

Welcome to...

**Penny Price Academy
of Aromatherapy**

**Antimicrobial
Essential Oils
and how to use them**

Introduction

- This webinar will give a brief overview of some of the pharmacological components that can be found in essential oils, concentrating particularly on the components that are antimicrobial and that may be able to help us to keep safe at this very worrying time.
- Essential oils with the relevant components will be discussed along with methods of use in masks, throat sprays, nasal inhalers, hand gels and hand and body lotions. References for claims made will be available in the presentation, and apart from viral protection, common conditions such as MRSA will also be explored.



Disclaimer

- Disclaimer: Essential oils are NOT a substitute for orthodox medication, ventilators or any other proven aids to help with Covid-19.
- This presentation is merely showing essential oils that may help to us to keep safe.



CORONAVIRUS (COVID-19)

Which Essential Oils?

- There are so many essential oils to choose from in our therapy box that we can be quite spoiled for choice. Some are antifungal, some anti-inflammatory – but the most amazing thing is that every single one of them is antimicrobial to a greater or lesser degree.



Which Essential Oils?

- Having determined that, there are obviously some molecules that are more effective against microbes than others. Monoterpenes are electro-positive and can be quite aggressive to microbes. They are relatively safe molecules and release their full power when blended with other molecules (as they already are in most essential oils). Children and the elderly and infirm should not have any contra-indications to these molecules.
- Tea tree oil (*Melaleuca alternifolia*), for example, has up to 40% of monoterpenes (Price L, Price S, 1995:335), which contributes considerably to the overall effect of the oil. It is well-known that tea tree oil is at least 12 times stronger than household carbolic!



Which Essential Oils?



- If there were just one reason for tea tree to be antimicrobial, this would be simple, but of course, essential oils have internal synergy, which means that all the molecules in any given essential work together to produce a unique combined effect.
- Other good antimicrobial agents are alcohols, but the very best are the phenols and some methyl ethers
- **HOWEVER** synergy plays an enormous part in the effectiveness of any given oil or blend of oils

Alcohols

- Alcohols are very useful in aromatic practice as they have antimicrobial properties. Tea tree has between 30% and 57% of terpenen-4-ol, which when put with the monoterpenes, produces this efficacious antimicrobial essential oil.
- Other oils that are high in alcohols are rosewood*, palmarosa and bergamot. Lavender oil (if high altitude and organic) has about 50% of alcohol components.
- *sustainably sourced from India



Phenols

- Phenols contain the same functional group as the alcohols (the hydroxyl group -OH) but they are much more powerful, so much so that they can be toxic to the liver and irritant to the skin if used in substantial amounts or for too long a time.
- There are only three phenols found in significant amounts in essential oils:

Carvacrol	Oregano, savoury, thyme
Eugenol	Cinnamon leaf, clove bud/leaf
Thymol	Oregano, savoury, thyme
- For a powerful effect, phenols would be the components to use.



Other components

- Aldehydes can be powerful antimicrobials and some are antiviral
- Oxides can also help with viral infections as well as being anti-microbial
- Terpenes are strong antimicrobials but they are in every single essential oil, which is why essential oils are so powerful



Anise star - *Illicium verum*

- Anise star is popular in the medicinal world.
- Two of the most important components of this oil are its flavonoids and polyphenols, they are primarily responsible for its antimicrobial and antioxidant properties (Aly, Sabry, Shaheen and Hathout, 2016).
- The oil is also known to have antiseptic properties and provides the skin with an effective protective layer against any infections and sepsis (Nagdeve, 2019).



Anise Star - antiviral

- This oil has a vital function as the source of shikimic acid from which the drug Tamiflu is made, the only defence the world had against previous H5N1 2009 flu pandemic (a type of Covid).
- Tamiflu cannot prevent infection with avian flu but it can reduce its severity.
- It is grown in four provinces in China and "huge quantities" of its seeds are needed, according to the Swiss pharmaceutical manufacturer Roche.
- It is harvested by local farmers in China between March and May, purified and the shikimic acid extracted at the start of a 10-stage manufacturing process which takes a year.



