BEYOND the DROP

Carriers for Aromatherapy

scent in carrier oils & lipid compounds

fresh, natural, refined or not, old and oxidized, all oils have specific scents

Lesson #15

scents in carrier oils

Carrier oils have scents too. But it's not their scent they are known for, or particularly wanted.

As natural plant products, they carry various aromas from the pressing of the seed, whether it is an aroma unique to an individual oil, a botanical family, or the processing that brings out the aroma.

Oils from tropical fruits can have fruity scents that smell good, unless they tip towards the scent of overripe fruit, which takes on a too-pungent smell.

The refining process determines the scent outcome of carrier oils, from pungent crude to moderate refining, or all the way to the removal of every non-fatty acid element, leaving no scent at all.

scent in carriers

The aromatherapist can choose to work with only highly refined oils, but that closes the door to the rich and therapeutic unsaponifiable compounds that add to the power of carrier oils.

Since this course is for both novice and experienced aromatherapists, the presence of scent in the carriers is a point of interest.

We covered the refining of oils and how they can arrive on the doorstep in a wide range of colors, textures, and scents.

Thirty years ago, carrier oils were fewer in number and most were highly refined, lacking any scent.

Today, we can source whole oils that are minimally processed and rich in unsaponifiable matter, including the native scents from the fruits and seeds from which the oils originate.

Guavas and guava seed oil

cooking oils, toasted oils

Oils sourced from natural groceries will deliver high-quality oils in small volumes, allowing you to try new varieties for formulating.

Food oils and skincare oils originate from the same source: the seeds of plants.

However, there can be significant variations in how they are processed and refined, with food oils often more refined so that they can withstand the heat that is part of the cooking process.

We also see toasted oils used to enhance their taste and flavor qualities, such as the best-known, toasted sesame oil.

The seeds are heated to the desired state before pressing for oil, which gives the oil a richer flavor, a taste that is nice for the table, but too strong and food-associated for skin care.

Read labels carefully to purchase non-toasted oils for skincare use.

cucumber

Cucumber seed oil is an interesting example, where the oil can have a rich cucumber scent or none at all.

At one point, I fell in love with a cucumber oil that was richly scented, green, and herbaceous, yet with a true cucumber odor, which became my favorite. I wore it almost as a perfume daily.

Then my supply ran low, and I returned to the original supplier, expecting to receive a similar oil replacement and continue using it for both scent and skin.

To my disappointment, my replacement cucumber seed oil had no scent at all!

My daily scent, my perfume, was gone, leaving a bit of a hole, but it was a powerful education on how oils come to the marketplace.

Cucumber and cucumber seed oil

Theobroma

A few oils are known for the scents natural to them, such as the scent of chocolate in cocoa butter and its cousin, cupuaçu.

Theobroma cacao, and *T. grandiflorum* are richly scented, yet each is distinct and attributed to the divine.

Theo means 'god,' and *broma* means 'nectar,' which usually translates as *the food of the gods,* a variety of plant and butter products native to the deep tropical regions of South America.

The volatile molecules, which form the scent develop naturally during the fermentation, drying, and roasting processes of the cocoa beans. The fat has little scent on its own unless processed.

There are unscented forms of cocoa butter for formulation purposes.

Cocoa pods and cocoa butter

tropical butters

Saturated fatty acids form in the tropical and semi-tropical zones of the earth, where the scents and odors of these fats can pick up strong smoky smells from processing that can be difficult to overcome.

Shea butter, bacuri butter, ucuuba butter, as well as cocoa and cupuaçu from the last lesson, have a strong scent presence that must be considered when formulating.

The art of formulating is in harmonizing with the natural scent of the butter and either embracing the pungency with additional strong scents or using contrast to bring out lighter notes in the butter for a nuanced finish.

Take them as a challenge to meet and improve; they will never be light and floral, but they can be deep and nuanced, even exotic.

Ucuuba butter trial with oil

tropical fruity scents

Oils from the tropics can have very fruity scents, sometimes with the smell of overripe fruit, such as in fruits like Papaya, passion fruit, and guava.

Consider the varieties of fruit, which indicates that each will have its own unique properties, including scent.

