

**Pests
and
dōTERRA
Essential Oils**

Natural Solutions



From the dōTERRA Gardeners' Journal

Clean Greenhouse

I clean my greenhouse and garden tools with a mixture of 10 drops of Melaleuca in about 33 ounces of distilled water. We put this in a spray bottle and clean every inch of the greenhouse. -Maila Chan

Essential Oils and Plant Companionship

I have been an organic farmer for 35 years. I have been using essential oils in my gardens since I have been with dōTERRA®. I teach the organic portion of “The Master Gardener” class for my local area. My class this year will include the wonderful uses of dōTERRA essential oils in the garden—not only for pest management, but also for plant vigor and growth. I don't use any chemicals in my garden at all and love sharing new and safe ways to enjoy gardening! I have substituted dōTERRA essential oils for companion plants—the results are amazing! For example, basil is a great companion plant for tomatoes. I use Basil essential oil in my watering can to give the plants a dose that can be absorbed through the root system, or I use it as a foliar spray. This helps to give the tomato plant great vigor for growth and plant resistance. -Kay Pittman

Ants No More

Last summer, I was attacked by ants. They had colonized near my strawberry patch. I panicked a little—I hate ants!—and dowsed the suckers in a solution of water and Peppermint. The next day, the ants were completely gone! I was impressed by how fast it worked. Plus, even though I did go a little overboard (a few sprays would have worked), I know Peppermint is safe for my strawberries and me. -Elizabeth Sperling



Slug Away

Last year, I had the best luck getting rid of slugs using White Fir essential oil on my peppers. I have also used Peppermint oil for aphids and mystery bugs. Peppermint also works great for cooling your body off in the hot sun. I make after-sun spray with Lavender, Peppermint, and aloe juice. After a long day of working on my garden, Deep Blue® Rub comes in handy for the joints and muscles. I clean my hands with essential oil sugar scrub. I can't tell you how much I love using dōTERRA in the garden. -Jamie Stitt



Bug Attack

My garden was being attacked by a beetle-like bug. It was eating away at everything, especially my favorite lily plant. I put a couple drops of TerraShield® in a spray bottle with water, sprayed the plants, and the beetle moved on! dōTERRA was part of my inspiration for my garden. -Kristen Willis

Common Essential Oils for Garden Pests:

TerraArmour

Great for mosquitoes and midges. Keeps them away if you apply on skin before going outside. Don't worry—if you are stung TerraArmour will take the sting out. Available as an essential oil or in a spray bottle with Fractionated Coconut Oil. Mix with water as a plant spray.

Peppermint

If you're finding more than your share of spiders or bugs in your home, Peppermint oil provides a perfect solution to ward off those creepy crawlers. Many bugs and spiders dislike the potent smell of Peppermint oil. Consequently, Peppermint oil is used as a home remedy to repel bugs naturally. Try placing one to three drops of essential oil on a cotton ball and position them in the corners of your bathroom, bedroom, kitchen, laundry room, or wherever you think these unwanted guests might be.

Cinnamon Bark

Put a drop in your pet's water bowl to keep away the mosquito wrigglers. Great to get rid of weeds—mix several drops in water in a spray bottle.

White Fir (now replaced with Siberian Fir)

For control of slugs on plants.

Thyme

Don't let those insects bug you, just give them a little bit of Thyme. Thyme oil contains chemical properties that naturally repel insects. To keep those bugs away, place a couple of drops of Thyme oil on a cotton ball and put it in corners where those little creeping crawlies are sure to hide. When gardening, place Thyme oil, diluted with Fractionated Coconut Oil, on your wrists and neck to keep the insects away.

Geranium

Geranium oil comes in handy when unwanted insects wander into the house. Because of the chemical components found within Geranium oil, Geranium naturally repels insects. Add a drop of Geranium oil to a cotton ball and place it in corners where insects are likely to be found. If you are going to garden outside and are cautious of the insects around you, wear Geranium oil to keep the insects away.

Cedarwood

Cedar oil's chemical makeup makes it effective at repelling insects. When working in the garden, consider adding Cedarwood essential oil to your mulch or topsoil to help keep insects at bay. To keep bugs away during seasons when insects are a threat, you can create your own essential oil bug repellent formula

using doTERRA Fractionated Coconut Oil and Cedarwood oil (simply apply to the body before going outside).

Lemongrass

The aldehydes in Lemongrass oil also make Lemongrass useful for naturally repelling insects. Diffusing Lemongrass oil or even using it topically can help keep bugs away. Diffuse Lemongrass oil inside or outside on your porch or patio to keep away mosquitos and bugs. If you are worried about keeping bugs off of your body, rub or spritz Lemongrass oil on your skin before you go outside.