Rosemary - *Rosmarinus officinalis* ct cineole

- One of the most popular medicinal plants in the world (McCulloch, 2018).
- Improves brain function and helps with concentration, (Begum et al., 2013).
- Prevents the breakdown of acetylcholine; one of the chemicals in the brain used for memory and concentration (Moss and Oliver, 2012).
- Relieves pain a two week study on stroke survivors experienced a 30% reduction in pain compared to control who had a 15% reduction (Shin and Lee, 2007).
- Eases stress when inhaled by decreasing levels of cortisol; a hormone that has harmful effects on your body (Atsumi and Tonosaki, 2007).
- Anti-inflammatory by stopping the migration of white blood cells to injured tissues to release inflammatory chemicals (de Melo et al., 2011). For this effect to take place the oil needs to be applied topically on the injury or area of inflammation.



Rosemary - Antiviral

- A study into zika virus, showed that a 12.5% dilution of rosemary essential oil repelled 100% of *Aedes aegypti* mosquitoes for 90 minutes; these mosquitoes were known to spread the zika virus (Baker and Grant, 2018; Gillij, Gleiser and Zygadlo, 2008).



Litsea – *Litsea cubeba*

- One of the main components is Citral @ 70% of the oil.
- Research was carried out on the effect the oil had on *E. coli* cells, results showed that once the oil was applied on the cells, the cell growth was lagged and majority of the cells died within the first 2 hours or were heavily damaged, they concluded from this that this oil has a lot of properties to be a natural agent not only to be used in aromatherapy but also as micro bacterial agent (Li et al., 2014).



Litsea - antimicrobial

- Citral combined with aldehydes and alcohol give the oil its strong antibacterial and antiseptic qualities (Backe, 2017).
- Penny Price Aromatherapy use this oil in the Nurture Antimicrobial blend as it works to empower other oil and chemical components in the blend – synergistic.
- Litsea also kills staphylococcus and p.acne bacterias completely



Thyme - *Thymus vulgaris* ct. thymol

- Penny Price Aromatherapy used against MRSA 90% kill
- Often used when recovering from an illness or medical treatment, it prevents infection and treats respiratory infections (Battaglia, 2003).
- Thymol thyme essential oil is extracted from a medicinal herb which makes the oil acts as an antiseptic, antifungal and bactericidal (Essoil, 2016).
- High in phenols (thymol) so the oil is Anti-bacterial,
- Anti-Microbial and Anti-septic
- Commonly used in medical applications.



Oregano – *Origanum compactum*

- Purported historically to have healing properties.
- It has antimicrobial, antiviral and antifungal properties. In addition compounds in oregano oil are also potent antioxidant, anti-inflammatory, antidiabetic, and cancer-suppressor agents (DMU 2014)
- Carvacrol has been found to kill bacteria and viruses—even cancer cells (Schwarz 2018)
- Penny Price Aromatherapy has used in an in vivo MRSA study where there was complete 100% kill
- High in phenols (carvacrol) so the oil is Anti-bacterial,
- Anti-Microbial and Antiseptic



Lemon – *Citrus limon* - antiviral



- Known to help with exhaustion and depression, reduce inflammation and kill viruses and bacteria (Rose Wilson and Watson, 2019).
- Lemon essential oil is also known to help with cold and sore throats, and it promotes wound healing.
- Lemon essential oil contains vitamin C, and it has antimicrobial and antioxidant properties which help disinfect wounds and helps with faster healing (Aboelhadid et al., 2016).

Eucalyptus radiata

- The combined chemical components of the oil have powerful properties (α -pinene (15–21%), 1,8-cineole (57–71%), limonene (5%), *p*-cymene (0.3–1%))
- Known for its ability to reduce and eliminate harmful surface and airborne bacteria upon contact (New Directions, 2017).
- If the oil is used in its vaporised form it helps to clear sinusitis, stuffy nose, and stops coughs and colds from spreading (Lyth, Charles and Howell, 2020).



