** (*picea abies*, *picea glauca*, *picea mariana*, *picea rubens*)

**Sweet Orange** (*Citrus sinensis*)

**Tangerine** (*Citrus reticulata*)

**Tea Tree** (*Melaleuca alternifolia*)

## Essential oils safe for topical use/diffusion on children 2+ years

should not exceed 1% of the recipe, or 10 drops of essential oil per ounce of carrier oil.

**Basil, Lemon** (*Ocimum x citriodorum*)

**Basil, Sweet** (*Ocimum basilicum*)

**Benzoin** (*Styrax benzoin*, *Styrax paralleloneurus*)

**Cassia** (*Cinnamomum cassia*) this is safe ONLY for diffusion. Cinnamon cassia is not safe for use on anyone's skin, as it is too irritating. Use Cinnamon leaf instead, for topical preparations

**Clary Sage** (*Salvia sclarea*)

**Clove Bud/Clove Leaf** (*Syzygium aromaticum*, *Eugenia aromatica*, *Eugenia caryophyllata*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Copaiba Basalm** (*Copaifera officinalis*)

**Frankincense** (*Boswellia carterii*)

**Garlic** (*Allium sativum*) this is better use for diffusion as it can cause skin irritations when applied topically.

**Ginger** (*Zingiber officinale*) use a smaller amount of this topically as it can cause skin irritation if not Properly diluted.

**Hyssop** (*Hyssopus officinalis*)

**Juniper Berry** (*Juniperus communis*)

**Lemongrass** (*Andropogon citratus*, *Andropogon flexuosus*, *Cymbopogon citratus*, *Cymbopogon flexuosus*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Lime** (*Cirtus x aurantifolia*)

**Melissa/Lemon Balm** (*Melissa officinalis*)

**Myrrh** (*Commiphora myrrha*)

**Oregano** (*Origanum onites*, *Origanum smyrnaeum*, *Origanum vulgare*, *Origanum compactum*, *Origanum hirtum*, *Thymbra capitata*, *Thymus capitatus*, *Coridothymus capitatus*, *Satureeja capitata*)

**Sweet Marjoram** (*Marjorana hortensis*)

**Patchouli** (*Pogostemon cablin*)

**Spearmint** (*Mentha cardiaca*, *Mentha spicata*)

**Tea Tree, Lemon** (*Leptospermum petersonii*, *Leptospermum citratum*, *Leptospermum liversidgei*)

**Thyme** (*Thymus vulgaris*, *Thymus Zygis*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Tumeric** (*Cucuma longa*)

**Verbena, Lemon** (*Aloysia triphylla*, *Aloysia citriodora*, *Lippa citriodora*, *Lippa triphylla*)

**Vetiver** (*Vetiveria zizanoides*)

**Valarian** (*Valeriana officinalis*)

**Ylang Ylang** (*Cananga odorata*) this can be diffused for children under 2 years

## Essential oils safe for topical use/diffusion on children 6+ years

The maximum recommended amount of essential oils used on children 6+ years topically, should not exceed 2% of the recipe, or 20 drops of essential oil per ounce of carrier oil.

**Anise/Aniseed** (*Pimpinella anisum*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Anise, Star** (*Illicium verum*) use a smaller amount of this topically as it can cause skin irritation if not Properly diluted.

**Cajuput** (*Melaleuca cajuputi*, *Melaleuca leucadendron*)

**Cardamom** (*Elettaria cardamomum*) use a smaller amount of this topically as it can cause skin irritation if not properly diluted.

**Cornmint** (*Mentha arvensis*, *Mentha canadensis*)

**Fennel, sweet and bitter** (*Foeniculum vulgare*)

**Laurel Leaf/Bay Laurel** (*Laurus nobilis*)

**Marjoram, Spanish** (*Thymus mastichina*)

**Niaouli** (*cineole chemotype*)

**Nutmeg** (*Myristica fragrans*) use a smaller amount of this topically as it can cause skin irritation if not Properly diluted.

**Peppermint** (*Mentha x piperita*) use a smaller amount of this topically as it can cause skin irritation if Not properly diluted.

**Sage, Greek/White** (*Salvia officinalis*, *Salvia fruticosa*, *Salvia tribola*, *Salvia apiana*)

## **Essential oils safe for topical use/diffusion on children 10+ years**

**Peppermint, Eucalyptus**, and **Rosemary** essential oils are all avoided in younger children because they contain a chemical constituent called 1,8-cineol and menthol.

Peppermint is safe to use at 6+ years but ALL eucalyptus and rosemary essential oils should be avoided until 10+ years of age. It's important to note that the brand of essential oil you choose to use does not change this recommendation.

**Eucalyptus** (*Eucalyptus camaldulensis*, *Eucalyptus globulus*, *Eucalyptus maidenii*, *Eucalyptus plenissima*, *Eucalyptus kochii*, *Eucalyptus polybractea*, *Eucalyptus radiata*, *Eucalyptus australiana*, *Eucalyptus phellandra*, *Eucalyptus smithii*)

**Rosemary** (*Rosmarinus officinalis*)

## **Thieves blends should be avoided in children under 10 years**

All of the anti-germ type Thieves blends of essential oils contain eucalyptus, rosemary, clove, cinnamon bark, and lemon.

The eucalyptus and rosemary essential oils should be avoided in children under ten years of age. The clove essential oil shouldn't be used topically on children under 2 years of age. Cinnamon bark essential oil should be avoided for dermal use in all ages, as it is too irritating to the skin, instead cinnamon leaf is recommended.