Arborvitae

Apply to wrists and ankles while hiking to repel insects, or diffuse to repel insects indoors and purify air.

Natural Garden Spray

One of the trickiest parts of building and maintaining a healthy garden is keeping pests out. Conventional insecticides contain harmful chemicals that could be dangerous to pets or family members. Luckily, essential oils contain powerful properties that can help keep your garden bug-free, the natural way. This simple DIY uses the power of Peppermint oil to ward off unwanted visitors, keeping your home and garden happy.

Ingredients

500 ml spray bottle

15–20 drops Peppermint oil

Water

Instructions

Fill a 500ml glass spray bottle with water, leaving an inch or so of room at the top.

Add 15–20 drops of Peppermint oil and shake well before each use.

Apply spray to every plant in your garden, making sure to cover the stems and undersides of leaves as well. Spray again after each rainfall.

Note: To help kill weeds, you may substitute 250 ml of water for 250 ml of vinegar in this DIY. If you choose to do so, do not apply directly to garden plants, and use white vinegar only. Apple cider vinegar emits a sweet smell that fruit flies love, and can make a pest problem much worse.



USING ESSENTIAL OILS TO BATTLE BLIGHT, FUNGUS, AND BUGS

We've talked a lot about the antibacterial, antifungal, and antiseptic properties of many different essential oils, but we always think about these properties when cleaning household surfaces, or using for health purposes. Many essential oils can be used in the garden for these same purposes! Many of your plant's ailments can be mended by using essential oils instead of their toxic counterparts. Tea tree and lavender essential oils are very antibacterial and antifungal and work well to combat fungus and bacteria issues on your plants.



Add 10 drops tea tree essential oil and 10 drops lavender essential oil to 4 litres of water, before watering. I have also been known to add essential oils to a spray bottle, along with water, and spray just the affected area too! My Medicine Woman essential oil blend is not just great during the cold and flu season, it's another blend that is great to also use in the garden. It's not only highly antibacterial and antifungal but will also help protect your plants from bugs too!

ESSENTIAL OILS THAT REPEL AND KILL CREEPY CRAWLIES

There are many essential oils out there that can repel and kill creepy crawlies around your house and in your garden. You can use these essential oils in your watering can, as a bug spray, and even in candles to ward off insects and bugs of all kinds!

- Ants: Peppermint, spearmint, TerraArmour, orange, Cedarwood
- Aphids: Cedarwood, peppermint, spearmint, orange, Cedarwood
- Beetles: Peppermint, thyme, garlic, Cedarwood, orange
- Caterpillars: Peppermint, spearmint, Cedarwood, orange
- Chiggers (mites): Lavender, lemongrass, thyme, Cedarwood, orange
- Cutworm: Thyme, Cedarwood, orange
- Fleas: Lavender, lemongrass, peppermint, cedarwood, TerraArmour, orange
- Flies: Lavender, peppermint, rosemary, TerraArmour, cedarwood, orange, lemongrass, lemon, thyme, tea tree, sandalwood, patchouli
- Gnats: Patchouli, spearmint, orange, TerraArmour, cedarwood, pepper-

mint, eucalyptus, geranium

- Mosquitoes: Lavender, lemongrass, orange, TerraArmour, cedarwood, peppermint, lemon, eucalyptus, thyme, rose geranium, clove, cypress, cinnamon
- Head Lice: Lavender, tea tree, geranium, spearmint, peppermint, thyme, orange, rosemary, Cedarwood
- Plant Lice: Peppermint, spearmint, Cedarwood, orange
- Moths: Cedarwood, lavender, peppermint, spearmint, TerraArmour, orange
- Roaches: Cedarwood, eucalyptus, cinnamon, thyme, orange
- Slugs: Cedarwood, orange
- Snails: Cedarwood, patchouli, orange
- Spiders: Peppermint, spearmint, lemon, lime, orange, citrus, lavender, TerraArmour,, Cedarwood
- Ticks: Lavender, lemongrass, orange, thyme, TerraArmour, tea tree, geranium, Cedarwood, eucalyptus, myrrh
- Weevils: Cedarwood, patchouli, sandalwood, orange

MY TWO FAVORITE BUG KILLING OILS

When I am making a bug spray to kill bugs, there are TWO specific essential oils that I always utilize in my sprays, because they work SO WELL at killing pretty much all bugs everywhere.