Eucalyptus radiata - antiviral

- Eucalyptus oils in general that contain cineole 1.8 are considered to be 'cell protective' in that upon entering a cell, it helps maintain original DNA and that the oils also have shown bacteriostatic activity to prevent growth of organisms (Revill, 2005)
- Effective for the common cold virus and also useful for cold sores (herpes simplex) showing antiviral activity in both cases (Price, 1994)



Clove - *Syzygium aromaticum*

- Used as an antimicrobial and pain reliver
- Also used to cure respiratory conditions like cough and asthma (Seladi-Schulman and Sullivan, 2019).
- A study showed that the oil has the ability to kill *Staphylococcus* bacterial cells in biofilms (Chamdit et al, 2012). The interesting about biofilms is that a lot of antibiotics do not have the ability to penetrate a biofilm, but clove essential oil does.
- Another study looked at how clove oil had effect on bacteria which cause pneumonia and influenza. Clove had antibacterial activity when added to liquid or when introduced as a vapour (Ács et al., 2018).
- Up to 90% eugenol, a powerful antimicrobial agent.



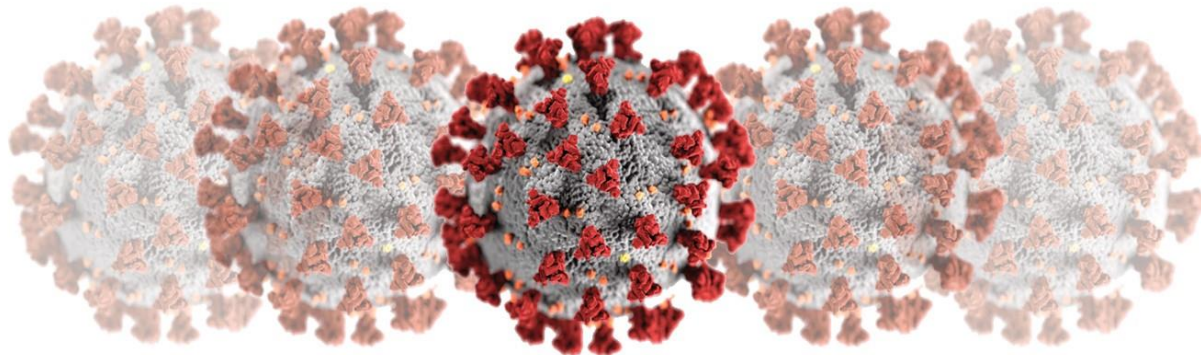
Cinnamon - *Cinnamomum zeylanicum*

- Contains cinnamaldehyde and eugenol, these give the oil its many properties such as its ability to eliminate bacteria and prevent growth of fungi (Rao and Gan, 2014).
- Research has shown that the components within the oil have an antimicrobial effect against bacteria's such as *Pseudomonas aeruginosa*, this is a life threatening, drug resistant bacteria that affects people and animals (Utchariyakiat et al., 2016).



Summary of essential oils

- The oils I have spoken about in this presentation are not the only essential oils that are antimicrobial
- Read and explore for yourself, as knowledge is the key to confidence and confidence is the key to making a great therapist
- Remember that there is no evidence yet that any of the essential oils can combat Covid-19



Soaps

- Adding your essential oils to soap for handwashing seems a very sensible idea given that studies have shown using a bar of soap is more effective at removing microbes for longer than liquid soap (express.co.uk)
- To every 100gm of soap bar melted add:
 - 5 drops anise star
 - 5 drops litsea
 - 5 drops eucalyptus radiata
- Wash hands for a full 20 seconds regularly
- <https://www.theguardian.com/commentisfree/2020/mar/12/science-soap-kills-coronavirus-alcohol-based-disinfectants>
- <https://www.weforum.org/agenda/2020/03/coronavirus-soap-covid-19-virus-hygiene/>
- <https://www.vox.com/science-and-health/2020/3/11/21173187/coronavirus-covid-19-hand-washing-sanitizer-compared-soap-is-dope>