Additionally, the producer, who collects and presses the oil, will have a different idea of what the result should be.

This will create a wide variety of carriers where the scents will be widely different without clear themes.

Cold-pressed oils will have a higher volatile content and so a stronger scent, while the age of the seed can also influence the scent of the final oil.

Papaya seed oil

nut oils

Nuts and nut oils can have strong scents reminiscent of the plants from which they originate, such as coconut, peanut, and walnut. I can almost smell them as I type the words, and undoubtedly, there are others.

Coconut has its own distinct scent, as do the other palm oils, unless they are fully refined, which removes their color and taste.

Unrefined versions of coconut are readily available in most grocery stores as well as from online suppliers.

I ordered a gallon of macadamia nut oil years ago, and it carried a strong scent of its wonderful, nutty aroma, but it required some creative formulation to dilute or hide the too-strong smell.

I recommend ordering small samples before stocking up on a large quantity of oil that is difficult to work with.

Macadamia nuts and oil

unpleasant scents

Some oils have very unpleasant odors that can challenge the formulation process.

The smell of sulfur is notorious for its resemblance to rotten eggs and is what causes Neem to be odiferous, smell strongly plus it has bitter triterpenoids, limonoids, azadirachtin, and nimbin.

To harness Neem's healing properties, we can look to the botanical family members that deliver healing compounds without the awful scent.

Andiroba of South America, and its African counterpart, Touloucouna, are scented but mildly with a woody scent and are powerful healers in their own right.

Neem oil, stored in cool temps
can be nearly solid

Rosaceae

Some botanical families have elements that are specific to them, such as fatty acid type and even scent.

The oils of certain nuts and stone fruits, such as almond, apricot, peach, plum, and some cherry oils, can exhibit the marzipan scent of bitter almonds.

Benzaldehyde is the compound that carries the sweet, nutty, almond-marzipan aroma that is so familiar and generally loved.

When carrier oils have this aroma present, it can be strong and overpowering or faint and much easier to work with.

This is a scent of the Rose family tree fruits, and is exclusive to this group of carrier oils.

Fruits and oils from the Rosaceae family

Nigella

Nigella sativa, also known as black seed, produces an oil that is spicy and can be pungent or mild.

Its green, spicy, cumin-like scent is derived from its monoterpene quinone content, specifically thymoquinone.

It is a plant and oil with several common names, which primarily include descriptions of its aroma, such as black cumin, black caraway, onion seed, and coriander; however, it has no biological relation to any of those plants.

The scent of this oil depends on the variety and the method of seed oil production and processing.

Thymoquinone is an exceptionally therapeutic compound that exhibits both antioxidant and anti-inflammatory properties, and classified as a monoterpene quinone.

Nigella pods, seeds and oil

Brassicaceae

Overcooking cabbage can soon lead to a strong sulfurous scent in your kitchen, a distinctive scent signature of the botanical family Brassicaceae.

The same applies to oils from the cabbage family, such as mustard, broccoli seed, arugula, cabbage, radish, or camelina oils, which often have a distinct, sometimes sharp, vegetal or light sulfurous scent.

When the seeds are processed and pressed, compounds that give rise to the distinctive cabbage scent are released.

Sulfur–nitrogen glycosides undergo enzymatic hydrolysis to yield the volatile sulfur compounds making refining essential for these oils to remove as much of the compounds as possible.

These are wonderful oils for the skin, with protective, very-long carbon chains, so don't shy away from them, but use them in smaller percentages with milder oils.

Colorful cauliflower

Apiaceae

Oils extracted from seeds in the plant kingdom contain a diverse array of compounds unique to each seed type.

When dealing with highly aromatic seeds, especially those distilled for their volatile compounds, it follows that the pressed oil will also possess a strong aroma.

The aromatic carrot family, which includes petroselinic acid, a unique fatty acid, produces carrier oils that can often feel as though they are infused with the essential oil.

Coriander oil, in particular, is remarkable; it is rich in monoterpenes, including linalool, that impart the fresh, woody, and citrusy scent to the oil.

Similarly, the oils from carrot seed and parsley seed are also strongly aromatic, provided their scents have not been refined or removed.

Coriander seeds and lipid oil

infusing plant scents

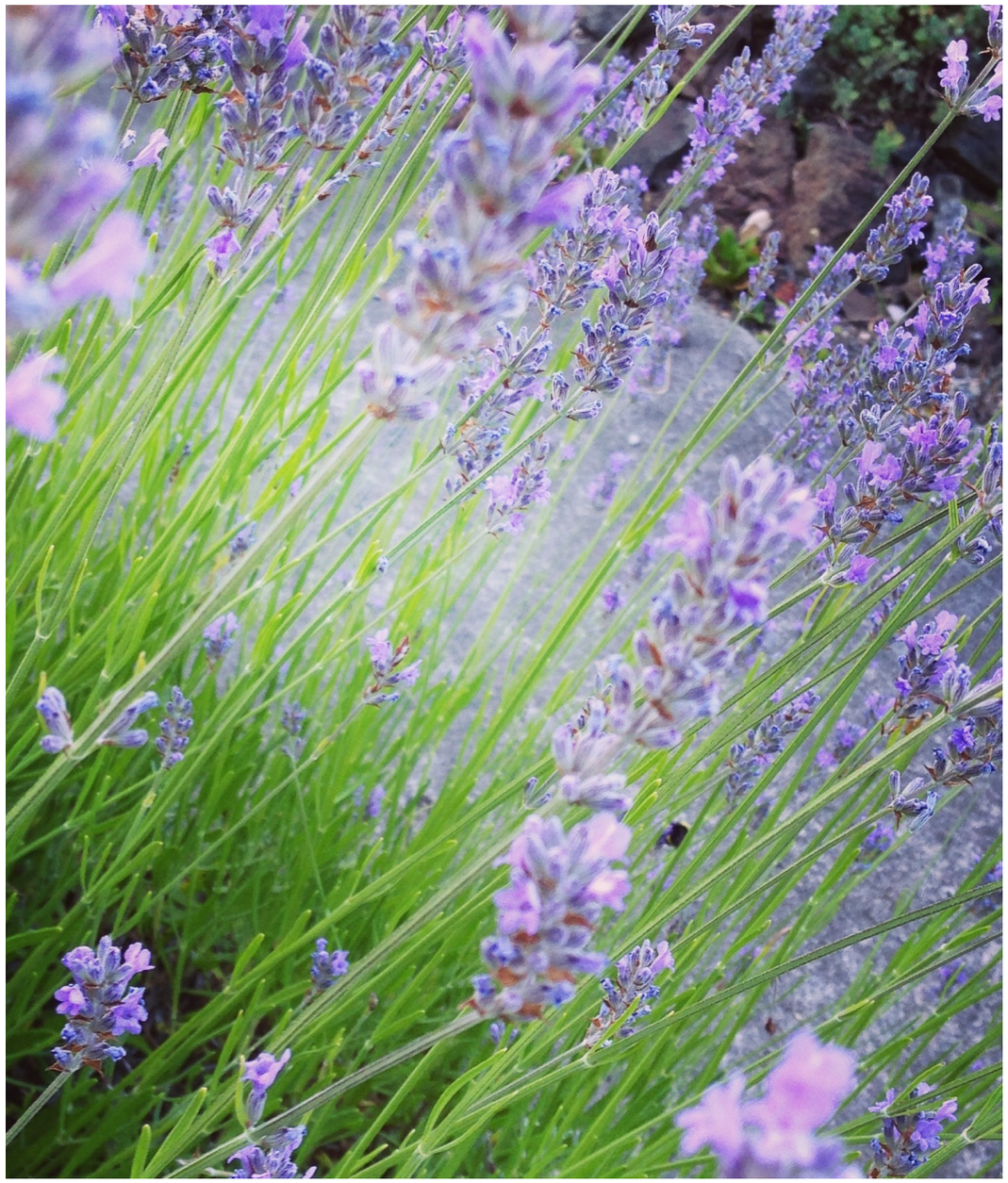
Transferring plant aromas into oil is an understandable desire, but not readily achievable.

To scent carrier oils by infusion, macerating aromatic plants in oils, a large amount of highly scented plant material is added to the oil in successive rounds to extract the compounds and migrate them to the oil.

A simple infusion tends not to retain desirable aromas; however, some herbs will transfer green, herbaceous scents.

St. John's wort has its own distinctive scent, as do the leaves of plantain, violet, and the delicate flowers of elderflower.

A whole aroma discipline to transfer scent to fat is called enfleurage, an ancient practice that some are employing now.



Lavender and a bee

rancid has a scent

When oils age and lose their wholesomeness, they develop particular smells.

Rancid oils develop their own distinctive odors, which smell like cardboard, flat, as each fatty acid group take on distinct odors during the breakdown process.

The scent of linoleic acid when rancid is actually dear to me, as it reminds me of printmaking studios of art school. Linseed oil is a common medium for ink and paint.

Oleic-dominant oils can smell waxy, crayon-like, or have a candle-like or a fatty scent as they break down.

The chemistry of the fatty acid breakdown is complex and yields a range of scents:

Aldehydes - cardboard, waxy, paint-like

Ketones - cheese, buttery, old nuts

Short saturated chains - sour, cheesy, goaty, sweaty, sharp.

Oil Painting

fishy scent ~ omega-3

Fishy-scented is a term that can describe fish and plant oils with high polyunsaturated fatty acids, primarily omega-3.

The fishy odor is the result of the oxidative breakdown of polyunsaturated fatty acids, where the carbon chains break at the weak points, the double bonds, into small, volatile carbonyl compounds.

The polyunsaturated carbon chains, when broken down into smaller fragments, form aldehydes, ketones, and alcohols, which contribute to the fishy scent.

Rose hip, borage, echium, evening primrose, hemp, and other highly polyunsaturated oils, as they begin the process of oxidation, will develop these odors.

Since fish and fish oils are highly polyunsaturated, the scent of older fish will carry these fishy odors, specifically from the breakdown of omega-3 fatty acids, which is where the association originates.

Keeping oils fresh is an essential part of maintaining a formulating lab.

Oils are costly, and it is wasteful to let them go off before their intended use.

Keeping oils cool to cold and in a dark environment is best practice and will go a long way in preserving the oils you use for work.

The factors that cause oils to go rancid are listed to the right. Light will degrade the oils the fastest, and the more double bonds on the carbon chains, the faster the oils will spoil if not handled properly.

As oils age but are not yet rancid, I often add them to my soap-making supplies as a way to utilize them and reap their benefits.

general practices

As you order oils and work with them, take the time to get to know them when fresh by scent as well.

Each oil has a subtle scent that can help you get to know it intimately.

This practice will help you know when an oil is going off or rancid, when it turns from its original, usually pleasant scent to a flat, stale, cardboard-like scent of rancidity.

Using and getting to know the carriers is a tactile process; your skin will benefit, and with experience, you will be able to formulate skin-receptive and beneficial combinations, especially when combined with compatible essential oils.

Lunaria, ‘money plant’ and lunaria oil

lipid scents

And finally, I've come to enjoy working with lipid scents, fragrant or floral waxes that can be powerful enough to give a large batch of soap a true Rose or Jasmine scent.

Fragrant waxes, byproducts of the perfume industry, can be a source of the world's most costly and exotic scents at prices that would otherwise be exorbitant.

Rose, jasmine, tuberose, carnation, and champaca can be high-priced in the form of an absolute, attar, or distillation.

The fragrant waxes, however, bring these exotic scents within reach when formulating or making soap or body care products.

Green tea, laurel wax, bayberry, violet, and fenugreek can add interesting colors and deep scents to a range of body care products.

Green tea wax

Carnation

Violet

Tuberose

Myrica

Green tea

Champaca

Cassie

Jasmine sambac

Laurel wax

Rose

Fenugreek

Fragrant waxes

next,...

Safety of use is a big part of aromatherapy, as the volatility of the essential oils and the compounds are powerful and should not be used neat on the skin.

Lipid oils, on the other hand, are generally fine used full strength - unless an individual is sensitive or allergic.

I nevertheless get asked questions about the safety of various oils, and am asked to weigh in on broader internet-fueled issues with seed oils, PUFA, and similar problems with the carrier type oils.

Commodity soybean oil