Orange oil – In a world full of biological pesticides which don't work very well, orange oil stands out because it wipes out or repels entire colonies, and prevents re-infestations, instead of simply killing insects individually. D-limonene (the main constituent of orange oil) is harmless to humans, but deadly to most insects because it dissolves the waxy coating on the exoskeleton of insects, causing dehydration and asphyxiation. One application of orange oil will destroy a full colony of ants. Then, even more importantly, its powerful scent will eradicate the pheromone trail left behind by the ants. Re-infestation usually happens when "new" ants follow that trail back to the original ant nesting spot. But if they can't find the pheromone trail, a new colony won't be setting up shop in your home or business. This oil is so effective at killing bugs, that you should be aware of which bugs you are spraying, as this can also kill beneficial bugs and pollinators.

Cedarwood oil – Cedarwood oil affects octopamine, a compound that is essential to life for pheromone-driven "bad bugs" like fleas and ticks. Octopamine is responsible for regulating heart rate, movement, and behavior in pests. It's essential for life. Cedarwood oil blocks the octopamine neurotransmitter receptors in pests, causing them to be repelled from the area. When "bad bugs" come in contact with cedarwood oil, pests suffocate and die. Mammals, birds, fish, amphibians and beneficial insects are not affected by cedarwood oil because they do not have octopamine neurotransmitters.

DIY BUGS-B-GONE HOME & GARDEN SPRAY

Soap is very effective against all forms of bugs! It also helps to keep flying bugs from flying again, once their wings are drenched, keeping them from coming at you for killing them! This spray can be used both indoors and outdoors, and even on/around your plants in the garden. Beware, this spray will kill ALL bugs, including the good ones, such as bees and butterflies, so be aware of who you are spraying. It won't kill them if they come to the plant after it's been sprayed, only if they get sprayed themselves! This spray is so awesome, I have used it to kill ants/fire ants, cockroaches, wasps (you really want to make sure you have a spray bottle with a stream function if you are going to go after these buggers), aphids, caterpillars, flies/horseflies, mosquitoes, and more! This spray is safe for use around your babies & kiddos of all ages!

INGREDIENTS

1/4 cup liquid castile soap (you can alternately use 1/8 cup shampoo)
1 tsp. orange essential oil
1 tsp. Cedarwood essential oil
filtered water to fill

1 litre commercial spray bottle (The commercial strength spray bottles are made without BPA and are strong enough to be used with essential oil. I have tried so hard to find a glass version of this, but they are just not that common still. If you don't want to use a commercial plastic spray bottle, you can halve this recipe and use this 500 ml glass spray bottle instead!)

DIRECTIONS

Combine castile soap, cedarwood oil, and orange oil in a 1 litre spray bottle (preferably the kind meant for cleaning so that you can change from spray to stream when you need) and add water to fill. Cap and shake well to mix together. Label and store in a cool dark cabinet when not in use.

TO USE: Spray directly onto the bugs you are trying to demolish. They may walk or run away, but they will slow down and die. For flying bugs, it's easiest to spray them when they have landed, either on their hive or on the ground/walls/etc. You can make this mixture (using peppermint castile soap) in a large batch, using boiling water, and pour over the ant piles in your yard as well. You have to remember that ant homes can be very large underground cities, so this is a repetitive process that causes them to move their homes out of your yard.



MANY FLEA & TICK PRODUCTS CONTAIN TOXIC INGREDIENTS

Many of the flea control products on the market today contain highly toxic ingredients in them. Not only are these ingredients toxic to our animals, but if brushed off onto our human family members they can be potentially dangerous. The most at risk is children as they are highly susceptible to the amount of toxic ingredients in these flea collars and sprays.

The most popular kind of flea control products on the market is the “spot-on” variety, sold under brand names like Frontline® and Advantage™. The active ingredients in these solutions include chemicals such as imidacloprid, fipronil, permethrin, methoprene, and pyriproxyfen, all of which have caused serious health problems in animals in laboratories. Even some of the inert ingredients can be hazardous to your animal companion’s health. In 2008, the Environmental Protection Agency received more than 44,000 complaints of “adverse reactions” ranging from skin irritation to seizures and death, and has since been “pursuing a series of actions to increase the safety of spot-on pesticide products for flea and tick control for cats and dogs.

DIY NATURAL FLEA & TICK SPRAY – NATURAL PEST CONTROL FOR DOGS

INGREDIENTS

- 4 Tbsp. raw apple cider vinegar
- 2 Tbsp. aloe vera gel
- 1 tsp. vegetable glycerin (optional)
- 1 Tbsp. sweet almond oil
- 4 drops orange essential oil
- 4 drops lemon essential oil
- 4 drops lavender essential oil
- 6 drops geranium essential oil
- 10 drops TerraArmour, essential oil
- 10 drops Cedarwood essential oil
- filtered water, to fill
- 250 ml spray bottle

NATURAL FLEA & TICK SPRAY FOR CATS

For a flea and tick spray for cats, mix 4 drops total of geranium and rosemary oils to one cup of water and spray on cat’s fur, avoiding the face.