Sanitising hand gel

- Follow the washing of hands with a good hand sanitiser
- These need to have 70% of denatured alcohol in the blend to be called sanitising

- Recipe with alcohol:
 - 70ml denatured alcohol
 - 30ml water
 - ½ tsp xanthan gum*
 - 15-20 drops essential oils

• *Natural thickening agent

- Recipe without alcohol
 - 70ml water
 - 30ml aloe vera gel
 - ½ tsp xanthan gum
 - 5 drops clove
 - 5 drops litsea
 - 5 drops tea tree
 - 2 drops oregano



Hand and Body lotions

- Using and hand and/or body lotion after showering or washing hands is proven to improve protection from microbes. Covid-19 particularly does not like oily surfaces so this could be used after hand sanitiser
- Recipe
 - 90ml good quality base moisturiser
 - 9ml almond sweet oil
 - 10 drops lemon oil
 - 10 drops eucalyptus radiata oil
 - 5 drops rosemary oil
 - 5 drops oregano oil



Room fragrances

- Penny Price Aromatherapy make 2 room fragrances that are antimicrobial.
- Recipe 1
 - 2.5ml Anise Star
 - 2.5ml Thyme thymol
 - 2.5ml Pine
 - 2.5ml Lavender true
- *Pinus sylvestris* helps to prevent airborne diseases. Pine on its own can be used inside the septum*
- Use both recipes in the vaporizer, the bath, in the wash.
- *to protect airways



- Recipe 2 – Thieves oil
- 2ml Rosemary Cineole oil
- 2ml Eucalyptus Radiata
- 2ml Cinnamon oil
- 2ml Clove oil
- 2ml Lemon oil



Rollerballs



- A pocket-assistant to instant help
- Handy to use, easy to carry
- Use for stress, anxiety, breathing etc. or an antiviral roll-on for above and around the nose
- Recipe
- 9ml coconut oil
- 10 drops rosemary oil
- 10 drops star anise
- 10 drops lemon

Nasal Inhalers



- Nasal inhalers are the perfect route to the lungs. To protect and prevent, these inhalers should be inserted fully into each nostril and used through the day.
- They can also be used via the mouth for asthma
- Recipe
- 0.25ml each Pine (*pinus Sylvestris*), Lemon and Rosemary (7 drops of each) straight onto the inner absorbent wadding and fix cap

Safety considerations

- The table on the following slide will show dilutions for various client groups
- Do NOT use any of the oils in this presentation as a single oil– always blend them with others. They are all safe in the dilutions suggested in synergy
- Take advice from the recipes given, oils should be blended together for safety
- Patch tests should always be done if your client is sensitive 24 hours previously



Safety considerations

DILUTIONS	5ML BOTTLE	10ML BOTTLE	50ML BOTTLE	100ML BOTTLE	APPLICATION
0.5%	N/A	1 drops	7 drops	15 drops	Skincare, facial blends, any products for babies, the elderly and infirm or delicate
1%	1 drop	3 drops	15 drops	30 drops	For use on older children, and healthy elderly
2%	3 drops	6 drops	30 drops	60 drops	Massage blends for normal use, body creams, lotions and oils for therapeutic benefits.
3%	4 drops	9 drops	45 drops	90 drops	Massage blends for sporty, healthy or overweight people, treatment oils
10%	15 drops	30 drops	150 drops	300 drops	Rollerballs only
100%					Vaporisers, nasal inhalers, bath drops only. Do not use undiluted

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Conclusion

- There are many different molecules that are antimicrobial in essential oils.
 - Monoterpenes are antimicrobial and are in every essential oil
 - Other components such as alcohols, phenols, aldehydes and oxides have varying degrees of antimicrobial activity
 - Products containing these oils for ourselves, our families, friends and clients could help to protect us and keep us well
 - For more information please get in touch with me
- THANK YOU FOR LISTENING 😊

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