Oils for Winter Skincare

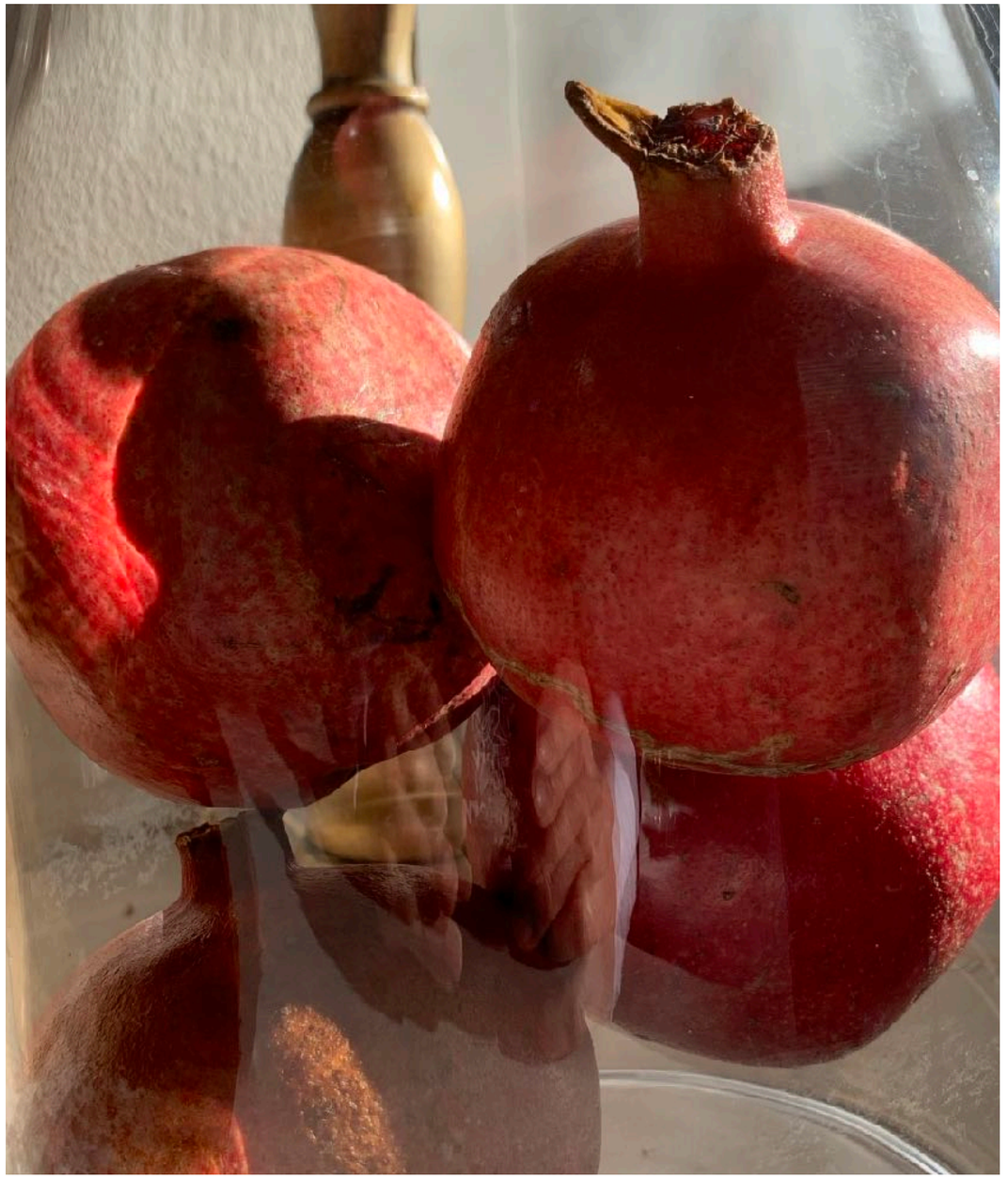
20+ carbon chains & saturated ~ most occlusive oils for skin protection

occlusive oils

We've briefly discussed the skin, its structure, and fatty acid makeup in the first lesson, and had a review of the different types of fatty acids in oils and the benefits of each when confronted with inclement weather.

Now we want to get specific and identify several oils corresponding to each fatty acid group found in the epidermis.

Saturated	41%
Monounsaturated	16%
Polyunsaturated	29%
Very long 20+ both saturated and unsaturated	23% -



first, protection

Occlusive skincare raw materials form a physical film or semi-permeable layer on the skin surface to reduce TEWL (transepidermal water loss).

This is the primary action of the skin barrier: to moderate transepidermal water loss —a critical function to support and foster.

As raw materials, occlusives do not add water; they prevent its escape, which is important when the environmental elements are extreme.

Occlusive protection involves the greatest shield against the elements, and there are specific oils to help achieve that level of protection.

emollients

Emollients are substances that soften and smooth the skin.

The natural shedding of skin cells in the stratum corneum can produce skin dry, scaly, and rough to the touch.

Emollients, generally, are lipids or lipid-like substances that supplement the skin's own lipid matrix, where they fill the spaces between corneocytes undergoing natural exfoliation.

Emollients make the skin feel more flexible, pliable, and comfortable, and are needed when the skin feels tight, dry, and inflexible.

oils to protect skin

In this lesson, we'll look at the oils that are most protective/occlusive.

Those with twenty-plus-carbon chains provide their own kind of protection.

And those soft saturated butters and fats that coat the skin and keep moisture in, and the elements out.

In the next lesson, we'll step down the occlusive nature a notch for the monounsaturated and polyunsaturated dominant oils.

Monounsaturated fatty acid oils are semi-occlusive and form a fine film on the skin, helping protect it from dehydration.

And lastly, polyunsaturated fatty acids help nourish the skin's need for essential fatty acids.

Lunaria oil

very-long, 20+C

Of the epidermal lipids, 23% are very long, 20+ saturated and unsaturated, and inherently protective against the elements.

Topical 20+ oils support the skin by being similar to our skin's outer lipid structure.

The first experience with the 20+ oils is of a light coating on the skin, not rapid absorption, but they do absorb—just not quickly.

They feel soft and protective.

Fatty acids of 20C or longer have higher melting points and are more waxy, similar to the outer layers of our skin that protect our internal environment.

protective C20+

The first four oils we will cover, with additional oils of this group:

- **Meadowfoam**
- **Jojoba**
- **Abyssinian**
- **Daikon radish**
- Arugula seed oil
- Lunaria seed oil, photo
- Mustard, would add a warming element
- Broccoli seed oil
- Cabbage seed oil
- Pracaxi seed oil

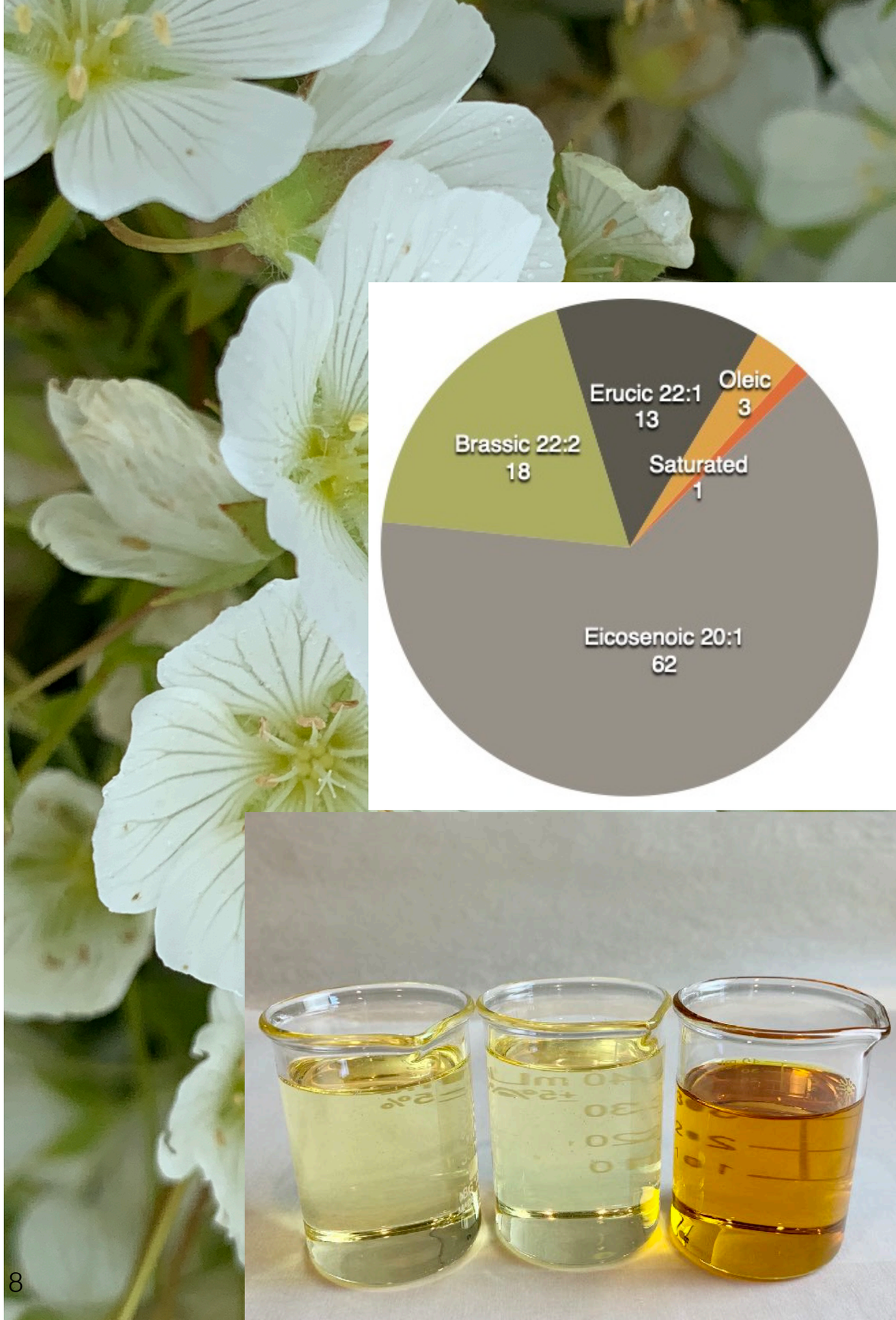
meadowfoam

Meadowfoam, *Limnanthes alba*, is a low-growing crop with a generous monounsaturated 20-carbon chain.

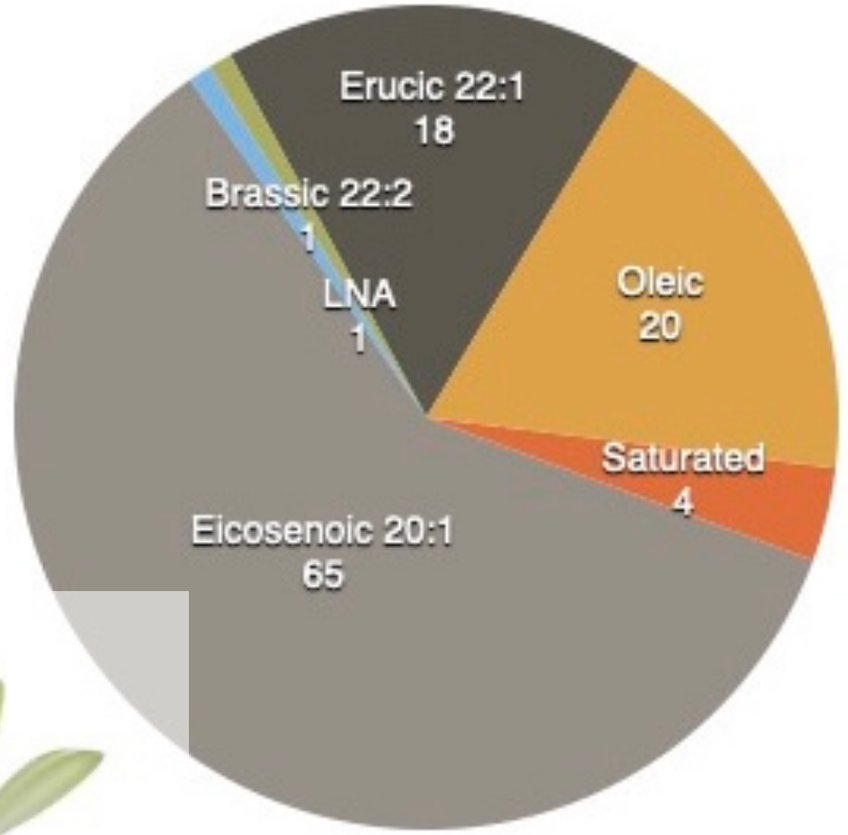
The carbon chains of over 96% twenty carbons and longer, give meadowfoam seed oil exceptional shelf life and protection for the skin.

These fatty acids help support the skin’s natural lipid matrix while protecting against weather extremes.

Shown are meadowfoam oils: solvent extracted, expeller pressed, and cold pressed.



jojoba seed oil



Jojoba oil, *Simmondsia chinensis*, aka a liquid wax, meaning it has no triglyceride structure or glycerol molecule.

Similar to meadowfoam oil, it contains the same very-long-chain fatty acids, 84%, and emollient oleic acid.

Available in clear and golden, this is a favorite of aromatherapists and skincare formulators for its shelf life and stability and affinity to the skin.

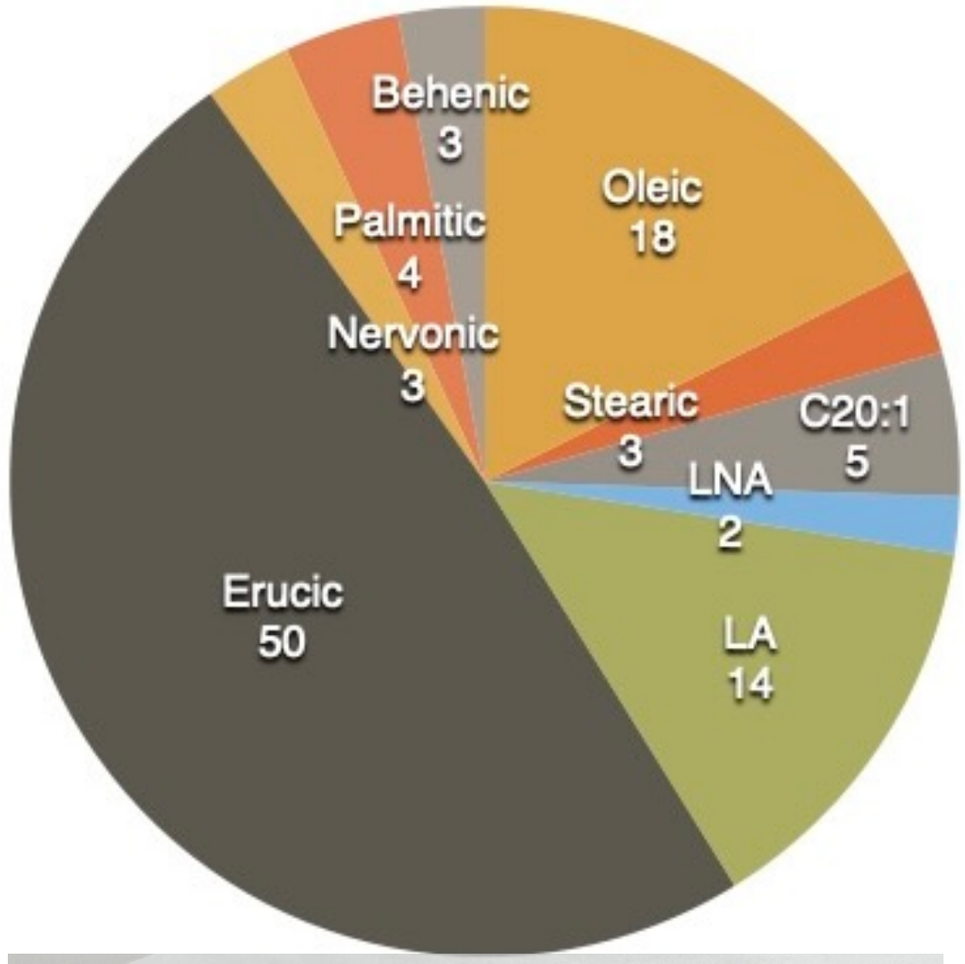
Jojoba's many pharmacological uses include antioxidant, anti-acne, anti-psoriasis, anti-inflammatory, anti-fungal, analgesic, and antimicrobial.

Abyssinian oil

Abyssinian seed oil, *Crambe abyssinica,* has properties similar to those of meadowfoam and daikon radish seed oils, with over 60% very long-chain fatty acids.

This pie chart shows smaller percentages of behenic, nervonic, and ecosenoic acids, all of which contribute to the 20+ chains.

The oil is heat-stable, with a generous phytosterol content that provides anti-inflammatory properties to protect skin and collagen structures.



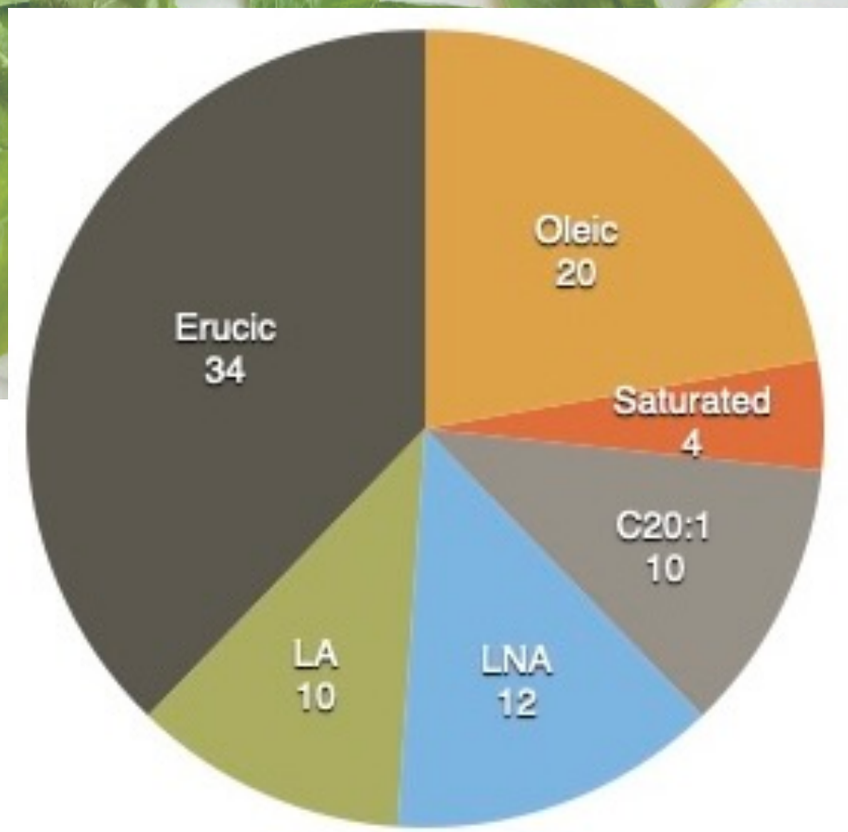
daikon radish

Daikon radish seed oil, *Raphanus sativus*, shares similarities with broccoli seed oil and other lipid components of the cabbage family.

Daikon radish seed oil has a thick, full feeling due to its significant Erucic, C22:1 and C20:1 fatty acid content, moisturizing and protecting the skin while absorbing quickly.

The oil improves the appearance and feel of dehydrated skin.

Studies of Daikon Seed Oil decreased TEWL in test subjects while significantly increasing skin barrier function.



DAIKON RADISH SEED OIL

soft saturation

The softer butters are perfect for skin care, especially in winter, when cold temperatures outside and hot furnaces inside can make a mess of our skin.

We can use them in two ways: added as a small percentage to liquid oils for body oils, or made into solid balms with harder butters, or combined with a small amount of beeswax or vegetable wax.

The soft butters can be mixed into liquid formulas at five to twenty percent to increase the protective saturated fatty acids.

Combine these types of oils with monounsaturated oils or 20+ oils for optimum protection.

Generally, I study plant oils, but I have profiled Ghee, or clarified butter, a common cooking fat in India and Ayurvedic traditions, as it carries valuable fatty acids and protective properties for the skin.

saturated protected

Saturated fatty acids dominate both plant butters and animal fats.

Saturated fatty acids are the most protective and occlusive, but due to their solid nature, but they can be challenging to work with.

Here are four very soft butters to combine with liquid oils.

- Ghee
- Shea nilotica
- Cupuaçu
- Tallow

ghee

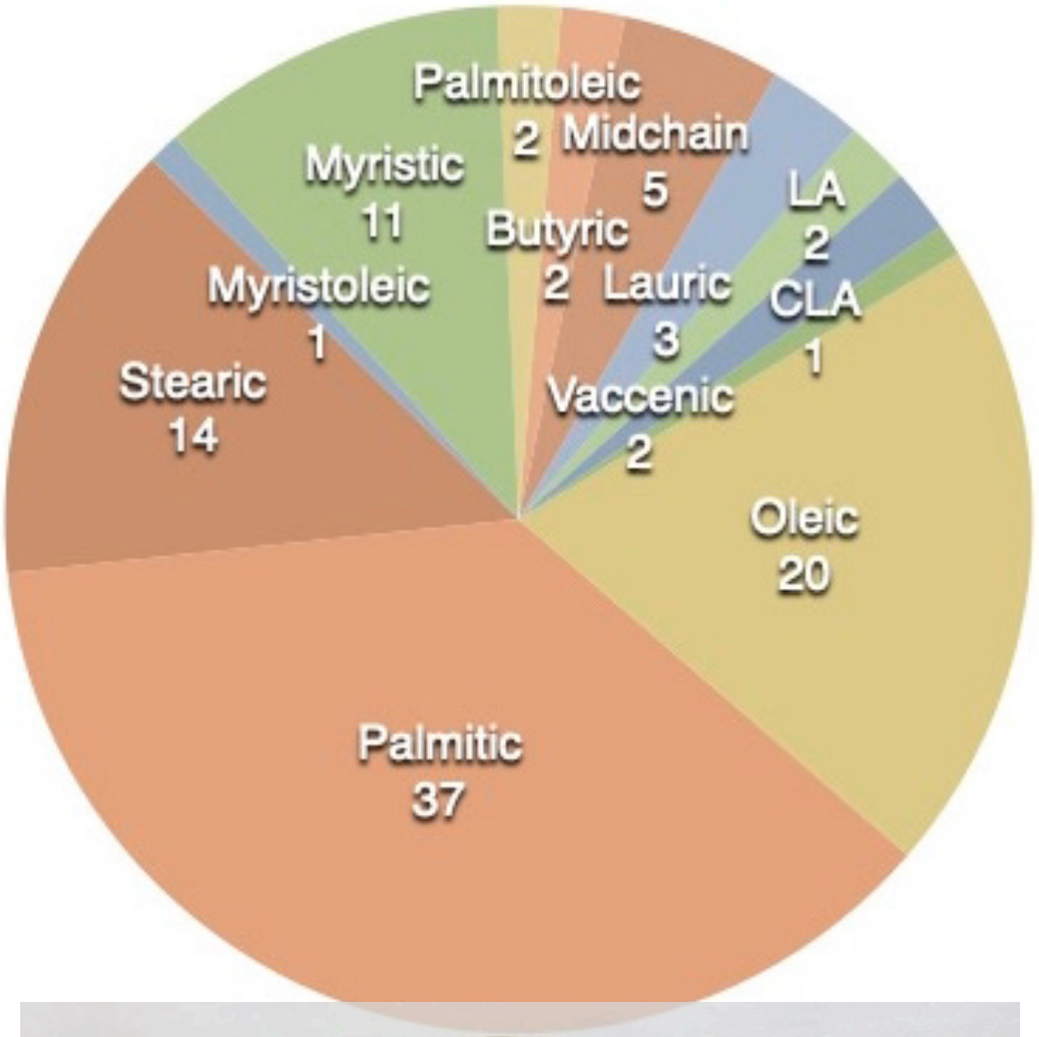
Ghee (clarified butter) is a traditional cooking fat in Ayurvedic households, and, when used on the skin, it is soft and pliable.

The fatty acid profile of ghee was a delight, with a rich complexity of primarily 21% medium-chain saturated fatty acids and 51% long-chain fatty acids.

Monounsaturated fatty acids, which make up 22%, soothe and protect the skin.

Nine unusual fatty acids, along with more common palmitic, oleic, and stearic acids, make for a distinctive profile.

Ghee is soft and food-grade, with much to offer the skin.



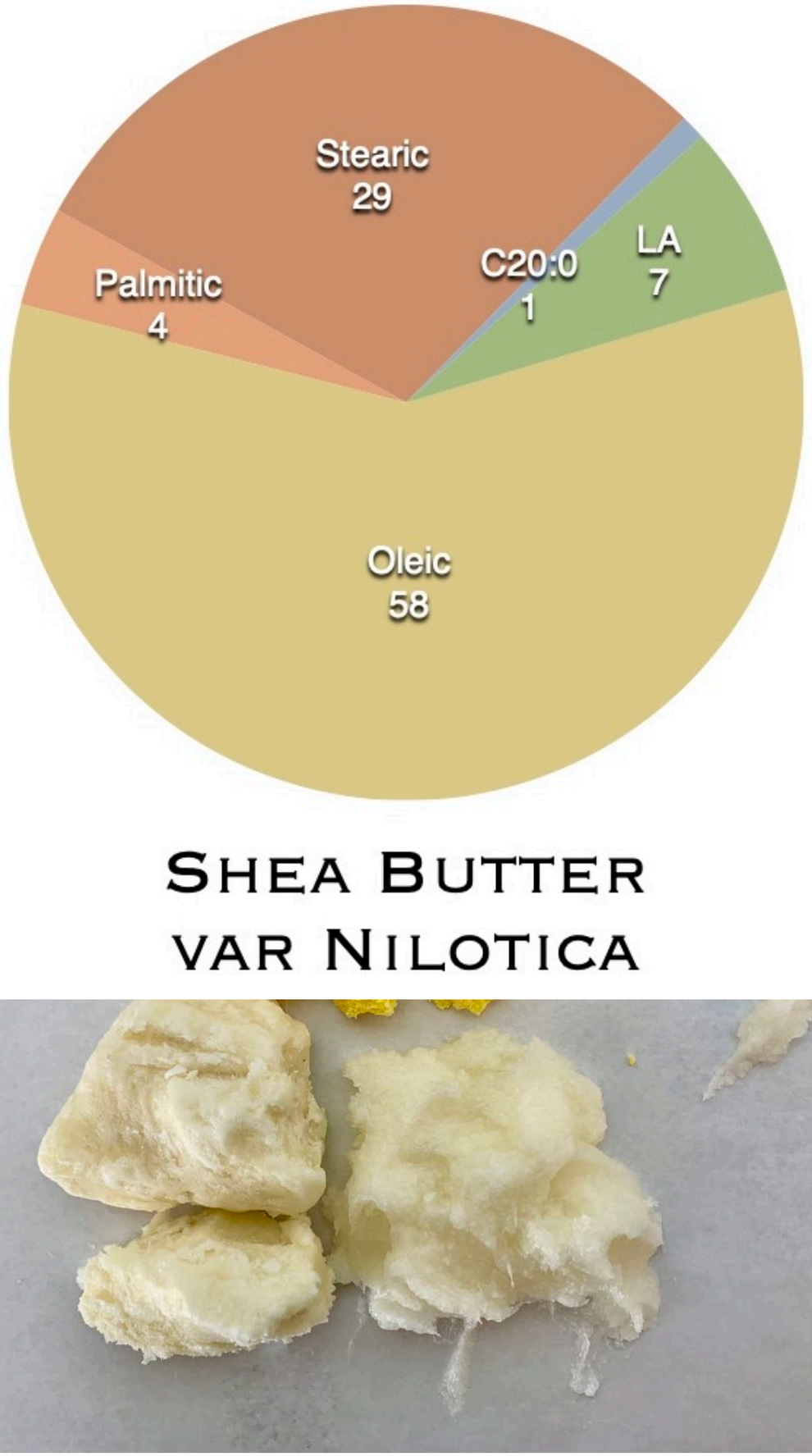
shea nilotica

This form of shea, *Vitellaria Nilotica*, is the soft variety, as you can see from its over 50% oleic acid and only a third saturated—photo lower right.

This shea is different from the more common waxy shea paradoxa from West Africa.

Soft and pliable, shea Nilotica has a texture similar to ghee and dairy butter, but with a less complex range of short-chain fatty acids.

Shea butter, however, makes up for the lack of a complex fatty acid profile with abundant, skin-nourishing unsaponifiable fractions, including anti-inflammatory plant sterols and alpha- and gamma-tocopherol.



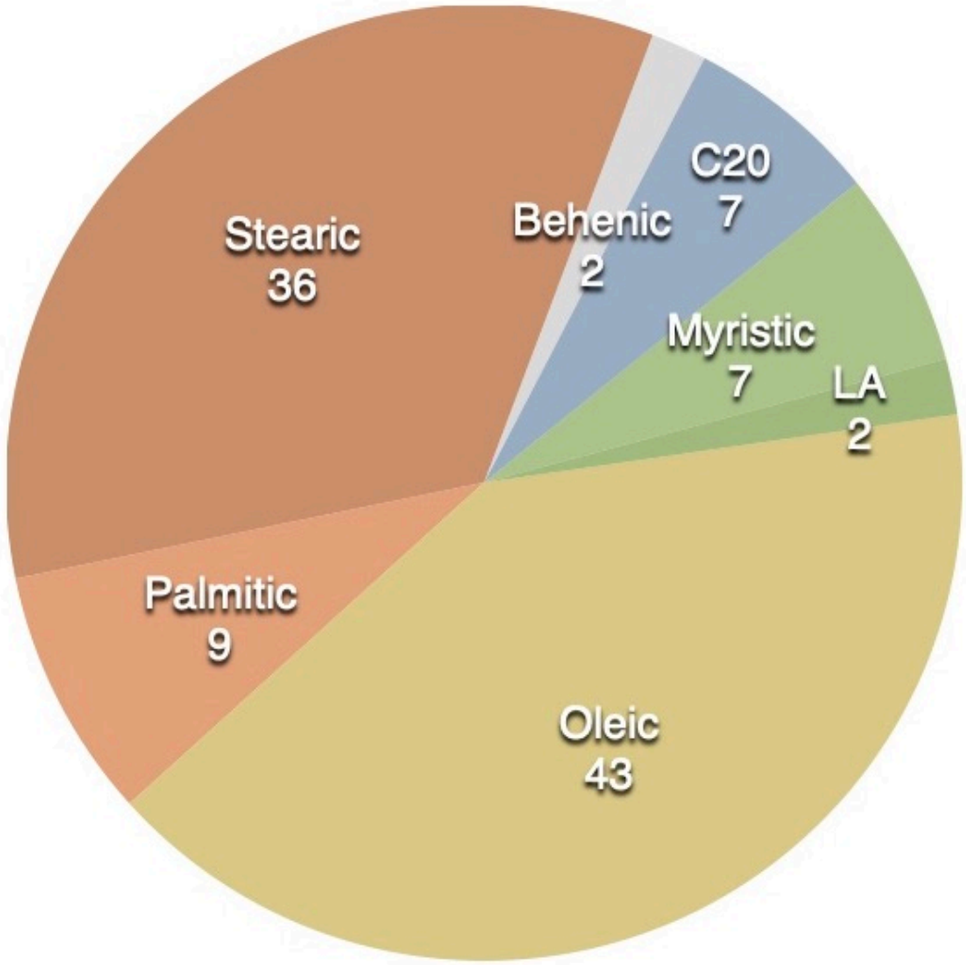
cupuaçu butter

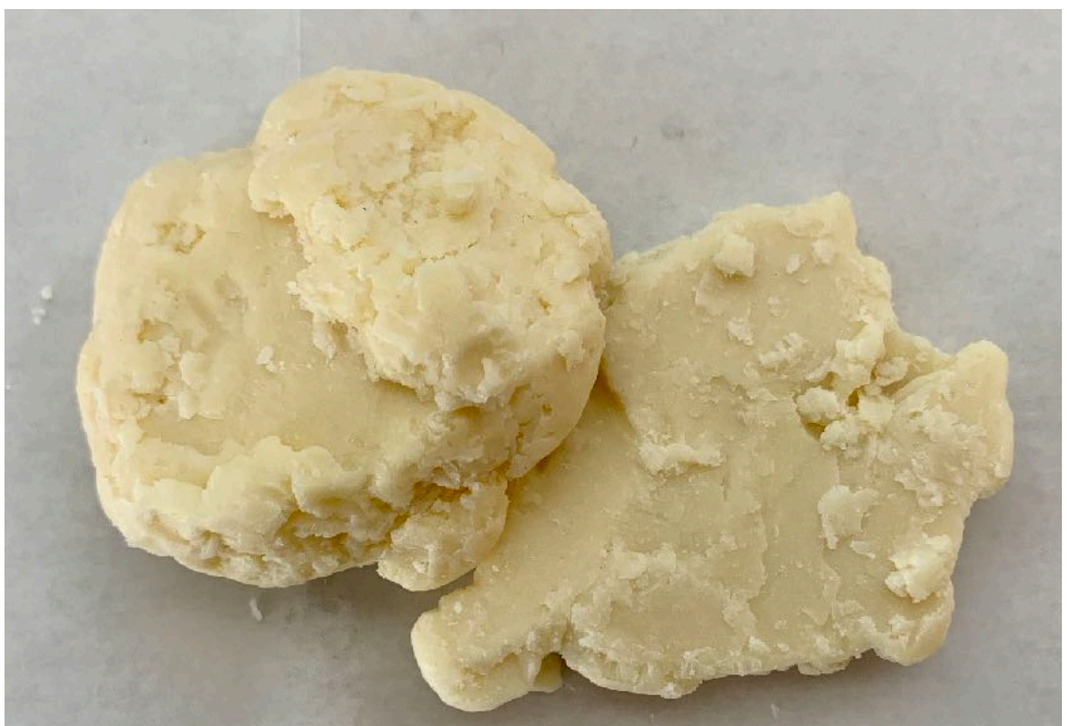
Cupuaçu*, Theobroma grandiflorum*, the softer cousin of hard cocoa butter, *Theobroma cocoa,* has an equally aromatic scent.

Cupuaçu, which can absorb 4 times its weight in water, helps maintain the skin's moisture levels.

Behenic and arachidic acids, with 20+ carbon chains, provide protection, along with the shorter myristic acid, which helps penetrate and protect the outer skin layers.

Oleic acid at 43% and stearic acid at 36% make this butter easy to work with, but it needs heat to combine with other lipids.





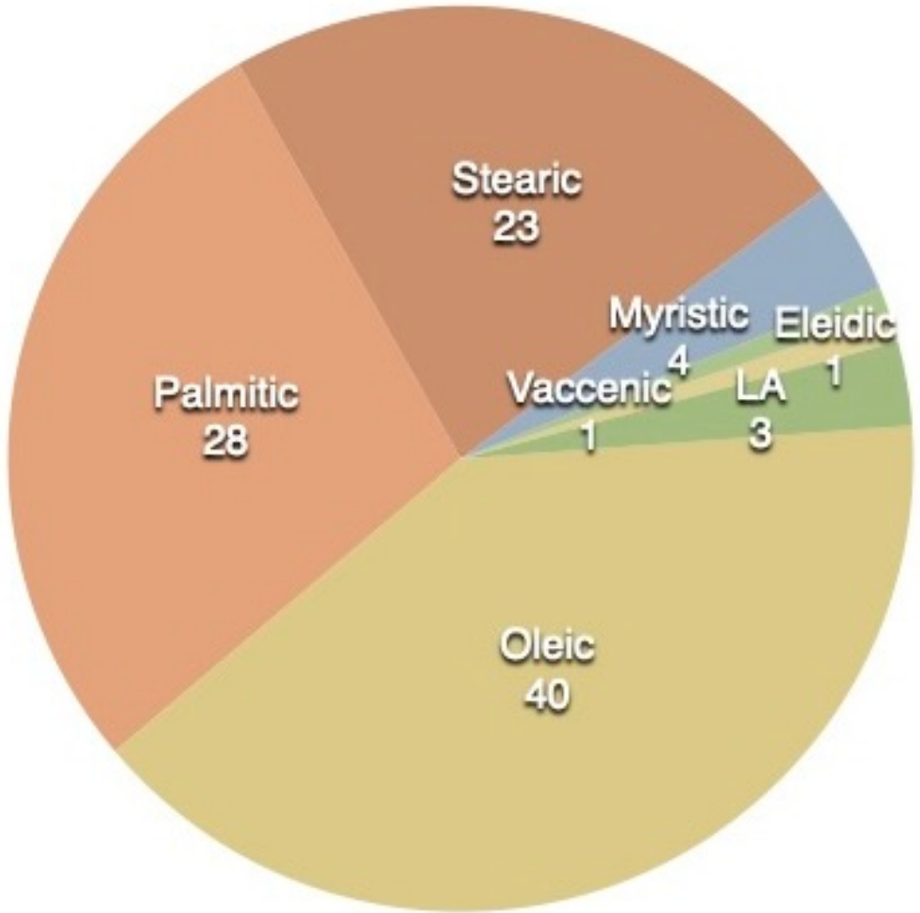
tallow fat

Tallow, another animal fat, is becoming popular, and it is particularly helpful in protecting the skin from extremes of cold and dry weather.

Its saturated stearic and palmitic acids will provide a good occlusive film on the skin to help retain moisture.

As an animal product, tallow can be rich in fat-soluble vitamins A, D, E, and K, with wide variations depending on how the animal is raised.

The vitamin A in tallow is in a preformed retinol form and, for the skin, acts as vitamin A, whereas the plant form of beta-carotene does not.



TALLOW FAT

in the next lesson...

In lesson three, we will cover more oils —those that are less occlusive but provide emollience to the skin.

These are the oils high in oleic acid and palmitoleic acid, which are particularly compatible with the skin's own lipid structures.

The other group is the polyunsaturated fatty acid-dominant oils with linoleic acid, which is essential for the ceramide structure of the skin.

Plus, two conjugated fatty acid oils — pomegranate seed oil and cherry kernel oil —with unusual yet protective fatty acid chains.