



## Student Study Guide & Test Questions

*Aromatherapy and Herbal Remedies for Pregnancy, Birth, and Breastfeeding* (2015) by Demetria Clark

**CLASS: A125**

### Introduction

1. If an essential oil blend or herbal remedy makes someone, especially a pregnant woman, feel funny or ill they should:
  - A. Change the channel
  - B. Post on social media
  - C. Stop using it
  - D. Turn on some music

### Introduction to Aromatherapy and Essential Oils

2. The limbic system of the brain is directly involved in olfaction. This is how we sense and respond to what we smell. The limbic system responds to scent by:
  - A. Influencing physical, emotional, and mental health
  - B. Releasing chemicals that affect the central nervous system
  - C. Making our ears ring
  - D. Both A & B
3. (True or False) Every brain processes scent in the same way.
  - A. True
  - B. False
4. (True or False) Pregnant women often have a heightened sense of smell.
  - A. True
  - B. False

**NOTE:** Essential oils are very concentrated. For example, it takes 30 to 50 rose blossoms from the species to make a single drop of Rose Otto (*Rosa damascna*) essential oil! This is why rose oil is very expensive and also why one often finds it for sale already diluted. Pre-diluted essential oils are not necessarily a bad thing - as long as you know up front that is what you're buying, of course. Proper dilution ratios serve to make them ready to be used right away and dilution can make those high-priced oils more affordable.

## Essential Oils

5. Match the description to the correct method of extraction.

### Method of Extraction

\_\_\_ Distillation

\_\_\_ Expression

\_\_\_ Absolute

\_\_\_ Hydrosol

### Descriptions

- A. The aromatic water that remains after distillation.
- B. Heating plant material with steam to cause the release of aromatic oils, which are then cooled, condensed, and collected.
- C. An impure oil obtained by chemical extraction.
- D. Extracting the essential oil out of a plant by physically pressing without the use of heat.



6. Match the description to the correct aromatherapy application.

### Method of Extraction

\_\_\_ Body Sprays

\_\_\_ Liniments

\_\_\_ Massage Oils

\_\_\_ Salves

### Descriptions

- A. A combination of carrier oils and either essential oils or infused oils.
- B. Thicker than a cream or lotion and usually made using beeswax, oils, and essential oils to apply to the skin.
- C. Used to tone the skin, cooling, and refreshing.
- D. A combination of food-grade alcohol and essential oil(s) that are rubbed into muscles, strains, and inflammation of the ligaments to provide pain relief.

7. Why should only pure essential oils be used in a diffuser?
- A. You might not like the scent
  - B. You could breathe in harmful chemicals and synthetics
  - C. You might start feeling tired
  - D. It makes the diffuser dirty
8. Which type of diffuser is considered one of the most therapeutic?
- A. Ultrasonic
  - B. Nebulizing
  - C. Candle
  - D. Evaporative
9. (True or False) Always select 'therapeutic grade' essential oils. This is an international standard that is important to guarantee safety.
- A. True
  - B. False
10. (True or False) When doing a patch test it is not necessary to use diluted essential oils.
- A. True
  - B. False



**NOTE:** There are various methods of blending essential oils, the "Top, Middle, and Base" is only one method and not necessarily the most therapeutic.

### **Essential Oils for Pregnancy, Labor, and Breastfeeding**

11. Which essential oils are NOT safe to use during pregnancy, but ARE safe to use during the postpartum period?
- A. Black Pepper, Lemon, Sweet Orange
  - B. Cypress, Geranium, Rosemary
  - C. Grapefruit, Mandarin, St. Johnswort
  - D. Both A & C

12. Of the essential oils to avoid, which one may be useful during labor?

- A. Calamus
- B. Wintergreen
- C. Star Anise
- D. Clary Sage

## Introduction to Herbal Remedies



**NOTE:** Aromatherapy is a subcategory of herbalism where essential ‘oils’ are extracted from various plant materials. They are aromatic and volatile constituents that are light enough to carry over along with the heated water vapor which is then cooled. This causes the “oil” to separate from the remaining ‘water’ which is called a hydrosol. Therefore, the essential oil is a very concentrated, tiny part of the medicinal qualities of the entire plant.