Essential Science: Bug Off!

Don't let the bugs bug you this spring.

By Jeff Dorsett, MSHS

Game On

As we leave winter behind us and approach spring, many of us are yearning to get outdoors, to breathe fresh air, and to once again feel the warmth of the sun. For the more sports-minded, spring is a perfect time for getting back to shooting some hoops, working on your pass, or hitting the green. Yes, spring has something to offer all of us. Spring is also a time when mosquitoes and other



insects begin to feed. As the swarms descend, we scurry to our cabinets or first aid kits to find the long forgotten, often synthetic, chemical-based repellents, in hopes of warding off the feeding frenzy. However, there are several safety concerns related to both environmental and human health, with the use of synthetic chemicals to control insects and other pests.¹ Therefore, now is a good time to brush up on the benefits of essential oils and their repelling properties. Just like preparing for a sport or other outdoor activity, protecting oneself from pests requires knowledge and planning.

The Best Offense Is a Good Defense

Arguably, no defense is better than Mother Nature's offerings. Nature has granted every living organism unique abilities and mechanisms to fight for its continued survival.¹ For example, to ensure our continued survival, humans have the ability to run, hide, or fight when presented with an immediate threat. Had we lacked these basic abilities throughout history, our species would have ceased to exist. The same is true for other mobile creatures. But what about nature's less mobile inhabitants (e.g. plants) that lack such defensive mobility? How have they survived for millennia without these abilities?

Hang Time

For centuries, these same essential oils have been traditionally used by native human populations throughout the world to ward off mosquitos and other insects.¹ In fact, the hanging of repellent plants throughout the home, after bruising them to release the essential oils, is still a common practice in developing countries.² Modern scientific research has validated the traditional use of essen-

tial oils as natural repellents. Many essential oils extracted from various plants have been shown to have excellent repellency properties.³ Generally, the unique combination of monoterpenes and sesquiterpenes found in these oils may contribute to their repellent properties.¹ Alpha-pinene, cineole, eugenol, limonene, terpinolene, citronellol, citronellal, camphor, thymol, and beta-caryophyllene are commonly found in essential oils that have the ability to repel mosquitoes.^{3–7}

Working as a Team

The term “synergy,” in the context of essential oils, means that often increased activity is found in the use of the whole oil rather than just one of its constituent parts. The same can be said of blends of essential oils having greater activity than that of any one of the single essential oils that make up the blend. It is easy to attribute repellency activity of an essential oil to one or two compounds; however, there is scientific support for a potential synergistic repellent effect among the various components.^{3, 7, 8} In fact, several studies have demonstrated that pure isolated compounds are less effective



repellents than that of the essential oil in which they are found.^{1–3} It is believed the minor constituents found in essential oils act synergistically with the major constituents, improving the overall efficacy.³ This concept of synergy is key when developing natural, essential-oil-based repellents; a product based on a mixture of whole essential oils is often more powerful than one based only on one oil or component.

Mother Nature’s Playbook

Drawing upon Mother Nature’s blueprint, scientists have developed insect repellent formulations (e.g. sprays, creams, gels, and lotions) based on the unique protection afforded by plant-based essential oils. Many essential oils (including Arborvitae, Cedar, Cinnamon, Citronella, Clove, Geranium, Lemongrass, Spearmint, Peppermint, Rosemary and Thyme) have known repellency properties, and are considered safe for repelling insects, when used appropriately.⁹ In choosing an essential-oil-based repellent, look for one that contains one or more of these essential oils or that share similar chemistry. Also, essential-oil-based repellents tend to lose efficacy relatively quickly—they are volatile, aromatic compounds after all. So it is important that the formula should contain a fixative ingredient, like Fractionated Coconut Oil¹⁰ to help keep the essential oil on the skin longer and thus help increase repellent efficiency. Vanilla absolute, which contains vanillin, is also a great addition to any essential-oil-based repellent, because it can also prolong efficacy.^{1–3}

This year, as you go outside and enjoy all that Mother Nature has to offer, don't let the bugs bug you. With a little pre-game planning, you can ensure that you have a great outdoor experience.

THE GAME PLAN

Common "scents" defense. Use a good essential-oil-based repellent that contains a blend of two or more essential oils with known repellency properties (see list above). Blends containing Cedar essential oil are particularly useful and provide an aroma profile that is reminiscent of nature. Additionally, the product should contain a fixative like Fractionated Coconut Oil and/or vanilla absolute, to help ensure long-lasting efficacy.

Dress for the occasion. Weather permitting, wear long sleeve shirts, pants, and socks to provide a first-line physical barrier.

Keep your eye on the clock. Mosquitoes are generally most active between the hours of dusk and dawn, so plan your day accordingly.

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For more information contact: