

Smoke Inhalation and Herbal Medicine

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Overview

Wildfires contain many different airborne particles, which can infiltrate and damage the respiratory tract and other body systems and tissues. This smoke is much more harmful when buildings, vehicles, plastic, and other human-made synthetic items burn. Once released, these particles can travel hundreds of miles, be present for weeks afterward, and get into homes. The inhaled particles can irritate the eyes, nose, throat, skin, and lungs. Very small particles can make it deep into the lungs. From there, they can migrate into the bloodstream and then into other body tissues, where they can trigger inflammation. This can cause many symptoms, including headaches, fatigue, rapid heart rate, and chest pain. In the respiratory tract, they can trigger wheezing, coughing, and breathing difficulties. Symptoms can be especially difficult for folks with asthma and chronic obstructive pulmonary disease (COPD).

Inhaled particles can be more dangerous for children, people in fragile health, and during pregnancy (both to the individual and the fetus). Once in the bloodstream, these toxins can cause widespread inflammation, increase autoimmune flares, and increase the risk of illness for people with weakened immunity. They can damage the cardiovascular systems and liver. This is why wearing an appropriate mask and other smoke avoidance behaviors are so important. Prevention is key. Once the small particles reach deep into the lungs, they are very difficult to extricate. Mask numbers indicate their ability to filter out particulate matter. For instance, N95 masks can filter particles up to 2.5 microns (if worn correctly).

These notes mainly pertain to the damage from smoke inhalation. Wildfires cause other types of harm, including irritated eyes and skin, fatigue, cognitive difficulties, anxiety, and depression. Herbal medicine may be beneficial for some of these conditions as well.

Note: None of my suggestions are meant to replace any medications.

Treatment

Herbal medicine can play a beneficial role in helping reduce symptoms and potentially lessen long-term damage. They do not replace face masks. Please use this information as a guide and research further which plants are specifically helpful for you and anyone you treat.

There is a lot of crossover between plants and categories. For instance, plants may be both expectorant and decongestant.

I apologize for not providing more information about all the specific plants, but I want to make this available soon.

Medicinal Categories

Antiinflammatory

Inflammation is one of the first reactions to damaged tissue caused by particulate inhalation. While inflammation is a natural and necessary part of the healing process, it can also have health consequences, such as pain and breathing difficulties. It can also become a chronic healthcare concern. Antiinflammatories can reduce some of the immediate and long-term health issues caused by inflammation.

1. Black birch
2. Chamomile
3. Ginger
4. Licorice
5. Turmeric
6. Willow
7. Wintergreen

Bronchodilator

These dilate (widen) the bronchi, the tubes that air travels into the lungs. Bronchi are directly affected by inhaled particles and can become constricted, inflamed, and full of mucus. A few herbs can dilate the bronchi to help with breathing. Note that they do help with inflammation or mucus congestion. Try to be in a clean air space when using them, or put a mask on right afterward, as it is possible to breathe foreign matter deeper into the lungs. Please read the Specific Plant Notes about Ephedra and Lobelia.

1. Lobelia
2. Ephedra

Cough Remedy

This is a catch-all term for any plant that can help relieve coughing. It is important to note that coughing is the main mechanism to remove particulate matter from our respiratory tract, especially with productive (wet) coughs, where mucus and trapped particles may be brought out of the lungs. But coughing can also be irritating, non-productive, and can disturb sleep. These cough medicines include expectorants, demulcent, and cough suppressant herbs.

1. American spikenard
2. Balsamroot
3. California spikenard
4. Coltsfoot
5. Elecampane
6. Eucalyptus
7. Gumweed
8. Hyssop
9. Licorice
10. Lobelia
11. Marshmallow root
12. Mullein
13. Plantain
14. Osha
15. Sage
16. Slippery elm
17. Thyme
18. Violet
19. Wild cherry
20. Yerba santa

Decongestant

Decongestants are plants that reduce excess mucous from the sinuses and nasal passages by either drying or expelling the mucous. They can be drying, and it may be helpful to take them with a demulcent.

1. Bayberry
2. Beggar ticks
3. Ephedra
4. Gumweed
5. Yerba mansa
6. Yerba santa

Demulcents

Demulcent plants are those with a high mucilaginous (gloopy) content. This mucilage retains moisture and thickens up. Some plants, such as Slippery elm, contain large amounts of this mucilage.

Demulcents are helpful because they can increase mucus production in the mucous membranes, including the respiratory tract. Mucus is the primary way the body expels small particles from the lungs. By increasing the quality of the mucous (rather than thin and sticky) it can be helpful in moving particulate matter up and out. The mucilage also soothes irritated mucus membranes.

Demulcent Directions

Demulcents are best taken in powder form, as this will create the most viscous gel. The thickness depends on the plant and part. One teaspoon of powder to a half cup (approx. 4 oz) of water or other liquid generally makes a good mixture. This usually needs to be stirred (or shaken) vigorously to dissolve it otherwise, it will clump up. If you let the powder and water sit for a few hours, it will thicken up.

The second best way to use demulcents is with a strong tea. Again, letting it sit for some hours will help thicken it up. Capsules are another method, taking 2-3 capsules a few times a day. This will not have the demulcent feel on the way down, though some people prefer this preparation. Other methods include syrups, glycerite, and tincture. With any of these preparations, I suggest taking them a minimum of 3-4 times, depending on how much smoke is present.

1. Licorice root
2. Marshmallow
3. Okra
4. Psyllium seed
5. Siberian elm
6. Slippery elm

Expectorant

These help expel mucous from the respiratory tract. This can reduce coughing, resolve chest tightness, and ease breathing. Some of these plants are drying and should be taken along with a demulcent.

1. American spikenard
2. California spikenard
3. Elecampane
4. Ephedra
5. Gumweed
6. Horehound
7. Lobelia
8. Osha
9. Schisandra
10. Skunk cabbage
11. Wild cherry
12. Yerba santa

Liver Support

The liver can be damaged as inhaled particulate matter moves into the bloodstream from the lungs to be processed by the liver. The herbs listed here are gentle and can be taken as daily tonics.

1. Artichoke leaf
2. Burdock root
3. Dandelion root
4. Milk thistle

Preparations

Capsule

Capsules are powdered herbs contained in a capsule. They have the advantage of being the closest in form to conventional medicine, making them familiar to people. They are also easy to carry around and ingest. One disadvantage compared to un-capsuled powders is that they do not moisten the throat as they do not open until they reach the stomach. See Powder for more information.

Glycerite

These are plants extracted in vegetable glycerin. Some advantages are that they do not contain alcohol (like tinctures), and many people prefer their sweet flavor. They also are viscous and may feel good on mucus membranes. One disadvantage is they don't extract as many plant constituents as tincture and tea, so there are a limited number of medicinal glycerites.

Herbal Steam

The warm, moist air from steams can bring plant aromatics deeper into the bronchi, help loosen mucus, and reduce irritation. They should be done in a clean air environment as you will be inhaling deeply.

Herbal Steam Directions

There are several ways to prepare herbal steams. One of the main choices is whether to use raw herbs or essential oils. Essential oils are volatile and can move deeper into tissue, but some people find them too strong and irritating. Raw aromatic herbs can also be used, which may be milder but still effective. The goal of both of these preparations is to breathe in the aromatics carried by the steam into the lungs. It is important not to put one's face too close as it can get burned.

With essential oils, boil some water, turn off the heat, and add 2-3 drops of the essential oil into the water. Put a towel over your head and the pot to form a curtain to trap the steam. Keep your face at least 1 foot away from the pot to avoid burns. Breathe in deeply through your mouth and nose. Do this a few times. Stop and move away if it feels like the heat is irritating.

With aromatic herbs, you can either put them in boiling water or pour boiling water over them. The rest of the steps are the same as above.

Some essential oils to consider are Eucalyptus, Rosemary, Thyme, Tea tree, Lavender, Sage, and Chamomile.

Powder

Powders are pulverized (powdered) plant matter. Demulcent powders are especially beneficial for smoke inhalation. They have a mucilaginous (viscous) consistency that can bring relief to the throat and respiratory tract.

And since they contain the whole plant (as opposed to extractions such as tinctures), they contain all the plant's constituents, including vitamins and minerals. See Demulcent for more information.

Syrup

Syrup are plants extracted in honey or sugar. There are several ways to prepare these. For smoke inhalation, syrups made with honey are preferred due to the soothing feeling of honey as it travels down the throat. Syrups can be added to other preparations, such as tea or tincture, to sweeten them and add to their medicinal qualities.

Since syrups can raise blood sugar, be cautious with people with blood sugar issues.

Tea

Teas are water-based preparations. There are two main types: infusions, when boiling water is poured on top of plants, and decoctions, when the plant is cooked in hot water. An advantage of tea is that water is a very safe liquid. Water can extract more constituents than any other fluid. You can also dissolve demulcent powders into tea to make them more mucilaginous. Teas often have a soothing quality. Some disadvantages include the need for equipment to prepare the tea. They also need containers to carry them around. And teas can go bad after sitting around, especially in the heat.

Tincture

Tinctures are plants extracted in alcohol. Their biggest disadvantage is that they cannot be used by people who avoid alcohol. And many people find their taste disagreeable. Their advantages are that they extract most plant constituents, are very stable, and can easily be carried around.

Specific Plant Notes

Licorice (*Glycyrrhiza uralensis*, *G. glabra*)

Licorice can be beneficial, but it also comes with a warning. It is demulcent and antiinflammatory, which are both helpful for smoke inhalation. But use it with caution as it can raise blood pressure for some people who have hypertension (high blood pressure). This usually happens when taking larger amounts of Licorice over a prolonged period of time.

Lobelia (*Lobelia inflata*)

Lobelia tincture is a bronchodilator and can help with wheezing and breathing difficulties. It does not help with bronchi inflammation.

Ephedra (*Ephedra sinica*, also known as Ma huang)

Ephedra is a potent bronchodilator and decongestant but carries significant risk due to its stimulant effects on the sympathetic nervous system. It can raise blood pressure, cause headaches, and increase anxiety. This can happen with one strong dose.

Slippery Elm (*Ulmus rubra*)

Slippery elm is one of the safest and most mucilaginous plants. But the tree is in decline due to overharvesting and disease. Please try to obtain Slippery elm from sustainable sources.

Siberian elm, a common non-native weedy tree, can be used as a substitute for Slippery elm. The difficulty is in trying to powder the bark, but it can be used as a tea or just chew on the bark and twigs.

Materia Medica

1. American spikenard-*Aralia racemosa*
2. Artichoke leaf-*Cynara cardunculus* var. *scolymus*
3. Balsamroot-*Balsamorhiza sagittata*
4. Bayberry-*Myrica cerifera*
5. Beggar ticks-*Bidens* species
6. Black birch-*Betula lenta*
7. Burdock root-*Arctium* species
8. California spikenard-*Aralia californica*
9. Chamomile-*Matricaria chamomilla*
10. Coltsfoot-*Tussilago farfara*
11. Comfrey root-*Symphytum* species
12. Dandelion root-*Taraxacum officinale*
13. Elecampane-*Inula helenium*
14. Ephedra-*Ephedra sinica*

15. Eucalyptus-Eucalyptus species
16. Ginger-Zingiber officinale
17. Gumweed-Grindelia species
18. Horehound-Marrubium vulgare
19. Hyssop-Hyssopus officinalis
20. Licorice-Glycyrrhiza glabra, G.
 uralensis
21. Lobelia-Lobelia inflata
22. Marshmallow-Althaea
 officinalis
23. Milk thistle-Silybum marianum
24. Mullein-Verbascum thapsus
25. Okra-Abelmoschus esculentus
26. Osha-Ligusticum porteri
27. Plantain-Plantago species
28. Psyllium seed-Plantago ovata
29. Sage-Salvia officinalis
30. Schisandra-Schisandra
 chinensis
31. Siberian elm-Ulmus pumila
32. Skunk cabbage-Symplocarpus
 foetidus
33. Slippery elm-Ulmus rubra
34. Thyme-Thymus species
35. Turmeric-Curcuma longa
36. Violet-Viola species
37. Wild cherry-Prunus serotina
38. Willow-Salix species
39. Wintergreen-Gaultheria
 procumbens
40. Yerba mansa-Anemopsis
 californica
41. Yerba santa-Eriodictyon species