In traditional herbalism, the “essential” oils in plants significantly affect the synergy of the other herbal components. Because of this, it is important to understand that the concentrated essential oil and the herbal remedy may not produce the same effects.

13. (True or False) Herbal remedies may be used both externally and internally.

- A. True
- B. False

14. (True or False) Traditionally, women have made the herbal medicines their families needed.

- A. True
- B. False

15. (True or False) All the phases of pregnancy, labor, delivery, and the postpartum period require the same herbal remedies.

- A. True
- B. False

~ If you are enjoying learning about herbs and using herbal remedies to support health naturally, you might consider the herbalism programs at Genesis. ~

16. Match the description to the correct method of extraction.

**Method of Extraction**

- \_\_\_ Decoction
- \_\_\_ Infusions & Teas
- \_\_\_ Extracts & Tinctures
- \_\_\_ Lozenges
- \_\_\_ Syrups
- \_\_\_ Compresses, Poultices, Plasters
- \_\_\_ Liniments
- \_\_\_ Salves

**Descriptions**

- A. An emollient that provides a barrier protection for the skin along with medicinal benefits.
- B. A cloth soaked in an infusion or containing fresh or dried herbs and applied cold or warm respectively.
- C. A remedy made by soaking plant parts in liquid or oil.
- D. A portable herb preparation dissolved in the mouth.
- E. A concentrated liquor.
- F. An extraction made with herbs and food-grade alcohol, oil, or vinegar and used topically.
- G. Sweetened, medicinal decoctions for oral consumption.
- H. Medicinal preparations made from herbs and food-grade alcohol.

17. (True or False) Herbs selected for medicinal purposes must be either organic or responsibly wildcrafted.

- A. True
- B. False

**Herbs for Pregnancy, Labor, and Breastfeeding**

18. Blackberry leaves (*Rubus fruticosus*) are safe during pregnancy and lactation. Blackberry leaf tea is beneficial for:

- A. Stimulating digestion
- B. As a uterine stimulant
- C. Quickly relieving diarrhea
- D. All of the above

19. During pregnancy spearmint leaves (*Mentha spicata*) are a particular favorite because it:
- A. Is a sleep aid
  - B. Helps indigestion, nausea, and gas
  - C. Helps relieve coughs
  - D. All of the above
20. Violet flowers and leaves (*Viola odorata*) are very safe to use during pregnancy. Violet is helpful for the following reasons:
- A. Is a mood enhancer
  - B. Relieves tension & stress
  - C. Helps to treat coughs & colds
  - D. Both B & C



**NOTE:** One-half cup of raw violet leaves and flowers has the same amount of vitamin C as three oranges. Enjoy *Viola odorata* some in a salad!

(Do not confuse violets with the African violet plant which has fuzzy leaves, is from a different plant family, and is NOT edible.)

## Making Your Own Aromatherapy and Herbal Remedies

21. (True or False) All aromatherapy remedies are used topically or inhaled; essential oils and aromatherapy remedies should never be ingested.
- A. True
  - B. False

“An easy way to enjoy aromatherapy is to add essential oils to a bath. All you need per bath is 1 teaspoon to 1 tablespoon of an essential oil or blend. A little goes a really long way. Make sure the essential oil or blend is adequately dispersed in the water.” (Quoted from page 78.)

While certain authors may recommend this, it is an unsafe practice especially when there is possibility of essential oils making contact with mucosal tissue. We do not recommend any oil and water remedy without an emulsifier for baths, compresses, or any other remedial.

**Oil and water DO. NOT. MIX. ...ever!**

Take a moment and read the attached blog entitled **Essential Oils & Water Don't Mix**. It is on pages 16 thru 18 of this study guide. Read it to answer the next two questions.

22. Select the correct emulsifier facts. Emulsifiers:

- A. Evenly disperse essential oils throughout the water so they don't float or sink
- B. Have two different electrical charges, one for water and one for oil
- C. Should be mixed with essential oils prior to putting in water
- D. Are more soluble in water forming 'oil-in-water' emulsions
- E. All of the above

23. Which of the following are substances that are NOT recommended as emulsifiers:

- A. Castile Soap
- B. Modified Tapioca Starch
- C. Epsom Salt
- D. Both B & C

*Resume reading the text on page 78. Thank you!*



**NOTE:** Label, label, label, and then label! When making and storing your own various blends whether they be essential oils or herbal blends always be sure to attach a label and keep a notebook with an accurate record of the formula.

Aromatherapy scents take time to 'cure' for that final aroma. If you later decide you really love your creation or want to modify it, you will be glad to have written down all the specifics.

24. (True or False) Rubbing alcohol is the wrong kind of alcohol and should never be used to make a liniment. Always use food grade alcohol or a witch hazel made with food grade alcohol (not all of them are).

- A. True
- B. False

25. (True or False) A compress is delivered hot. A fomentation is delivered cold or warm.

- A. True
- B. False

26. A sitz bath is useful for applying medicinal herbs to the area between the vagina and anus. It is beneficial for the following ailments:
- A. Hemorrhoids
  - B. Frozen Shoulder
  - C. Postpartum Pain & Swelling
  - D. Both A & C

### Remedies for Pregnancy

27. The need for iron increases during pregnancy because it aids red blood cells in carrying oxygen to all parts of the body. Anemia occurs because of a deficiency of iron. Which of the following are potential signs and symptoms of anemia?
- A. Pale Fingernail Beds, Skin Pallor, Sore Tongue
  - B. Drowsiness, Fatigue, Headaches & Dizziness
  - C. Lack of Appetite, Nausea & Vomiting
  - D. All of the above
28. (True or False) Blackstrap molasses may be a good source of dietary iron for some women.
- A. True
  - B. False



**Holistic Health Tip:** Blackstrap molasses is a high-glycemic-index food that raises blood sugar. Women with diabetes or a propensity towards gestational diabetes should use other natural sources of iron.

**Food Sources of Iron:** Calves liver and organ meats, red meat, spinach, legumes, pumpkin seeds (pepitas), quinoa, turkey (dark meat), and broccoli (and other cruciferous vegetables).

29. Non-pharmaceutical remedies for anxiety include:
- A. Taking Walks, Relaxing, Meditating, Stretching
  - B. Diffuse essential oils blended to relieve anxiety
  - C. Drink an anti-anxiety tea
  - D. All of the above

**NOTE:** The current advised treatment for low back strain is to reduce the initial swelling by applying ice to the area for 20-30 minutes every 3-4 hours for 2-3 days. Then, after 2-3 days of ice, apply heat or soak in a hot bath. Low Back Strain, WebMD

**Holistic Health Tip:** When feces sit in the colon too long, water is reabsorbed into the body along with toxic metabolic waste products that should have been eliminated through a bowel movement. Natural health professionals recognize the importance of having regular bowel movements and consider less than one bowel movement each day to be constipation. Adequate hydration (drinking lots of pure water – reverse osmosis or distilled) helps the feces to remain soft and lubricated while exiting the body. Drink six to eight 8-ounce glasses each day.

Additionally, eat lots of fresh fruit and dried fruits such as prunes, raisins, and figs. Consume fresh raw vegetables and colorful salads, and take a walk (about a mile) every day.

Lastly, until the modern invention of the toilet people used to squat to defecate. This is the most natural position as it relaxes the anal muscles. “Squatty Potty” is a well-known brand of what is called a ‘toilet stool’. They elevate the feet helping to create a squat position while one is comfortably sitting on the toilet. There are many different makes and designs to choose from and they can be found in most big-box stores.

30. (True or False) Dizziness during pregnancy can just be ignored. There are no serious problems ever associated with it.
- A. True
  - B. False
31. Which of the following can help with fatigue that occurs early in pregnancy due to hormonal changes?
- A. Proper nutrition with hydration, herbs, and exercise
  - B. Drink an anti-anxiety tea
  - C. Consume lots of sweets and caffeine
  - D. All of the above
32. Diffusing essential oils may be helpful for ameliorating a headache: Which ones are most likely to be beneficial?
- A. Ylang-ylang, Pine, Patchouli, Spearmint, Rosemary, and/or Tangerine
  - B. Spearmint, Sweet Orange, Lavender, Lemon, Tea Tree, and/or Peppermint
  - C. Helichrysum, Basil, Peppermint, Cinnamon, Clove, and/or Vetiver
  - D. Both A & C

33. Heartburn is so uncomfortable. Which type of essential oils should you reach for?

- A. Citrus
- B. Resin
- C. Pine
- D. Floral

34. (True or False) Lemon balm tea is not only delicious but it is an effective nervine and antiviral that can suppress a herpes outbreak when used both topically and internally.

- A. True
- B. False

35. (True or False) A bouquet of dried lavender by the bedside may help insomnia.

- A. True
- B. False

36. Chronic dehydration can cause:

- A. Constipation
- B. Fainting
- C. Low Amniotic Fluid
- D. All of the above



**Holistic Health Tip:** Magnesium is involved in over 300 bodily processes; therefore, a deficiency shows up in a lot of ways. Leg cramps may be one symptom of magnesium deficiency. It is difficult to get enough magnesium from foods because many soils are deficient and that deficiency transfers over to the foods grown in that soil.

Studies have found that pregnant women who supplemented with magnesium had fewer complications related to pregnancy such as preeclampsia, gestational diabetes, premature labor, low birth weight, and other complications. According to the University of Zurich, Switzerland's study of 568 women, "Magnesium supplementation during pregnancy was associated with significantly fewer maternal hospitalizations, a reduction in preterm delivery, and less frequent referral of the newborn to the neonatal intensive care unit. The results suggest that magnesium supplementation during pregnancy has a significant influence on fetal and maternal morbidity both before and after delivery." Magnesium Supplementation in Pregnancy. A Double-Blind Study

Morbidity in the medical sense indicates the rate at which illness or disease occurs in the group being studied. In this case, there was significantly less disease among pregnant women who supplemented with magnesium.

The BRAMAG (BRAzil MAGnesium) trial consisted of 2,000 women. As countries like Brazil have a higher preterm birthrate, they are searching for a solution. Magnesium citrate, may just be that solution. In their study they found that oral Magnesium citrate did lower the risk of preterm birth, perinatal mortality, neonatal morbidity, SGA (or small for gestational age) birthweight, and had a positive impact on maternal morbidity and mortality. They expect this simple intervention to save lives and reduce maternal and early childhood disability. The BRAzil MAGesium (BRAMAG) trial: a randomized clinical trial of oral magnesium supplementation in pregnancy for the prevention of preterm birth and perinatal and maternal morbidity

Magnesium citrate has good absorption and it has a laxative effect which may benefit women who are dealing with constipation. Magnesium glycinate is one form that has good bioavailability with less of a laxative effect. Magnesium oxide is not recommended for regular use but it does work, in sufficient amounts, as a laxative.

**Food sources:** Salmon, spinach, chard, pumpkin seeds (pepitas), yogurt, goat cheese, kefir, almonds, cashews, peanuts, black beans, artichokes, avocado, figs, and bananas. Foods that are good magnesium sources are usually high in fiber.

37. Herbs that are helpful for allaying morning sickness are which of the following:

- A. Ginger, Lavender, & Peach Leaves
- B. Cinnamon, Chamomile, & Elder Berries
- C. Raspberry Leaves, Peppermint, & Spearmint
- D. Both A & C

38. Beneficial herbal teas for preeclampsia include:

- A. Dried Dandelion Leaves
- B. Dried Nettles
- C. Dried Raspberry Leaves
- D. All of the above

**Holistic Health Tip:** Sciatica can also be caused by constipation when the sciatic nerve is compressed by the external pressure from the feces within a distended colon. Constipation is common during pregnancy. It is one of only a few non-spinal conditions that can be a factor in sciatica. Another one is childbirth. To prevent constipation, increase water intake and add more raw fruits and vegetables to the diet.

39. Herbs and foods can sometimes be the same! Which foods are beneficial to be eaten for Pruritic Urticarial Papules and Plaques of Pregnancy (PUPPP)?
- A. Oats, Plantains, & Leafy Greens
  - B. Potato Chips, Pizza, & Soda Pop
  - C. Ice Cream, Chocolate Chip Cookies, & Brownies
  - D. All of the above
40. Which of the following remedies are suitable for round ligament (pelvic girdle) pain?
- A. An inexpensive maternity belt
  - B. A warm St. Johnswort oil compress
  - C. A few drops of Rose essential oil in a bath
  - D. All of the above



**Holistic Health Tip:** Boosting the immune system and eliminating sugar, grains, and alcohol (for the baby's sake too) will help keep yeast infections at bay. Eating live plain yogurt (with the probiotic cultures) as well as inserting high quality probiotic yogurt into the vagina during times when one can lie down and rest is still a time-honored natural remedy for yeast infection. Catch it in the bud before it becomes a big problem.

## Remedies for Labor & Delivery

41. (True or False) Herbal remedies are not designed like drugs which force the body into the desired results. Rather they are intended to support the body in its natural processes. Herbal remedies can be a great alternative to pharmaceutical drugs.
- A. True
  - B. False
42. (True or False) Childbirth is not an illness; it is a beautiful and natural process. Drugs, herbs, and essential oils are not required for a successful birth. However, aromatherapy and herbal remedies may be helpful to facilitate comfort and safety during the birthing process.
- A. True
  - B. False

43. (True or False) Aloe vera gel may be helpful for those experiencing back labor.
- A. True
  - B. False
44. The best aromatherapeutic spray blend for the transition room would be:
- A. Lemon, Lime, White Sage, & Tangerine
  - B. Vanilla, Vetiver, Helichrysum, & Bergamot
  - C. Mandarin Orange, Lavender, Bergamot, & Clary Sage
  - D. Spearmint, Pine, Cassia, & Grapefruit
45. Herbal tinctures that can help deliver the placenta naturally, include: (Select the 3 correct herbs.)
- A. Raspberry Leaf
  - B. Angelica
  - C. Blue Cohosh
  - D. St. Johnswort
46. (True or False) A basil leaf infusion drunk hot by the cupful may encourage the body to release a delayed placenta.
- A. True
  - B. False
47. (True or False) Mothers who take care of themselves by eating a high-quality diet and getting plenty of rest during pregnancy are at higher risk for hemorrhage than those who do not.
- A. True
  - B. False

### **Remedies for Breastfeeding & Other Postpartum Concerns**

48. To increase the nutrition and quantity of available breastmilk:
- A. Use herbal remedies for nutrition & breastfeeding support
  - B. Drink freshly made fruit & vegetable juices
  - C. Take proper care of the breasts
  - D. Drink lots of pure water

- E. All of the above
49. (True or False) Once the baby is born (postpartum), the mother can eat whatever she wants.
- A. True
  - B. False
50. (True or False) Aromatherapy and herbal remedies can help a breastfeeding mother relax.
- A. True
  - B. False
51. Relaxing essential oils such as Clary Sage, Sweet Orange, Lavender, and \_\_\_\_\_ can be diffused to support a relaxed, peaceful state for the new mother.
- A. Eucalyptus
  - B. Chamomile
  - C. Black Spruce
  - D. Pine
52. (True or False) Galactagogue herbs help support the mother's breastmilk production and increase its volume.
- A. True
  - B. False
53. Warm \_\_\_\_\_ compresses may help with Mastitis:
- A. Nettle Leaf
  - B. Calendula
  - C. Blue Cohosh
  - D. Raspberry Leaf
54. Hormonal fluctuations may cause postpartum depression. Which of the following remedies can help? (*Select all that apply*)
- A. The Herbs: Lemon Balm, Chamomile, & Oats
  - B. Breastfeeding
  - C. Blue Cohosh
  - D. Support from Friends & Family

55. An aromatherapy remedy for afterpains which both encourages uterine contractions and relief from afterpains is:
- A. Rose Absolute
  - B. Ginger Root CO2
  - C. Jasmine Absolute
  - D. Turmeric CO2
56. (True or False) Eating pineapple is remedial for pregnancy-induced carpal tunnel syndrome.
- A. True
  - B. False
57. A tea that can help restore connective tissues includes which of the following herbs:
- A. Barberry, Thyme, Rosemary, Oat Straw, Yarrow
  - B. Senna, Wormwood, Dandelion Leaves, Poke Root
  - C. Alfalfa, Horsetail, Oat Straw, Dandelion Leaves, Marshmallow Root
  - D. Yellow dock, Coltsfoot, Mullein, Elder Berry, Linden Blossom

~ END OF TEST ~

**THE “ESSENTIAL OILS & WATER DON’T MIX” ARTICLE IS ON THE NEXT PAGE**

# Essential Oils & Water Don't Mix

by [Darlene Jorgens](#)

While it is common in the “world of aromatherapy” to be encouraged to simply add essential oils to a bath, to a foot bath, or to a compress with only water, you may want to think twice. Let's discuss why...Oil & Water.... DO. NOT. MIX!

***Pure, unadulterated, and undiluted essential oils are 'hydrophobic'.***

Pure, unadulterated, and undiluted essential oils will not disperse in water. Why? Because they are 'hydrophobic'. In other words, they do not blend with or disperse in water.



Most essential oils are lighter than water and will float on top. There are also certain essential oils that are more dense than water, a few examples being vetiver, cinnamon, and clove. These essential oils will sink to the bottom. Regardless of where the essential oils lie, they will not disperse into the water. By separating to the top or the bottom, they will then adhere to whatever passes through the water like skin, or a cloth that then gets applied to the face, arms, or sensitive parts.

***When adding essential oils to water special consideration should be given to children, pregnant women, and the elderly as their skin is much more sensitive than the typical adult.***

Essential oils can be especially damaging to mucosal areas of the body and if inadvertently splashed into the eyes. Citrus oils which are relatively mild topically, may become an irritant when used for bathing. One should also take into consideration that the skin of children, pregnant women, and the elderly is much more sensitive than that of the typical adult.

***How to fix this problem?***

The answer is to “solubilize” the essential oil prior to putting it in the water. Solubilization is the process of evenly dispersing essential oils throughout the water so they will not either float or sink. The medium used to accomplish this is called an emulsifier.

An emulsifier works because it has two parts, one with an electric charge that dissolves in water but not in oil, and the other part that will dissolve in oil but not water. Emulsifiers that are more soluble in water than oil will form ‘oil-in-water’ emulsions. They blend smoothly with water molecules, something that carrier oils cannot do.



This is exactly what is needed for essential oils, so while you may choose to skip this step for yourself (don't say I didn't tell you so), please don't add essential oils to bath water, foot baths, or compresses for others without first mixing them with an emulsifier.

A very nice option to use as an emulsifier is modified tapioca starch. Modified Tapioca Starch is derived from the starch of the cassava plant while the flour comes from the root of it. When used for food and pharmaceuticals, the starch is treated or "modified" which causes partial degradation. Modified starch is used as thickener, stabilizer, tablet disintegrant, and in the case of mixing oils and water, an emulsifier!

The word modified in this instance does not refer to genetic modification. It refers to the processing required to end up with a product suitable to endure a greater range of temperatures, both heat and freezing temperatures, acidity, increased shelf life, and in this case as an emulsifier. You will want to make sure the product you select is labeled non-GMO.

To prepare, put 2 tablespoons of modified tapioca starch into a small glass bowl. Next, add 5 to 20 drops of essential oil(s) and stir until completely mixed. The amount of essential oil you choose will depend upon the type of oil, the age of the person, and the condition being treated (or whether it is simply for enjoyment.) Then this can be added to the bath.

Castile soap is another option. While some varieties come already scented, Dr. Bronner's hemp baby soap is unscented and useful for creating your own blends. Mix 5 to 20 drops of essential oil(s) into one tablespoon of Castile soap. Shampoo or body wash may also be used.

A third, less-desirable option would be to use a carrier oil or vegetable oil in the same proportions as the Castile soap. The essential oils will be diluted in the carrier, but still float around the top of the water because the carrier will float as well. Regular coconut oil is not recommended as it tends to build up in the pipes after use. Less greasy oils that would make better selections would be fractionated coconut oil and MCT oil.

### ***Substances that are not emulsifiers...***

Robert Tisserand, essential oil safety expert recommends that the following items not be used in place of an emulsifier: milk, salt (including Epsom salt), soda, cornstarch, witch hazel, glycerin, or any form of aloe vera. Any clays, including Bentonite clay are also not recommended.



These substances are not emulsifiers. They are all water-soluble and will dissolve once in water releasing the essential oils into the bath. The result will be just as though nothing had ever been used. ***...just as though nothing had ever been used.***

***Although commonly used in cosmetics, pharmaceutical drugs, vaccines, and even food, the following emulsifiers are not recommended.***

### **Polysorbate 20 –**

Although polysorbates in their original form are sorbitol, which is a harmless sugar alcohol, when it is used in personal skin care products it is treated with 20 parts of ethylene oxide. At that point it becomes contaminated with 1,4-dioxane which is a known animal carcinogen and likely human carcinogen that readily penetrates the skin and has been connected with skin allergies.

“The Organic Consumers Organization, adopting information from the Campaign for Safe Cosmetics, released a fact sheet on 1,4-dioxane. They report that the levels of 1,4-dioxane found in many personal care products are 1,000 times higher than those found to cause cancer in animal studies. They add that according to the FDA, ‘Skin absorption studies demonstrated that dioxane readily penetrates animal and human skin from various types of vehicles. This can be especially concerning if you’re taking a hot bath or shower. As your pores open up, your skin could be taking in even more of the 1,4-dioxane in the product.’<sup>1</sup>

### **Polysorbate 80 –**

One characteristic of polysorbate-80 is that it has the ability to solubilize the blood brain barrier (BBB). We know that it is a skin irritant and eye irritant and hazardous when ingested or inhaled. In mice studies, polysorbate-80 has been found to cause adverse reproductive effects, is mutagenic, and cancer-causing on animals. Unfortunately, there does not appear to be human data available. It is considered safe while virtually untested on humans.

Dr. Randy Baker, Holistic Medicine, University of Michigan Medical School says “I consider polysorbate 80 moderately toxic; while occasionally eating it will not kill you, it may be a carcinogen, aggravate colitis, cause allergies, aggravate cardiovascular disease etc. It depends on how much you ingest but it’s best to minimize all processed foods and emphasize whole organic foods.<sup>2</sup>

While the Polysorbate 80 molecule is considered too large to penetrate the skin, external use as an emulsifier may be an option if one of the options listed above are not preferred. When using essential oils remember to consider each person’s bio-individuality, age, health issues, and sensitivities. Less is always more with essential oils!

***~ Less is always more with essential oils! ~***

#### **References:**

1 [Annmarie Skin Care, Ingredient watch list: Polysorbate 20-It may be contaminated with carcinogenic 1,4 dioxane, September 13, 2019](#)

2 [HealthTap](#)

#### **Resources:**

[Tisserand Institute, Bath Safety: how to use essential oils safely in the bath](#)