

Bergamot Essential Oil Health and Beauty Benefits

Citrus bergamia, the bergamot orange (pronounced /'bɜːrgəməʊt/), is a fragrant citrus fruit (a genus of flowering trees and shrubs in the rue family, Rutaceae) the size of an orange, with a yellow or green color similar to a lime, depending on ripeness. Genetic research into the ancestral origins of extant citrus cultivars found bergamot orange to be a probable hybrid of lemon and bitter orange.

THE ETYMOLOGY OF BERGAMOT

The word bergamot is etymologically derived from the Italian word *bergamotto*, ultimately of Turkish origin: *bey armudu* ("lord's pear" or "lord pear").

DESCRIPTION OF BERGAMOT

Citrus bergamia is a small tree that blossoms (flowers) during the winter. The juice tastes less sour than lemon, but more bitter than grapefruit.

THE TAXONOMY OF BERGAMOT

The bergamot orange is unrelated to the herbs known as bergamot, wild bergamot, bergamot mint, or bergamint—*Monarda didyma* (also known as crimson beebalm, scarlet beebalm, scarlet monarda and Oswego tea), *Monarda fistulosa* (also known as bee balm) and Eau de Cologne mint (also known as orange mint). Those are all aromatic herbs in the mint family (Lamiaceae), and are named for their similar aroma.

Citrus bergamia has also been classified as *Citrus aurantium* subsp. *Bergamia*, a subspecies of bitter orange. Bitter orange, Seville orange, bigarade orange, or marmalade orange is the citrus tree *Citrus × aurantium* and its fruit. It is native to Southeast Asia and has been spread by humans to many parts of the world. It is probably a cross between the pomelo, *Citrus maxima*, and the mandarin orange, *Citrus reticulata*.

Citrus bergamia is sometimes confused with (but is not the same as) *Citrus medica* – citron, the yellow fruit of which is also known as *etrog*; or *Citrus limetta*, the "sweet lemon" or "sweet lime". Read more about this citrus fruit on my post [The Gift of the Humble Lemon](#).

THE PHYTOCHEMISTRY OF BERGAMOT

Bergamot fruit contains flavonoids, such as *neoeriocitrin*, *naringin*, *neohesperidin*, *ponceritin*, *melitidin* (exhibits statin-like properties so the juice seems to have *hypolipidemic*, lipid lowering activity), *mitrocin*, *miriflin*, *brutieridin*, and *bergamottin* (or *5-geranoxypsoralen*, a natural furanocoumarin found in the pulp of pomelos and grapefruits). Bergamot leaves contain different indole alkaloids, such as *N,N,N-trimethyltryptamine*.

Bergamot essential oil is a clear liquid (sometimes there is a deposit consisting of waxes) from green to greenish yellow in color consisting of a volatile fraction (average 95%) and a non-volatile fraction (5% or residual). Chemically, it is a complex mixture of many classes of organic substances, particularly in the volatile fraction, including terpenes, esters, alcohols and aldehydes, and for the non-volatile fraction, oxygenated heterocyclic compounds as coumarins and furanocoumarins.

The main volatile compounds in bergamot essential oil are *limonene* (59%), *linalyl acetate* (16.8%), *linalool* (9.5%), γ -*terpinene* and β -*pinene*, and in smaller quantities *geranial*, *alpha terpineol*, *neryl acetate*, *geraniol acetate* and β -*bisabolene*. The main non-volatile compounds are coumarins (*citropten*, *5-geranyloxy-7-methoxycoumarin*) and furanocoumarins (*bergapten*, *bergamottin*).

The volatile oils of the bergamot orange are described as flavoring agents in the [United States Pharmacopeia](#) (USP) [Food Chemicals Codex](#) (FCC) and are generally recognized as safe for human consumption by the [Food and Drug Administration](#) (FDA).

THE PRODUCTION OF BERGAMOT

The earliest roots of the bergamot tree can be traced to Southeast Asia. It is currently grown in many parts of the world, but achieved its prominence and name in the town of Bergamo in southern Italy. Production is mostly limited to the Ionian Sea coastal areas of the province of Reggio di Calabria in Italy, to such an extent that it is a symbol of the entire city.

Most of the bergamot comes from a short stretch of land there, where the temperature is favorable. The fruit is also produced in Argentina, Brazil, Algeria, the Ivory Coast, Morocco, Tunisia, Turkey, and South-East Asia. Citrus bergamot is commercially grown in Antalya in southern Turkey for its marmalade. The fruit is not generally grown for juice consumption. However, in Mauritius where it is grown on a small-scale basis, it is largely consumed as juice by the locals.

Citrus bergamot is commercially grown in southern Calabria (province of Reggio), southern Italy. It is also grown in southern France and the Ivory Coast for the essential oil. Bergamot essential oil is a cold-pressed essential oil produced from cells inside the rind of a bergamot orange. It is a common flavoring and top note (head note, or most prominent scent) in perfumes. The scent of bergamot essential oil is similar to a sweet light orange peel oil with a floral note. One hundred bergamot oranges yield about three ounces (85 g) of bergamot essential oil.

The “*sfumatura*” or slow-folding process was the traditional technique for manually extracting the essential oil of bergamot. By more modern methods, the oil is extracted mechanically with machines called peelers, which scrape the outside of the fruit under running water to get an emulsion (a mixture of liquids that are normally immiscible) channeled into centrifuges that separate the essence from the water.

THE PROBLEM WITH ADULTERATION

Bergamot essential oil is particularly subject to adulteration being produced in small quantities. Adulteration with cheaper products, natural or synthetic, such as oil of rosewood and bergamot mint and coloring with chlorophyll has become a problem for consumers. Worldwide, each year, around three thousand tonnes of declared essence of bergamot are marketed, while the genuine essence of bergamot produced annually amounts to no more than one hundred tons.

To protect the reputation of their produce, the Italian government introduced tight controls, including testing and certificates of purity. The [Stazione Sperimentale per le Industrie delle Essenze e dei Derivati dagli Agrumi](#) (SSEA, Experimental Station for Essential Oil and Citrus By-Products) located in Reggio di Calabria, was the quality control body for the essential oil *Bergamotto di Reggio Calabria*, Protected Geographical Status.

Three European Union schemes of geographical indications and traditional specialties, known as Protected Designation of Origin (PDO), Protected Geographical Indication (PGI), and Traditional Specialities Guaranteed (TSG), promote and protect names of agricultural products and foodstuffs.

Natural source analysis based on the Carbon-14 (radiocarbon dating) method can identify adulterated essences by detecting synthetic chemicals manufactured from petroleum that are used to mimic the chemical profile of bergamot and other essential oils.

Gas chromatography (GC) allows for analyzing mixtures' distribution of various compounds, such as *linalyl acetate* and *linalool*. The distribution of these phytochemicals determines the characterization of

bergamot essential oil according to the manufacturing process and allows for the detection of possible adulteration.

During World War II, Italy was unable to export to countries such as the Allied powers. Rival products from Brazil and Mexico came on to the market as a substitute, but these were produced from other citrus fruits such as sweet lime (a citrus hybrid).

MODERN USES OF BERGAMOT

Bergamot essential oil has been used in cosmetics, aromatherapy, and as a flavoring in food and beverages. Its citrus scent makes it a natural flavoring and deodorizing agent.

TEA AND OTHER USES

An essence extracted from the aromatic skin of this sour fruit is used to flavor Earl Grey (tea blend) and Lady Grey (trademarked variation of Earl Grey) teas, as well as confectionery (including Turkish delight). Bergamot is one of the most common "casings" (flavorings) added to snus, a form of smokeless tobacco product, and a variant of dry snuff originating from early 18th-century Sweden.

FRAGRANCE

Bergamot essential oil is one of the most versatile of all the essential oils and one of the most commonly used ingredients in perfumery. It is prized for its ability to combine with an array of scents to form a bouquet of aromas that complement each other. Historically, bergamot was an ingredient in the original *Eau de Cologne* a perfume originally concocted by Johann Maria Farina at the beginning of the 18th century in Germany.

The first use of bergamot essential oil as a fragrance ingredient was recorded in 1714, and can be found in the Farina Archive in the city of Cologne, Germany. However, much of the "bergamot" used in perfumery today is derived from Eau de Cologne mint, which is a variety of water mint and is unrelated to citrus.

THE HEALTH AND BEAUTY BENEFITS OF BERGAMOT ESSENTIAL OIL

The chemical composition of bergamot essential oil is different from most citrus essential oils, which typically have a higher *limonene* content but not much else in the way of flavonoids. The two chemical compounds *linalool* and *linalool acetate* are also major components of lavender essential oil.

These compounds are what gives bergamot a wider range of benefits than a typical citrus essential oil. Bergamot essential oil has numerous medicinal properties. It is antibacterial, antispasmodic, anti-inflammatory and also has sedative and analgesic actions.

1. TREAT INFECTIONS

Bergamot essential oil is a popular ingredient in products like soaps because of its excellent antibacterial, antiseptic and antimicrobial properties. It can help inhibit the growth of harmful bacteria, fungi and other germs and can be applied topically to tackle infections of the skin and scalp. Bergamot essential oil can be used as a disinfectant and antiseptic agent to clean wounds and prevent infection.

It can prevent wounds from incurring tetanus or becoming septic. Its cicatrizing property promotes fast healing without the resulting scars due to the presence of phytochemicals which facilitate the regeneration of tissue cells. It can also help treat internal infections like urinary tract (UTI), kidney or colon infections. A [2015 study](#) showed that bergamot essential oil could be used topically to treat candida infections.

2. LIFT MOOD

Depression can cause fatigue, apathy, appetite loss, reduced sex drive and feelings of hopelessness. Depression is typically treated with powerful pharmaceutical medications that can have serious side effects, including personality changes, liver function, changes to your body's pH, dry mouth and weight gain.

Bergamot essential oil is a natural antidepressant, with the presence of chemical compounds like *alpha-pinene* and *limonene*. These compounds in bergamot essential oil ultimately impact a number of physiological processes that reduce mental and physical fatigue through increased circulation and hormonal secretions of dopamine and serotonin.

A [study in 2017](#) found that when women inhaled bergamot essential oil in the waiting room of a mental health treatment center, they had improved mood and positive feelings.

3. STRESS RELIEF

Stress and anxiety are common and debilitating afflictions. While there are medications that can help treat these in the short term, they come with a number of side effects.

A small [2015 study](#) published in *Complementary Medicine Research* indicates that when healthy females are exposed to bergamot essential oil vapors, they displayed psychological and physiological effects. The subjects were divided into three experimental groups: rest alone, rest and water vapor, and rest and bergamot essential oil vapor for 15 minutes.

Saliva samples were collected immediately after each group setup and the test subjects completed profiles on their current mood, anxiety and fatigue levels. Researchers found that the salivary cortisol levels were significantly lower in the bergamot group than in the rest alone group, and the bergamot group had improved negative emotions and fatigue scores.

Another [study in 2011](#) published in *Natural Product Communications*, indicated that bergamot blended with lavender essential oil significantly decreased human subjects' pulse rate and blood pressure levels than subjects in the control group.

Similarly, a [2013 article](#) published in the journal *Current Drug Targets* reported that aromatherapy with bergamot (among other essential oils) can relieve depression, anxiety and other mood disorders by signaling the brain to release dopamine and serotonin.

4. LOWERS BLOOD PRESSURE

One [2006 study](#) looked at 52 patients with hypertension and found that a combination of bergamot, lavender and ylang-ylang essential oils can help reduce stress responses, blood pressure, and cortisol levels.

5. PAIN RELIEF

Studies have demonstrated that bergamot essential oil can be used as a natural and much safer alternative to OTC pain medications and pain killers. Being a natural vasodilator, it can be used to relieve pain caused by headaches, sore muscles, muscle spasms, rheumatism, arthritis and other inflammatory conditions.

The *International Journal of Molecular Sciences* published a [review of studies in 2010](#) and found that *linalool*—a component found in bergamot, lavender and rosewood essential oils—possesses several pharmacological activities, including anti-inflammatory, analgesic and anticonvulsant effects. Researchers believe that it is *linalool* that has the ability to block effects on pain receptors and inhibit

the release of *substance P*, a compound that's involved in the transmission of pain and other nerve impulses.

6. REDUCES INFLAMMATION

A [2017 review of studies](#) analyzed the effects of multiple essential oil compounds on the pain response in humans and animals. The review found that both compounds found in bergamot essential oil, *linalool* and *carvacrol*, had analgesic, anticonvulsant, and anti-inflammatory capabilities when used in a variety of methods that included topical application.

Ongoing studies show that the application of bergamot essential oil may be able to eliminate the formation of gallstones and protect against colic and diphtheria. The review also warned of the potential toxicological effects of essential oils in humans.

7. REDUCES A FEVER

As a febrifuge, bergamot essential oil is effective at reducing fever and lowering body temperature. Its antibiotic and antibacterial attributes fight off viruses, bacteria and infections that cause fever, such as the influenza virus.

It stimulates hormone secretion from the metabolic system, which causes the body to heat resulting in increased perspiration from the body's various sweat glands, which helps to cool the body. Sweating also helps expel toxins, thus helping to eliminate harmful bacteria and viruses.

8. LOWERS CHOLESTEROL

A [2016 review](#) of human and animal studies indicated that flavonoids found in bergamot essential oil can help reduce lipid levels, although the exact mechanism for this effect remains unclear. A [2018 animal study](#) affirmed this finding. It also found that the polyphenols in bergamot essential oil had an anti-inflammatory effect in the livers of rats recovering from non-alcoholic fatty liver disease.

A [2016 study](#) of 80 human patients over six months looked at the effects of bergamot essential oil on cholesterol levels. The study found that a bergamot-derived extract was able to reduce total cholesterol levels, LDL (bad) cholesterol and triglycerides, while increasing HDL (good) cholesterol.

9. DIGESTION AID

Bergamot essential oil is commonly used to improve digestive function. It stimulates the secretion of digestive enzymes and bile which facilitates speedy breakdown of foods, allowing it to be absorbed into the bloodstreams efficiently and quickly.

It also helps by stimulating muscular contractions of the intestinal walls and peristaltic movement of the gastrointestinal tract, which improves the movement of waste through the intestines. Keeping digestion and elimination regular helps relieve common digestive problems such as acid reflux, indigestion, constipation and irritable bowel syndrome (IBS).

10. FIGHTS FOOD POISONING

Research published in the *Journal of Applied Microbiology* has confirmed bergamot essential oil to be the most effective of all the Citrus essential oils at inhibiting the growth of food-borne bacteria, due to the presence of the compound, *linalool*. A [2006 study](#) examined bergamot essential oil's effectiveness at destroying several strains of bacteria on chicken skin and cabbage leaves.

The *Frontiers in Pharmacology* study reported that bergamot essential oil helped inhibit the growth of *Staphylococcus aureus* (Staph), *Listeria monocytogenes* (*listeriosis*, *L. monocytogenes*), *Bacillus cereus* (B.

cereus), *Escherichia coli* (E. coli) and *Campylobacter jejuni* (campylobacteriosis, a food-borne bacterium).

A [2016 study](#) tested the effect of various potency formulations of bergamot essential oil against strains of *Listeria monocytogenes*, the bacterium that causes *listeriosis* infection. Researchers used listeria samples from different sources including fish and poultry. The different formulations of bergamot essential oil were effective at stopping the growth of the different bacteria samples to varying degrees.

11. IMPROVES RESPIRATORY HEALTH

Because of its expectorant property, bergamot essential oil is a powerful agent to relieve chest congestion due to excess buildup of mucus and phlegm. It works by loosening phlegm and build-up of mucus in the respiratory tract.

Bergamot essential oil helps to eliminate germs and toxins from the respiratory and nasal tracts. The soothing nature of bergamot essential oil plays a significant role in treating dry, irritated throat. This promotes a healthier respiratory system, alleviating problems like coughs, colds, bronchitis, pharyngitis (sore throat) and other respiratory ailments.

12. SKIN CARE

Bergamot essential oil is a rich source of antioxidants and flavonoids. Bergamot essential oil can help with skin conditions like acne, eczema, psoriasis and skin blemishes. This essential oil [is good for the skin](#) due to its antibacterial, anti-inflammatory, disinfectant and antiseptic properties. It can kill bacteria before it causes acne and blackheads, while it also helps control the production of oil (sebum) in the skin. Its analgesic qualities also make it effective against painful cysts and pimples.

It can also be used as a cicatrizing agent to diminish the appearance of acne scars, other small scars and stretch marks. It is effective for scarring because regulates the distribution of pigments and melanin. It is also a powerful antifungal oil that can effectively destroy many strains of fungus, including nail fungus.

13. HAIR CARE

Bergamot essential oil may be beneficial for hair growth. A [2003 Chinese study](#) performed on mice found that a bergamot and boxthorn extract significantly promoted hair growth.

Anecdotal evidence indicates that bergamot essential oil may also be soothing to an irritated scalp. Regular use of the oil improves hair texture, adds shine and stimulates hair growth. It may also prevent hair loss and premature greying of hair.

14. ORAL HEALTH

Bergamot is one of the best essential oils for holistic dental care. Its citrus-like, sweet and fruity fragrance helps to get rid of bad breath, and makes for a great mouthwash. It works to remove germs from your mouth when used in mouthwash and even protects your teeth from developing cavities because of its potent antibacterial, antimicrobial, and antiseptic properties, see my post [How to Make Homemade Mouthwash](#). In fact, it can be used to relieve toothache and gum disease and may even be able to [prevent cavities and tooth decay](#).

15. DEODORANT

Bergamot essential oil is an important ingredient used in the making of perfumes. Bergamot not only has a delightful, citrus-like, sweet and fruity fragrance but it also has antibiotic and antimicrobial properties that kill of the bacteria that break down the salts and iron contained in the perspiration produced by the *apocrine glands* that cause unpleasant body odor, read further on the causes of body odor on my post [Deodorant vs. Antiperspirant](#).

If you're looking to make your own deodorant, check out my post, [Homemade Natural Deodorant Recipe](#). It can also be diffused around the home to eliminate unwanted odors from cooking or tobacco.

16. INSECT REPELLENT

Bergamot essential oil is a very effective natural repellent that will keep unwanted bugs at bay. It can help deter mosquitoes from entering the home and can also be used to repel other unwanted pests like ants and silverfish.

THERAPEUTIC USES OF BERGAMOT ESSENTIAL OIL

In Traditional Chinese Medicine, bergamot peels and whole fruits were used to help with the flow of energy, healthy digestion, bacterial growth and skin health for thousands of years. Historically, bergamot was used in Italian folk medicine to help rejuvenate skin, reduce stress, relieve a sore throat and combat parasitic diseases. It also included bergamot in homemade skin disinfectants to help with wound healing.

But these days its popularity comes from its versatility in a wide range of health and cosmetic uses. Bergamot essential oil has a foothold in aromatherapy and massage therapy, it is one of the most commonly used oils in aromatherapy. Bergamot essential oil blends very well with all of the other citrus essential oils as well as with sandalwood, clary sage, lavender, ylang-ylang and frankincense. Its many diverse uses include the following.

1. **For Hair Care:** Add 2–5 drops of bergamot essential oil to your shampoo.
2. **For Scalp Care:** Mix 1–2 drops with 1 tablespoon of carrier oil and massage it into your scalp as an overnight treatment. **Caution:** *bergamot essential oil increases photosensitivity, so do not use or leave this treatment on during the day and avoid exposure to direct sunlight for at least 24 hours after applying to your skin.*
3. **Treat Small Wounds, Burns or Bites:** Apply diluted bergamot essential oil to the affected area. **Caution:** *bergamot essential oil increases photosensitivity, so do not use or leave this treatment on during the day and avoid exposure to direct sunlight for at least 24 hours after applying to your skin.*
4. **To Uplift Mood:** Diffuse bergamot essential oil around your home or workplace in 50:50 dilution with carrier oils (such as olive or coconut). Alternatively, inhale diluted bergamot essential oil from your cupped hands whenever you feel the need for a mood pick-me-up. Dab it on a bandana or handkerchief for a soothing scent on-the-go. Alternatively, massage a few drops of diluted bergamot essential oil into your neck, temples, belly and feet.
5. **For Stress Relief:** Inhale bergamot essential oil from a diffuser machine throughout the day to improve mood and relieve tension. **Caution:** *check your manufacturer's recommendations before using bergamot essential oil in a diffuser as there have been reports of citrus essential oils damaging some diffuser machines.*
6. **To Lower Blood Pressure:** Apply 2–3 diluted drops bergamot essential oil topically to temples and abdomen. You can add 5 drops to a diffuser.
7. **To Lower Cholesterol:** Add 5 drops of bergamot essential oil to a diffuser.
8. **For Sore Muscles and Joints:** Dilute 2–3 drops of bergamot essential oil in a suitable carrier oil like jojoba or coconut and massage it into the affected areas. Alternatively, add 5–6 drops to your bathwater each evening to relax joints, and ease aches and pains.
9. **For Headache Relief:** Dilute 2–3 drops of bergamot essential oil in a suitable carrier oil like jojoba or coconut and apply to your forehead area and behind the ears. Alternatively, you can diffuse the oil using a diffuser, vaporizer or distiller.

1. **For an Acne Spot Treatment:** Apply bergamot essential oil mixed with a carrier oil directly to pimples, cysts, and blackheads. Leave on overnight. Alternatively, mix diluted bergamot essential oil into water or your favorite cleanser to use as a facial rinse. **Caution:** *bergamot essential oil increases photosensitivity, so do not use or leave this treatment on during the day and avoid exposure to direct sunlight for at least 24 hours after applying to your skin.*
2. **For Skin Care:** Alternatively, mix diluted bergamot essential oil in products such as body wash and facial scrubs. **Caution:** *bergamot essential oil increases photosensitivity, so do not use or leave this treatment on during the day and avoid exposure to direct sunlight for at least 24 hours after applying to your skin.*
3. **For Any Digestive Complaint:** Rub 1–2 drops of mixed bergamot essential oil with a carrier oil (such as coconut, jojoba or sweet almond) on your stomach after a meal.
4. **Lower a Fever:** Apply 1–2 drops of diluted bergamot essential oil onto your chest, forehead and the back of the neck. Alternatively, inhale 1–2 drops from your palms directly. Alternatively, diffuse bergamot essential oil through the day and at night close to your bed.
5. **For Oral Health:** Add a few drops of bergamot essential oil to a glass of water to make a mouthwash or gargle preparation. Alternatively, add a few drops of bergamot essential oil to your toothpaste and brush as normal. **Caution:** *do not ingest.*
6. **For Congestion:** Add a few drops of bergamot essential oil to a sink full of steaming hot water, cover your upper body with a towel, lean over the sink and breathe in the vapors (for severe congestion, add some eucalyptus essential oil). Rub some onto your chest after blending it with a carrier oil first to get relief from nasal and chest congestion. Alternatively, inhale the vapors from a diffuser throughout the night and day. Inhale it directly from your cupped hands as needed.
7. **For Body Odor:** Add 2–3 drops of bergamot essential oil to a warm bath (for added boost, mix in some lavender essential oil), or simply apply a few drops to your underarms and feet. To use it as a room freshener, you can add 5–6 drops of bergamot essential oil to a spray bottle filled with water and spray over soft surfaces.
8. **Insect Repellent:** Add 5–6 drops bergamot essential oil to a spray bottle filled with water and spray away.

PRECAUTIONS

There have been several reports of sensitivity to bergamot essential oil. Always perform a patch test before applying it to the skin for the first time. Always dilute essential oils with a carrier oil before applying topically. Bergamot essential oil can sometimes cause allergic dermatitis. Symptoms of an allergic reaction or sensitivity to bergamot essential oil may include redness, hives, burning sensation, blisters and pain.

Using essential oils in a diffuser can have a negative effect on children, pets, or pregnant women. Bergamot essential oil may not be safe for pregnant or breast feeding women.

Bergamot essential oil may reduce blood sugar levels in diabetics. Bergamot essential oil might result in blood pressure levels falling below normal. Consult with your physician before using bergamot essential oil as a form of medicinal treatment. Do not use bergamot essential oil for at least two weeks prior having surgery.

Always store bergamot essential oil in dark glass bottles in a cool, dark place as one of its components, *alpha-bergaptene*, can become poisonous when exposed to sunlight.

As a general rule ingesting any essential oil is not recommended. Not because the oils are necessarily always bad or dangerous—but because it is difficult to obtain reliable information on this subject and it is often unnecessary for two reasons:

1. First—you can get many benefits via aromatherapy and from topical application.
2. Second—since many essential oils are antibacterial and anti-fungal—they can alter your healthy gut bacteria (flora). If you have food poisoning and needing to kill certain (harmful) bacteria, essential oils could help.

However, essential oils can kill **good** bacteria as well. Studies have shown essential oils to have negative effects on (generally beneficial) *bifidobacteria*. Clove, cinnamon and [basil essential oils](#) have been tested and found to inhibit beneficial bacterium.

There simply isn't enough research available to know which essential oils affect which gut flora. If you do choose to ingest essential oils, it is strongly advised to follow up with probiotics. Dr. Scott Johnson recommends supplementing with probiotics 4 hours after ingesting any essential oils.

There is also the issue that some essential oils have potentially toxic compounds not meant to be metabolized by the human body. Wintergreen has *methyl salicylate* which is similar to aspirin. Aspirin can be toxic for children. Essential oils with *camphor* and *1,8 cineole* (eucalyptus and camphor) can be toxic even in small doses.

[Peppermint](#) and many citrus essential oils like lemon, orange and bergamot are used in foods and recipes. The key to safely ingesting these essential oils is diluting them with another substance. In the case of bergamot—[honey is a good option](#) when mixing it in tea. Put a drop of bergamot into 1 tsp. of honey, stir into the tea.

Essential oil safety expert and author Robbert Tisserand has investigated the toxic dose, and for bergamot he found there was not a known toxic dose—and [the testing done on mice](#) (which was not considered to be a toxic level) was extremely high.

PHOTOTOXICITY OF BERGAMOT

In several skin patch test studies, application of some sources of bergamot essential oil directly to the skin of guinea pigs was shown to have a concentration-dependent phototoxic (photosensitivity) effect of increasing redness after exposure to ultraviolet (UV) light (due to the chemicals *bergapten*, *citropten*, *bergamottin*, *geranial* and *neral*). However, if the oil is twice rectified (and therefore bergapten-free), no phototoxic response is observed. This phototoxic effect is a property shared by many other citrus fruits and other members of Rutaceae, including rue. *Ruta graveolens*, commonly known as rue, common rue or herb-of-grace, is a species of *Ruta* grown as an ornamental plant and herb. It is native to the Balkan Peninsula.

The phototoxic effects of bergamot essential oil have been known for more than a century. In 1925, Rosenthal coined the term "Berloque dermatitis" (from the French word "*breloque*" meaning trinket or charm) to describe the pendant-like streaks of pigmentation observed on the neck, face and arms of patients. He was unaware that, in 1916, Freund had correctly observed that these pigmentation effects were due to sun exposure after the use of Eau de Cologne, a perfume infused with bergamot essential oil.

Use of bergamot essential oil in aromatherapy, followed by exposure to ultraviolet light (either sunlight or a tanning bed), has been reported to cause *phytophotodermatitis*, a serious skin inflammation indicated by painful erythema (blushing or redness of the skin) and bullae (any skin condition) on

exposed areas of the skin. In one case, six drops of bergamot essential oil in a bath followed by 20–30 minutes exposure of ultraviolet light from a tanning bed caused a severe burn–like reaction.

Bergamot essential oil contains a significant amount of *bergapten*, a phototoxic substance that gets its name from the bergamot orange. *Bergapten*, a linear furanocoumarin derived from *psoralen*, is often found in plants associated with *phytophotodermatitis* (see my previous post on [Babchi seed oil](#)). Note that bergamot essential oil has a higher concentration of *bergapten* (3000–3600 mg/kg) than any other Citrus–based essential oil.

In the past, *psoralen* extracted from bergamot essential oil was used in tanning accelerators (spray tans) and sunscreens. In spite of being known to be *photocarcinogenic* since 1959, these substances were used in tanning activators until 1995, contributing to numerous cases of melanoma and death.

The [International Fragrance Association](#) (IFRA) restricts the use of bergamot essential oil due to its phototoxic effects. Specifically, IFRA recommends that leave–on skin products be limited to 0.4% bergamot essential oil, which is more restrictive than any other Citrus–based essential oil.

The compound *bergapten*, found in bergamot essential oil, was shown to be phototoxic in a small [2001 study](#). If you are concerned about your skin’s sensitivity to sunlight, look for a “bergapten–free” version of bergamot essential oil. The *bergapten* in bergamot essential oil is harmful if swallowed. Even inhaling or using the essential oil topically can interfere with certain medications, such as *ciprofloxacin* (an antibiotic).

Check for bergamot essential oil’s interactions with other medications before using. Consult with a pharmacist or your physician about medications you’re taking for any possible interference with essential oils.

RESEARCH ON BERGAMOT

Although generally recognized as safe (GRAS, an FDA designation) for human consumption, bergamot essential oil contains a significant amount of *bergamottin*, one of two furanocoumarins believed to be responsible for a number of grapefruit–drug interactions.

In one case study, a patient who consumed four liters of Earl Grey tea per day suffered *paresthesias* (an abnormal sensation of the skin having any of dozens of possible underlying causes, which can be transient or chronic), *fasciculations* (muscle twitching) and muscle cramps.

A [2017 systematic review of *Citrus bergamia*](#) determined no conclusions about its possible applications in clinical practice because its effectiveness and safety could not be definitively drawn due to publication bias and low quality level of the majority of studies.