

A Practical Guide to Herbal Therapies

for People Living with HIV



Canadian AIDS Treatment
Information Exchange

Réseau canadien
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A Practical Guide to Herbal Therapies for People Living with HIV

Revised 2005

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This guide is dedicated to the memory of Dr. Chester Myers (1945–1999), scientific advisor to CATIE, for all his years of friendship and support.



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Mission Statement The Canadian AIDS Treatment Information Exchange (CATIE) is committed to improving the health and quality of life of all people living with HIV/AIDS (PHAs) in Canada. CATIE serves PHAs, and the people and organizations that support them, by providing accessible, accurate, unbiased and timely treatment information. CATIE works in partnership with a network of other information providers to ensure that people have access to the information they need, in the form they desire, to make informed health care choices.

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A Practical Guide to Herbal Therapies *for People Living with HIV*

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How to use this guide

This Practical Guide is part of a series and is meant to be used in conjunction with the other guides. The other titles are:

- *A Practical Guide to HAART (Highly Active Antiretroviral Therapy)*
- *A Practical Guide to HIV Drug Side Effects*
- *A Practical Guide to Nutrition*
- *A Practical Guide to Complementary Therapies*

All of these guides are available at www.catie.ca or by calling us at 1 800 263-1638.

The herbal therapies in this guide are listed according to names most commonly used in the HIV-community. Herbal products often have several names: the plant's scientific Latin name; the plant's common English names; a common name used in its country of origin; and names referring to specific biochemicals that are active in a plant. If you can't find the herb you're looking for in the table of contents, you may find it in the chart that lists different names for herbs covered in this guide found in *Appendix A: Alternative names for herbal therapies* on page 42. For ideas on which herbs may be useful for specific problems, see the opposite page, called *Finding herbs for specific health problems*. Throughout this guide, references are made to clinical studies and other research on herbal therapies. For further information on these studies, see *Appendix B: References to scientific research on herbal therapies* on page 44.

Introduction

Herbal medicine: The use of plants or plant-based materials to treat illness.

Taken as a group, herbal medicines are probably the complementary therapy most widely used by people living with HIV/AIDS (PHAs). Why are they so popular? What can these therapies offer for people with HIV? And how can people living with the virus learn about herbal therapies and choose ones that will enhance their health? These are some of the questions examined in this guide.

The history and popularity of herbal therapies

Herbal therapies have been used since ancient times. Neanderthals were buried with collections of plants that we now know have medicinal properties. Early peoples must have discovered these benefits through a centuries-long process of trial and error. With each generation, a community's body of knowledge about herbal medicines grew. Such knowledge continues to grow today in areas of the world where indigenous cultures have survived the destructive influences of modern society.

In other areas of the world, information about herbs was written down and organized into large treatment texts—called pharmacopeias—which specified how each herb should be prepared and how it could be used in treatment. Which herbs were selected and how their uses were explained depended on a particular community's understanding of illness. For example, Mediterranean people used garlic to ward off the

evil spirits that they believed caused diarrhea, while the Chinese used garlic for illnesses they described as disorders of the spleen and kidneys.

Today, people are attracted to herbal therapies for many reasons, the most important reason being that, like our ancestors, we believe they will help us live healthier lives. People living with HIV/AIDS may take garlic because biochemical studies of the plant have identified sulphur-containing compounds that might destroy parasites in the gut. They may also take garlic because it has worked well for a friend with diarrhea or because their doctor of Chinese medicine has said that an imbalance in the *Qi* (life force) of their spleen has resulted in digestive upset.

People living with HIV often blend different types of information to arrive at decisions concerning herbal treatments. In many cases, they apply information that was collected long before we knew about HIV disease.

Questions about herbs often can't be answered. This reality will sound familiar to HIV-positive people whose lives are full of unanswered questions and choices that have to be made without all the desired information. Many people with HIV continuously explore herbal medicines in search of treatments that will help rebuild the immune system, address drug side effects and HIV-related conditions and perhaps even combat HIV.

This guide looks at some of the herbal therapies that HIV-positive people are trying and provides brief overviews of each treatment. We don't intend to recommend any of these therapies; instead we hope to offer people living with HIV a jumping-off point for learning about herbal treatments. At the end of the guide, we provide suggestions on how you can continue your research into herbal therapies.

How people living with HIV use herbal therapies

HIV-positive people use herbs for a few key purposes:

Immune system therapies

Many people with HIV take herbs to support the immune system and to help it repair the damage caused by the virus. This is one of the most important uses for herbs but it's also an area in which it may be difficult to find enough information to make informed choices. We know that the immune system works as a result of incredibly complicated interactions between immune cells and the proteins they use to communicate with each other. It's often difficult to predict how drugs or herbs that target one part of the immune system will impact on another part. Science has learned a lot about the immune system during the last 15 years, and much of this research has been driven by research into HIV infection, but much more needs to be learned. So far, neither pharmaceutical companies nor herbal practitioners have focused on treatments that take full advantage of our knowledge of the immune system. Most of the interest in herbal immune treatments lies with herbs that were formerly used for cancer treatment.

HIV hides inside the cells of our bodies, as do many of the micro-organisms that cause AIDS-related infections. Infected cells appear abnormal to the immune system, so the immune system fights these infections by destroying abnormal cells. Since cancer cells are also abnormal cells, the immune system uses a similar approach to

destroy cancer cells. The destruction of abnormal cells is directed by a portion of the immune system called the cell-mediated immune system.

The cell-mediated immune system includes specialized immune cells, such as CD4+ cells, CD8+ cells and natural killer cells that work together with the immune proteins interleukin-2 (IL-2), interferon gamma (IFN-gamma), tumour necrosis factor alpha (TNF-alpha) and many other proteins. Herbal therapies that may be useful for HIV-positive people often enhance cell-mediated immunity.

Although we say that AIDS is an immune deficiency syndrome, parts of the immune system of an HIV-positive person work very hard and may already be overstimulated by the demands of HIV infection. Some immune stimulants (or immune boosters) may actually worsen the health of HIV-positive people by stimulating the wrong parts of the immune system or by increasing the burden on the system. Immune therapies are often taken in cycles (a few days or weeks on followed by a few days or weeks off) to prevent the system from adapting to the treatment in such a way that the treatment's effects are weakened. This point is important to consider when choosing herbal therapies for immune support.

Some herbs used as immune therapies include ashwagandha, Astragalus, Atractylodes, cat's claw, ginseng, greater celandine, shatvari and shiitake as well as maitake mushrooms.

Antimicrobial therapies

An antimicrobial is a chemical substance that kills micro-organisms such as bacteria, viruses, fungi and protozoa. These micro-organisms cause the infections common in people with AIDS. Plants have antimicrobial properties that protect against infection. These properties are usually effective against a broad range of possible infections, since plants have no formal immune systems that identify and react to specific infections. The antimicrobial properties in plants are also useful in fighting infections in humans but are generally considered milder and less targeted than drugs or the actions of our immune systems.

People living with HIV typically use antimicrobial herbs to prevent AIDS-related infections or to treat relatively mild infections. Such herbs may also be used to enhance the effects of antimicrobial drugs. Antiviral herbs are a subcategory of antimicrobial herbs, and some of the herbs used by people with HIV primarily to treat the virus may also help prevent other infections.

Herbs used as antimicrobials include garlic, goldenseal, neem, propolis, Sanguinaria and tea tree.

Anti-HIV therapies

There is reason to believe that some herbs may attack HIV directly. Studies have identified herbs that kill viruses other than HIV in a test tube, and records based on traditional knowledge identify herbs used to fight viral infections.

A few small clinical trials have been done on antiretroviral herbs, but no herbal treatment has been shown to be as effective as antiretroviral drugs in stopping the replication of HIV.

When investigating antiviral treatments, it's important to note how the treatments have been tested. Although a test-tube study tells us that a treatment can stop the replication of a virus, it doesn't tell us whether this herb can be absorbed into the body at effective levels. Nor does it tell us whether the herb can stop replication inside the body.

Antioxidants

Simply put, many of the natural processes of our body—like breathing—produce chemical by-products called oxygen free radicals. Although these free radicals are a natural part of our body's metabolism, if left unchecked, they can damage our cells in much the same way that rust damages a car. Antioxidants, which our bodies produce, prevent this damage. Also, antioxidant vitamins, like vitamins C and E, are present in many of the foods we eat.

Studies have shown that people with HIV produce high levels of free radicals, and that their bodies have lower levels of antioxidants. To counteract this problem, many people living with HIV take antioxidant supplements. Examples of strong antioxidants are the nutritional supplements N-acetyl-cysteine and CoEnzyme Q10, and antioxidants are discussed in more detail in CATIE's *Practical Guide to Nutrition*, available at www.catie.ca or by calling 1 800 263-1638. Some of the antioxidant herbs covered in this guide are ginger, ginkgo, milk thistle and turmeric.

HIV-related conditions

Some people living with HIV use herbs to help treat or prevent conditions related to the virus. Besides those antibiotics previously mentioned, examples of such herbs include the following:

- Ginkgo to prevent HIV-related dementia.
- St. John's wort for mild to moderate depression.
- Greater celandine for Kaposi's sarcoma.
- Marijuana for wasting.
- Aloe vera for skin problems.
- Lemon balm for insomnia and herpes simplex.

Drug side effects

Some people use herbs to cope with the side effects of the drugs they take to combat HIV infection. When we talk about drug side effects, we often think of ones that are direct and short-term, like nausea, diarrhea and headaches. Some herbs are used to treat these conditions, like ginger or marijuana for nausea, and peppermint or psyllium husks for diarrhea. Peppermint oil may also be used for headaches by applying a small amount to the temples.

High levels of cholesterol and triglycerides are becoming more common in people living with HIV. This problem seems to be associated with the use of antiretroviral drugs. Having high levels of cholesterol and triglycerides in the blood may increase a person's risk of heart attack or stroke. In response, some people living with HIV are exploring herbal remedies, including garlic, ginger, ginseng and guggul.

The use of herbal therapies to manage drug side effects is very complicated because of the potential for herb-drug interactions. These interactions can increase side effects, weaken the effectiveness of treatment and/or cause drug resistance leading to limited treatment options. The use of herbal therapies for managing drug side effects will not be discussed in depth in this guide. *CATIE's Practical Guide to Managing HIV Drug Side Effects* discusses this topic in more detail. (This guide is available at www.catie.ca or by calling 1 800 263-1638.)

If you are considering taking herbal therapies along with prescription or non-prescription medications, including antiretroviral drugs, please read the section below called Herb-Drug Interactions.

General well-being

People living with HIV face many challenges. As a result, they may experience increased levels of stress, and this stress may be detrimental to the immune system. HIV-positive people may experience fatigue due to this stress. Fatigue may also be the side effect of an anti-HIV drug or a symptom of HIV infection. Two groups of herbs are often used to deal with stress and fatigue.

Adaptogens are herbs that normalize the body's function and help it cope better with illness and stress. They seem to work on a variety of conditions. How they work is not clearly understood and will vary with the different herbs. They may affect the parts of the brain that govern our hormones. Adaptogens have been observed to help people cope better with non-specific problems like stress and fatigue but they may have more specific effects, as well. For example, Panax ginseng has been shown to help regulate (by increasing or decreasing) insulin levels in diabetes. Adaptogens may also assist in regulating the immune system. Tonic herbs are invigorating substances that promote vigour, physical tone and a sense of well-being. They might give an HIV-positive person more stamina. They are often used by traditional practitioners to help people cope with the burdens of aging. Although tonic herbs may help a person cope with fatigue, they are rarely used in times of crisis.

Ashwagandha, ginseng and shatvari are herbs often used for general well-being. Plant-based materials are similarly used in aromatherapy and treatments involving flower essences. These therapies are discussed in *CATIE's Practical Guide to Complementary Therapies*, available at www.catie.ca or by calling 1 800 263-1638.

Allergic reactions and other general cautions

Few serious side effects have been reported by people who use herbal therapies. But no reportage doesn't mean that herbal therapies never cause problems. We have tried to mention important side effects in our overview of each therapy, but you should not assume that all possible side effects are covered. We encourage you to do more research into any herb you intend to include among your treatments.

Some herbs may cause allergic reactions, especially for people who suffer from hay fever or other plant-related allergies. That said, anyone can have an allergic reaction. While most allergic reactions cause only minor problems, such as itchy skin, a few isolated hives or runny eyes and nose, more serious allergic reactions can be life-

threatening. Watch for allergy symptoms when starting a new treatment. Even mild symptoms should prompt you to reconsider your use of an herb : symptoms will likely become more severe over time. If you have any of the following signs of a serious allergic reaction, go to a hospital emergency room immediately:

- Extensive skin rashes, hives or welts around the eyes and lips.
- Wheezing or difficulty breathing.
- Abdominal pain, cramps, vomiting or diarrhea.
- Muscle contractions, weakness.
- Restriction of your airway.
- Problems with concentration and thinking clearly

Drug interactions may be a real concern for HIV-positive people. When trying herbal therapies, it's important to consider that much of what we know about herbs is based on how they were used traditionally. The people who passed this knowledge down over time could not possibly anticipate an herb's interactions with the host of drugs taken by many people with HIV. Although you will want to learn as much as you can about possible interactions before starting a new treatment, you're also wise to watch for unexpected symptoms when you begin a new therapy. It may be useful to keep a journal of how you feel each day and what changes, if any, might be due to the treatment. If you're experimenting with the dose, you should also record this information. Your journal is a more reliable record than your memory, which often retains only the most dramatic experiences, good and bad. A journal will help you determine whether changes in your life are associated with a particular treatment. It will give you a record that you can discuss with your doctor or complementary therapy practitioner. A journal is also a good source of information if other people ask about your experiences.

Herb-drug interactions

When herbal therapies and drugs (prescription or non-prescription medications) are used together, they can interact in your body, causing changes in the way the herbs and/or the drugs work. Such changes are called herb-drug interactions.

Herb-drug interactions can impact your health and the effectiveness of your treatments. For example, some herbal therapies might:

- Increase the side effects of drugs, possibly leading to toxicity.
- Decrease the therapeutic effect of drugs, possibly leading to treatment failure. (In the case of highly active antiretroviral therapy [HAART], such an interaction can also cause drug resistance, thereby limiting future options for treatment.)
- Modify the action of drugs, possibly leading to unexpected complications.
- Enhance the therapeutic effect of drugs, possibly leading to over medication.

Likewise, prescription and non-prescription drugs can alter the way your body reacts to herbal therapies.

Listing all of the herb-drug interactions, which potentially impact people living with HIV/AIDS, is not possible. Here are only a few important interactions of which you should be aware.

General interactions

PHAs should be cautious about mixing herbs and drugs in any of the following situations:

- The herbal therapy can change digestion, and kidney or liver functions.
- The herbal therapy is reported to have similar side effects to the drug therapy.
- The herbal therapy and the drug therapy are used to treat the same condition.
- There is underlying impairment or damage to the stomach, liver or kidney as a result of illness or adverse drug reactions.

Highly Active Antiretroviral Therapy (HAART)

The following combinations should not be taken together

- St. John's Wort (*Hypericum perforatum*) with any protease inhibitor or any non-nucleoside reverse transcriptase inhibitor (NNRTI).
- Large quantities of raw or processed garlic with any protease inhibitor (a few cloves of cooked garlic in food should not be a problem).

The following combinations might alter levels of antiretroviral drugs in the blood

- Milk thistle with any protease inhibitor or any non-nucleoside reverse transcriptase inhibitor (NNRTI).

Other drugs

Many PHAs are taking other medications in addition to HAART. These can include antibiotics, medications for high blood pressure, depression, heart conditions and diabetes, to name a few. The following herb-drug combinations have the potential for significant interactions. This list is not exhaustive.

- Ginko biloba with anticoagulants.
- St. John Wort (*Hypericum perforatum*) with antidepressants, oral contraceptives, anti-coagulants and transplant medications.
- Kava Kava (*Piper methysticum*) with alcohol or liver damage.
- Devil's Claw (*Harpagophytum procumbens*), Ginseng (*Panax ginseng*) or Dong Quai (*Angelica sinensis*) with warfarin.
- Hawthorn (*Crataegus* Species) with antihypertensive medications, digoxin or antidepressants.

When combining herbal therapies with other medications, it is important to watch for potential interactions. Informing all your health care providers (doctors, nurses, pharmacists and complementary practitioners) about all the herbal therapies and medications you are taking can help reduce the risk of harmful interactions. For more information on herb-drug interactions, please read CATIE's fact sheet called *Herb-Drug Interactions*, available at www.catie.ca or by calling 1 800 263-1638.

Herbal therapies used by people living with HIV

This section contains brief overviews of specific herbs often used by people with HIV. Many of the herbs in this section (particularly those drawn from Ayurvedic and traditional Chinese medicine) are normally used in combination with others. Indeed, all the clinical information we have about these herbs involves their use in combinations, and it may not be appropriate to use any herb alone.

More information about how herbal therapies are prepared and how to decide on the quality of herbal therapies is offered in sections toward the end of this guide. If you have personal experience with any of these treatments, our treatment information staff would be pleased to hear from you. They may also have more information about the treatments discussed in this guide. You can reach them toll free at 1 800 263-1638. For detailed treatment information, however, it's wise to consult a qualified herbalist or naturopath (see section on herbal practitioners).

Aloe vera

Aloe vera is a tropical plant grown in many homes. The jelly-like substance found in the leaves is used to treat minor burns and cuts. It may also be used to treat skin problems associated with HIV and anti-HIV drugs. As with burns or cuts, the juice of a fresh plant can be applied directly to the affected skin. You can buy oils and creams that contain aloe vera to treat dry skin and other skin blemishes. The plant is also used internally as a laxative and to strengthen the digestive tract. Aloe vera may also be helpful against ulcers.

The bitter substance found in the leaves of the aloe vera plant, often called bitter aloe, has been approved as a laxative in several European countries.

Acemannan is a complex sugar extracted from the aloe vera plant. It is approved for veterinary use in the United States, particularly for feline leukemia, which is caused by a retrovirus, as is HIV. Some people with HIV have tried using acemannan and other concentrated aloe products to manage HIV infection. In the test tube, some studies have shown that acemannan inhibits the HIV virus and makes some immune cells function more effectively. But a small British Columbia study of people with HIV showed no benefit to acemannan treatment. Some herbalists feel using the whole plant may be a more useful approach, but there are no studies using the whole herb to treat HIV.

Aloe vera is available in capsules and in liquid and powdered forms. More than 30 grams (one ounce) per day will likely cause diarrhea, especially if the product contains anthraquinone glucosides. To reduce the risk of diarrhea, avoid products sold as laxatives or liver stimulants.



Andrographis

Andrographis paniculata is a weed found primarily in India, Thailand and Indonesia. It's an antiviral treatment that also appears beneficial to the immune system. A drug called AndroVir, which has been extracted from *Andrographis paniculata*, has been patented by the small pharmaceutical company Paracelsian Inc. In a small group of subjects, preliminary trials showed increases in CD4+ counts and a 30 percent decrease in viral load after nine weeks of AndroVir use. Because highly active antiretroviral therapy has been shown to be much more effective in managing HIV infection, there is no longer much interest in Androvir. The drug is not available in Canada, but the dried plant, which goes by the names *chuan-xin-lian*, *chuan-hsin-lien*, *i-chien-hsi* and several others, may be obtained through a Chinese herbalist.



Ashwagandha

Ashwagandha (*Withania somnifera*) is an Ayurvedic treatment made from the leaves of an evergreen shrub native to India. Its active ingredients are called withanolides. Ashwagandha is sometimes called Indian ginseng, because the two have similar medicinal properties. Ashwagandha, like ginseng, is considered a tonic herb, and both are known as adaptogens—substances that normalize the body's function and help it cope with illness and stress. Recent animal studies support the use of ashwagandha as a tool to help the body deal with stress. Traditionally, this herb is prescribed primarily for men; shatvari (discussed later in the guide) is used for women. In Ayurvedic medicine, ashwagandha is used to combat weakness due to old age, nervous exhaustion and overwork. It has also been used to treat Alzheimer's disease and multiple sclerosis. Ashwagandha has a reputation for nurturing and clarifying the mind, calming and strengthening the nerves and promoting restful sleep. It's also said to rejuvenate the ojas or bone marrow.

Ayurvedic practitioners prescribe ashwagandha to rejuvenate the immune system of HIV-positive people. Animal studies have shown that the herb improves the immune responses of mice that are given immunosuppressive drugs and helps mice resist tumours and other cancers. There are, however, no studies specific to HIV. Ashwagandha may also help treat muscle wasting, which is associated with HIV. In fact, Ayurvedic doctors often prescribe the herb to treat weight loss in men with low testosterone. Ashwagandha is also becoming an increasingly popular additive to muscle-building formulas, but its effects have not been studied in clinical trials.

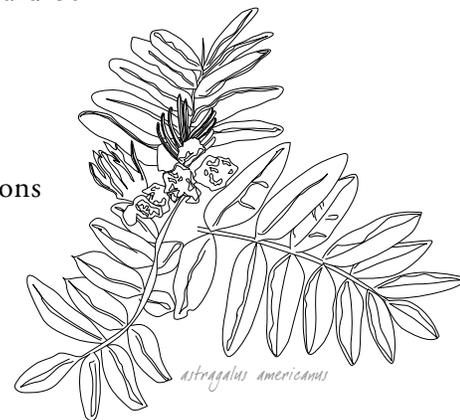
Practitioners do not recommend the continued use of immune therapy. Rather, immune therapy is usually prescribed in cycles—one month on, one month off. Although ashwagandha has no known side effects, it's generally not recommended for pregnant or lactating women because its impact during pregnancy is not known.



Ashwagandha is sometimes used as a mild sedative and may make you sleepy. The herb is available in powdered form and may be purchased as a tea, a tincture or a capsule. Its raw seeds can be toxic, so it should be prepared by an experienced practitioner.

Astragalus

Astragalus (*Astragalus membranaceus*) is a bone marrow stimulant that can be purchased alone or in many combinations of Chinese herbs. Most of the clinical information about astragalus comes from studies in which it is used with other herbs. In China, astragalus is used in combinations that treat immune cell suppression after cancer chemotherapy. In traditional Chinese practice, astragalus, or *huang-qi*, is described as a yang tonic, and many of the herbs in this group appear beneficial to the immune system. (*Yang* is defined as vital function in traditional Chinese medicine.)



Astragalus, used to treat hepatitis B and other viral infections, was one of the first herbs to be identified as a potentially useful treatment for HIV. Chinese medicine practitioners were the first to identify it as such. Although no trials have specifically studied this herb in treating HIV-positive people, studies of astragalus in people with other viral infections have shown increases in immune cells.

Astragalus is sold in capsules and tinctures through Chinese herbalists, health food stores and buyers' clubs. It may cause gas, bloating, low blood pressure and increased frequency of urination, but side effects are rare when it's taken in moderate doses. If you buy an over-the-counter product, follow the dosage information on the side of the bottle carefully, because the amount of active ingredient provided by different manufacturers varies widely. Higher doses may be immune suppressive. Astragalus is ideally used in combination with other herbs, such as *codonopsis pilosa*, that have been individually prescribed by Chinese medicine practitioners. Astragalus can cause blood vessels to dilate (expand). People who have thin blood or who are using anticoagulents should therefore use this product with caution.

Atractylodes

Baizhu is the Chinese name for the root of the plant *Atractylodes macrocephala* and is almost always used in combination with other herbs. Atractylodes is a common component of immune therapies and a major part of several formulas used in traditional Chinese medicine to treat digestive disorders like diarrhea, gas and bloating. In Chinese studies, formulas containing Atractylodes were shown to improve survival times for people with stomach cancer when used in combination with chemotherapy. These formulas also increase cell-mediated immunity in mice.

HIV-positive people use Atractylodes to help increase body weight and muscle strength, reduce diarrhea and enhance immune



function. Atractylodes may reduce platelet function so it may be dangerous to use if your platelets are low or if you're having problems with nose bleeds or heavy menstrual bleeding. Otherwise, it should be used as part of a traditional Chinese medicine formula and not as a single herb.

Cat's Claw

Cat's claw (*Uncaria tomentosa*) is made from the inner bark of a Peruvian vine and has been used by indigenous people for centuries to treat a variety of conditions. Its most widely promoted use is to enhance immune function, particularly the function of macrophages, which are cells that engulf invading germs. The plant may also possess antioxidant properties that help prevent toxins from lodging in tissues. Cat's claw, also called *uña de gato*, may increase a person's CD4+ count, as well. One small study that used the herb to treat people with HIV was done before HAART (highly active antiretroviral therapy) was available. The study showed small increases in the CD4+ counts of those taking cat's claw, and those increases rose slowly over a long period of time (at least four to six months). So far, one manufacturer of cat's claw has used the results of this study in its promotional literature. These results have not, however, been published in a medical journal. Although cat's claw may be useful against some types of cancers, more recent test-tube studies suggest that it may actually weaken cell-mediated immunity—the part of the immune system already damaged in people with HIV. For this reason, some researchers are beginning to question the use of cat's claw in HIV-positive people.

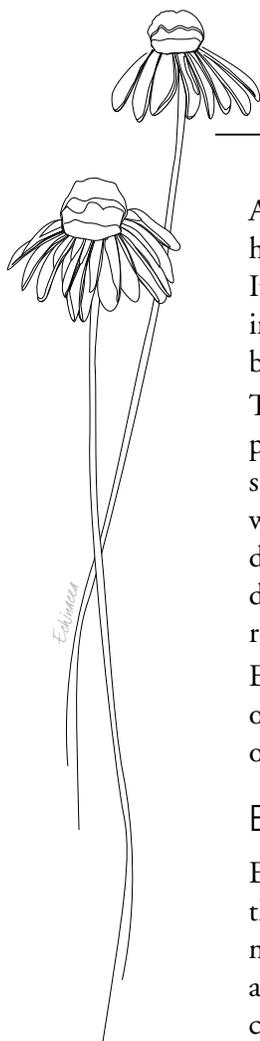


Cat's claw is available in capsules, powders, tinctures and as a highly concentrated extract. Because it's an endangered plant, the government of Peru has restricted its collection. This reality has increased the possibility that it may be replaced with other plants in some products. Unfortunately, some of the plants most commonly substituted for cat's claw suppress the immune system.

Traditionally used as a contraceptive and for urinary tract infections, cat's claw has no reported side effects, but women who are pregnant or wish to become pregnant should avoid it. The herb is processed in the body by the same enzymes used by many antiretroviral drugs, including protease inhibitors. Although there have been no reported cases of increased drug side effects associated with the use of cat's claw, the potential risk exists.

Echinacea

Echinacea (*Echinacea purpurea*, *Echinacea angustifolia*, *Echinacea pollida* and several other species) is a North American plant that has been used for centuries by native North American healers. It is widely available and promoted as a way to boost the immune system and treat the common cold.



• A Practical Guide to Herbal Therapies for People Living with HIV

A review by the German government's Commission E (a panel of experts who review herbal therapies for approval) supports the use of echinacea in treating colds and flu. It is not clear, however, whether echinacea helps the immune system overcome HIV infection. Instead, echinacea may actually increase the body's production of HIV because of the specific way it stimulates the immune system.

The commission stated in its report that echinacea should not be used by HIV+ people. Other naturopaths and herbalists continue to debate whether the plant is safe for temporary use in HIV-positive people—to treat a cold, for example—and whether it may have some longer term use in increasing CD4+ cell number. This debate has become increasingly complex as people with HIV are using antiretroviral drugs to suppress the production of HIV. Echinacea may interact with some anti-retroviral drugs.

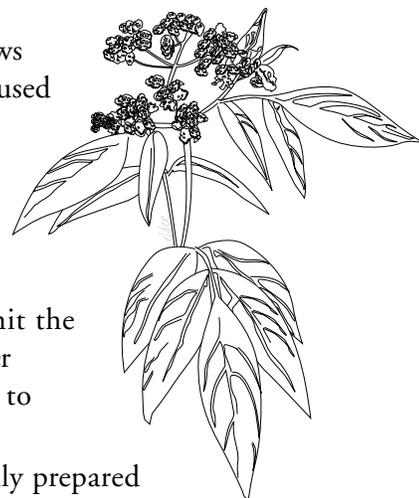
Echinacea comes in liquid, tincture, pill or capsule form. It is commonly mixed with other herbs. You may want to make sure that any herbal mixtures you take on an ongoing basis do not contain echinacea.

Elder

Elder (*Sambucus nigra*) is a bush with bluish berries that grows throughout Europe. The plant's bark is the most commonly used medicinal part, but its leaves, roots, berries and flowers may also have medicinal effects. Elder is primarily used to treat colds and other respiratory disorders.

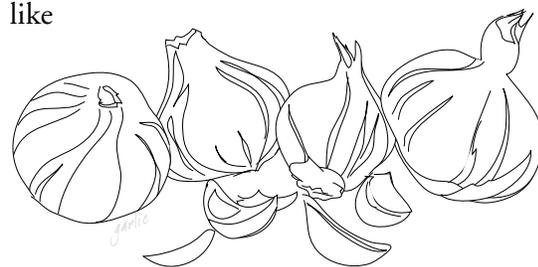
Since at least one small study shows it improves flu symptoms, and given its traditional use against viral illnesses, some people living with HIV hope that it may also help limit the effects of HIV infection. Test-tube studies suggests that elder might slow the production of HIV, but little work specific to HIV has been done.

Elder may help you relax or even make you sleepy. It is usually prepared as a tea, although capsules are also available. Elder causes sweating (which is part of its medicinal effect) and may make you urinate more frequently. It may also act as a laxative. If diarrhea occurs, however, you should stop taking elder. Pregnant women may wish to avoid elder, because studies on mice given very high doses showed that the plant caused some fetal damage. Elder is considered safe for use as food flavouring in both Europe and North America.



Garlic

Garlic (*Allium sativum*) has been used worldwide to treat a variety of infections. HIV-positive people may use it to treat conditions associated with HIV, including fungal infections like thrush and parasites like cryptosporidium, which may cause severe diarrhea. It may also be used to prevent these infections from recurring and can be taken in combination with treatments used to treat fungal or parasitic



infections. Garlic may be active against HIV and might help stimulate some components of the immune system. Some clinical trials involving humans have shown garlic to lower cholesterol and triglycerides, but other studies dispute this effect.

Garlic, in raw and processed forms, interacts with protease inhibitors and may interact with some other prescription drugs. This interaction can significantly impact your health by increasing side effects. It also can weaken the effectiveness of HIV medications, leading to treatment failure, drug resistance, and reduced options for future treatment. **If you want to use garlic as a medicinal herb, it is very important that you discuss this with all of your health care providers**, including your doctor, pharmacist and natural health practitioner. A few cloves of cooked garlic, used as a flavouring in foods, is not expected to cause interactions.

Fresh garlic is most potent when eaten raw and is also cheap and widely available. Garlic is also available in capsules and as an aged extract. If you don't like its smell, you can use no- or low-odour capsules.

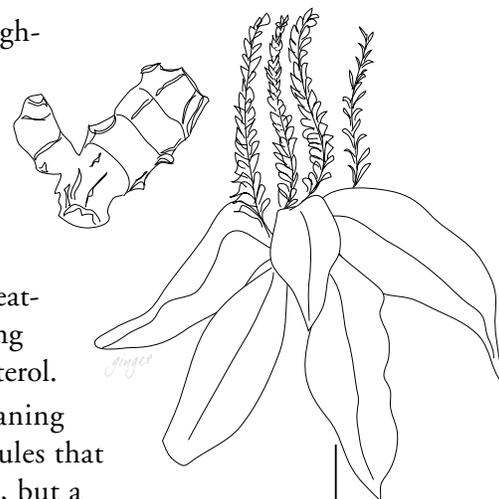
Garlic may irritate the digestive tract and cause stomach upset, particularly when taken in high doses or on an empty stomach. There is reason to believe that it may also be dangerous for those with low platelets, such as hemophiliacs, and for others who experience nose bleeds or heavy menstrual bleeding. The reason is that it can break up blood clots and prevent platelet clumping in people with certain forms of heart disease.

Ginger

Ginger (*Zingiber officinale*)—the root of an herb grown throughout the tropics—is commonly used in Asian cooking and is a component of the soft drink ginger ale. Ginger has been used in Chinese medicine for hundreds of years. It's primarily used to combat nausea and other gastrointestinal problems. Studies have shown that it may be an effective treatment for morning sickness and post-operative nausea. People with HIV may use ginger to combat nausea associated with drug treatments, although this use has not been studied. Studies involving animals suggest that the plant may be useful in lowering cholesterol.

Ginger is a strong antioxidant (as are vitamins C and E), meaning it helps neutralize free radicals, which are highly active molecules that can cause damage to the body. Fresh ginger may be preferable, but a dried form can be used. Dried ginger is available in capsules, and both forms can be brewed to make a tea.

Ginger may help reduce the formation of blood clots by preventing platelet clumping, which may make it useful against certain forms of heart disease. For people with low platelet levels, however, ginger may pose a risk. It may be problematic as well for those who experience nose bleeds or heavy menstrual bleeding. Dried ginger, specifically, can elevate blood pressure in those who are prone to high blood pressure. In theory, ginger may also increase the effects of barbiturates.



Gingko Biloba

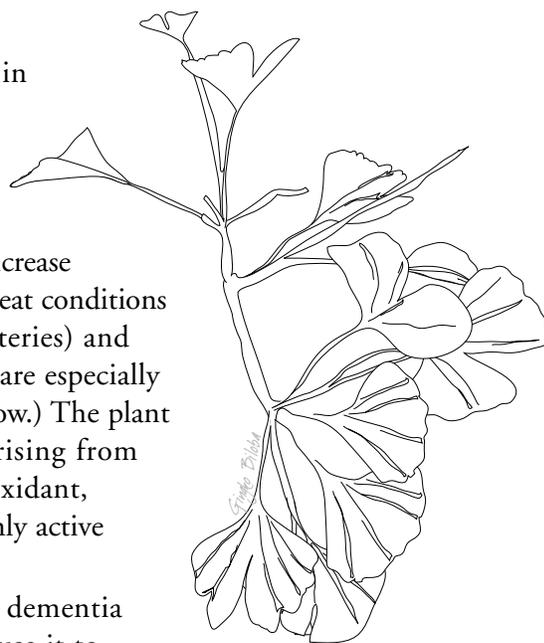
Gingko biloba is a common Asian tree that grows in much of North America. In Chinese medicine, the fruit of the gingko plant is used to treat certain lung disorders. Preparations isolated from the seed may be helpful in fungal, bacterial and viral infections. *Gingko biloba* may also help increase blood circulation and is widely used in Europe to treat conditions associated with atherosclerosis (hardening of the arteries) and memory loss in the elderly. (Brain and nerve cells are especially vulnerable to the restriction of blood and oxygen flow.) The plant is also used to treat depression and impotence arising from circulation problems. It is recognized as an antioxidant, meaning it helps neutralize free radicals—those highly active molecules that can cause damage to the body.

Although the use of gingko to treat AIDS-related dementia has not been studied, many HIV-positive people use it to treat and prevent this condition as well as memory loss. Studies on people who have had strokes or suffer from Alzheimer's disease have shown that gingko significantly improves the symptoms of memory loss and confusion. Studies on animals have shown that it can reduce certain types of tissue damage resulting from a stroke.

Because of its popularity in Europe, gingko has been widely studied. (It accounts for more than one per cent of all prescriptions written in France and Germany.) In the over 1,000 people included in a review of such trials, side effects were very rare—stomach upset and headaches were the most common. *Gingko* is used to treat circulation problems because it prevents platelet clumping. For this reason, it may be dangerous for people with low platelets or problems with nose bleeds or heavy menstruation. Several case studies have reported spontaneous bleeding in people using *gingko*. *Gingko biloba* extract is usually sold in capsules or tablets standardized to 24 per cent *gingko* heterosides (also called flavone glycosides). *Gingko* seeds are toxic and should not be consumed.

Ginseng

Information about ginseng is often confusing because the herb comes in several different forms. *Panax ginseng* (often called Korea or Asian ginseng) is a root widely used in Chinese medicine and can be processed in different ways. Steaming the root produces red ginseng; drying it and stripping off the outer coat produces white ginseng. North American ginseng (*Panax quinquefolium*) is closely related to *Panax ginseng* and will not be discussed separately here. Siberian ginseng (*Eleutherococcus senticosus*) is botanically in the same family but has somewhat different properties. Chinese herbalists call Siberian ginseng wujia. In all cases, the root of the plant is the part used for medicinal purposes.



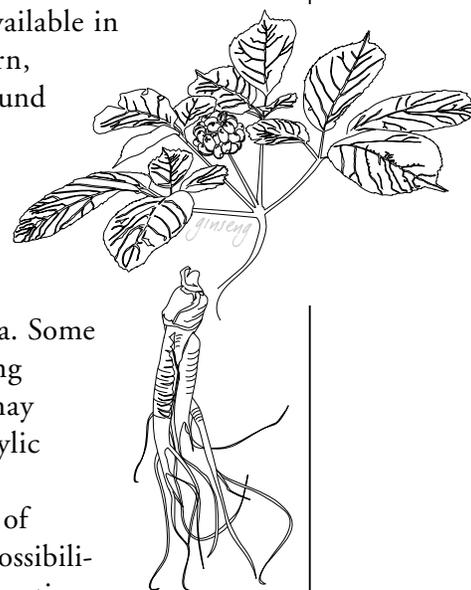
All forms of ginseng are known as tonic herbs, which are said to give a person more stamina and to stimulate mental alertness. In Russia, beverages containing Siberian ginseng are common and used in the same way that many North Americans use coffee. Panax ginseng is also used to combat fatigue.

The ginseng herbs are also known as adaptogens, which are substances that help the body cope with changes and stress. Students reportedly do better on tests when using panax ginseng, and workers are said to cope better with stresses in the workplace when using Siberian ginseng. The normalizing effects of ginseng in several different disease conditions have also been studied. Both panax and Siberian ginseng are said to normalize cholesterol and triglyceride levels, and some studies that support this use for panax ginseng have been done on animals. It's not known how useful ginseng is in treating drug-associated increases in cholesterol and triglyceride levels in people with HIV. Small studies suggest that capsules of American ginseng may be useful in the management of type 2 diabetes and high blood pressure.

The immune system may also benefit from ginseng, particularly the cell-mediated immune system, which is damaged in HIV infection. Again, most of the research done to date has been done on animals, but Siberian ginseng has been shown to improve the function of some types of immune cells and increase the number of circulating T-cells in HIV-negative adults. A test-tube study involving cells from HIV-positive people suggests that panax ginseng might also stimulate the production and function of immune cells. These immune enhancements have been observed in healthy volunteers, too. As always, caution is required when using immune stimulating compounds, because some immune stimulation may actually increase the amount of HIV in the blood. This possibility may be of less concern for people taking antiretrovirals that are effectively lowering the amount of HIV in the blood.

Unfortunately, the quality control of many ginseng products available in North America is very poor. This reality is of serious concern, because ginseng products that contain little or no ginseng are bound to be ineffective, and those containing too much ginseng may be dangerous. A few standardized products are available, but they have only been studied as adaptogens in HIV-negative people.

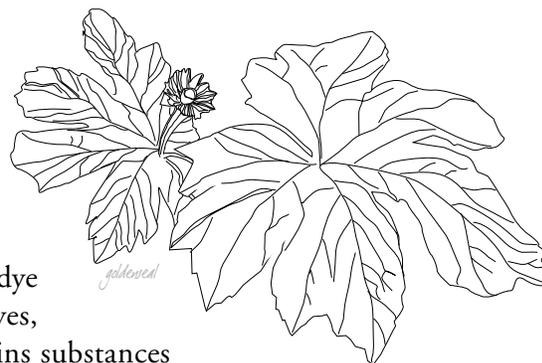
Ginseng should not be taken for prolonged periods of time. High doses or long-term use of Siberian and panax ginseng may elevate blood pressure as well as cause anxiety and insomnia. Some people report insomnia even when taking lower doses, so ginseng should not be taken right before bed. Both forms of ginseng may interact with a number of common drugs, including acetylsalicylic acid and corticosteroids. People taking ginseng may also need to increase regular doses of vitamins B1, B2 and C, and high doses of panax ginseng may suppress the immune system. Due to these possibilities, it may be best to use ginseng products (panax ginseng, in particular) while under the care of a qualified traditional Chinese medicine practitioner. No form of ginseng should be used during pregnancy. Like most



herbal products, it is not known if ginseng interacts with antiretroviral drugs.

Goldenseal

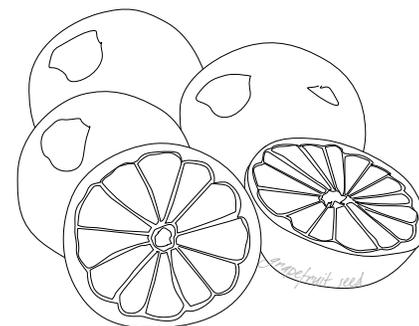
Goldenseal (*Hydrastis canadensis*) is made from the roots of a plant native to North America. The yellow root of this plant has been used by Aboriginal peoples for centuries, both as a clothing dye and as a medicinal plant to treat infections of the eyes, ears and upper respiratory tract. Goldenseal contains substances called alkaloids. Berberine is the most important of the alkaloids and is primarily responsible for the plant's medicinal effects. Goldenseal is endangered, and the product is very expensive. It is often used in combination with echinacea. Several cheaper herbal sources of berberine are available. Barberry (*Berberis vulgaris*) is a European shrub that now grows in North America. Oregon grape (*Mahonia aquifolium*) was also used medicinally by Aboriginal people, and golden-thread (*Coptis trifolia*) is used by practitioners of traditional Chinese medicine. The berberine in these plants may be used to treat throat infections, such as strep throat and thrush. It may be used as well to treat diarrhea caused by parasites and fungal infections. In cases of serious diarrhea, which can quickly cause weakness and weight loss in HIV-positive people, berberine herbs should be used in conjunction with other treatments. *The Healing Power of Herbs* contains reports from several Indian studies involving berberine and people with diarrhea due to the parasite giardia. In one study of HIV-negative children, berberine relieved the symptoms of diarrhea more effectively than the antibiotic metronidazole (*Flagyl*) but was less effective in clearing up the infection. In another study on adults, berberine and antibiotics together cleared the infection more quickly than antibiotics alone. Goldenseal may also be useful in cases of liver disorder and cirrhosis.



Herbs containing berberine are most often available in capsules, although teas and tinctures can be made from the dried roots. They should not be used by pregnant women. Others should carefully follow dosage instructions, and the herbs should not be used continuously for more than seven days. Since high doses of these plants may suppress the immune system, it is best to consult an experienced practitioner for advice on dosage and use. High doses can also cause nausea, vomiting, and tingling in the hands and feet (known as neuropathy). Plants containing berberine may also interfere with the metabolism of B vitamins. Long term use of berberine may adversely affect the bowels.

Grapefruit Seed

Grapefruit seed extract is made by crushing and grinding the seeds of grapefruits. It's a very acidic liquid with a bitter taste. This extract is used commercially to sterilize some foods for animals and to disinfect surfaces in hospitals. When sold for home use, it's usually combined



with vegetable glycerin to make it less acidic. It may be diluted with water and used to wash vegetables and other produce to prevent food poisoning and decay. Grapefruit seed may also be used to prevent yeast and other gastrointestinal infections. To treat these infections, people usually add a few drops of grapefruit seed extract to at least four ounces of juice or another beverage, twice a day. Diluted extract also can be applied to the skin to treat warts, impetigo and cold sores. Although grapefruit seed extract has been studied as a disinfectant, there are no studies of its therapeutic use. Grapefruit seed extract is usually sold for personal use under the brand name Nutribiotic, but it may be contained in soaps, lotions and toothpastes under the brand name Citricidal. Long-term use of grapefruit seed may adversely affect the bowels. Grapefruit juice interacts with many prescription and non-prescription medications, including antiretroviral drugs. It is not known if swallowing grapefruit seed extract will also cause interactions.

Greater Celandine

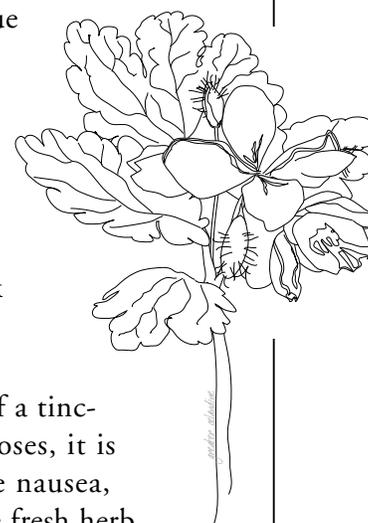
Greater celandine (*Chelidonium majus*) is a flowering plant native to Europe, some parts of Asia and eastern Canada. It is most often used as a treatment for indigestion and other digestive upsets. Its flowers are its primary medicinal component, but its root also may have anti-cancer effects and be useful for people with Kaposi's sarcoma. Celandine's anti-tumour effects may be due to its influence on the immune system. It may also have immune modulating effects that are beneficial to HIV-positive people.

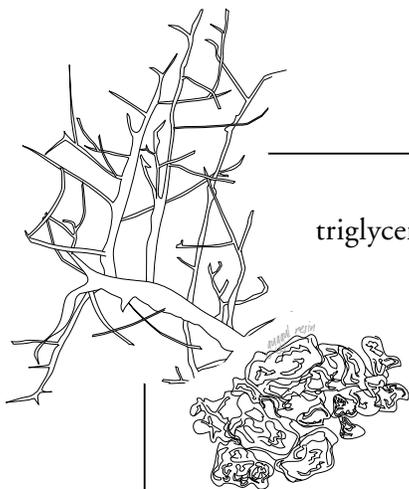
Studies of the Chinese version of celandine done on animals, and at least one study involving humans, have shown a benefit against solid tumours. Ukrain, an injectable treatment derived from celandine, has been used in one tiny study by its manufacturers to treat Kaposi's sarcoma. In this study of two patients, lesions shrank and T-cell counts increased.

Dried celandine flowers may be available from herbalists and Chinese medicine practitioners. They usually come in the form of a tincture, decoction or infusion. When the herb is taken in modest doses, it is not known to cause side effects. Overdoses, however, may cause nausea, vomiting and bloody diarrhea. Many people get rashes when the fresh herb comes in contact with their skin. One source suggests that celandine may alter the metabolism of other treatments. In light of these possibilities, it is probably wise that people who wish to use celandine work closely with an herbalist experienced in treating people with HIV.

Guggul

Guggul (*Commiphora mukul*) is the resin of a thorn shrub native to India and Arabia. It is used in various Ayurvedic medicines to increase white blood cells and normalize lipid levels as well as appetite. It's also taken to treat respiratory problems and the swelling associated with arthritis. Clinical trials of guggulipid, a standardized extract from the guggul plant, have shown mixed results in reducing cholesterol and





triglyceride levels. (In India, it is approved as a drug for this purpose). No studies have examined the use of guggulipid in HIV-positive people with these symptoms. Nor is it known whether guggulipid would interact with any of the drugs used by PHAs. Raw guggul may cause rashes and gastrointestinal upset, such as diarrhea and nausea. The same side effects have been observed in people who use the standardized extract but they appear to occur less often. Caution is also advised for people suffering from thyroid disorders.

Hyssop

Hyssop (*Hyssopus officinalis*) is one of the oldest medicinal plants used in the Mediterranean and the Middle East. The leaves and flowers of this evergreen shrub are used and the essential oil is extracted. Hyssop was traditionally used as a treatment for fevers and colds as well as for liver and gallbladder problems, but none of these uses has been tested in clinical trials. Test-tube studies show that hyssop stops the production of HIV without damaging the infected cells. These results have encouraged some people living with HIV to try the plant as an antiviral. Anecdotal reports suggest that the plant is effective in treating HIV-related infections and increasing CD4+ cell counts.

Hyssop has no reported side effects at normal treatment doses, but high doses, especially over time, may cause serious side effects, such as seizures. Children should be treated with caution, because several sources suggest that even relatively small doses may cause seizures. Hyssop comes in the form of a tincture, capsules or a tea and may be added to skin products and ointments to treat skin conditions.



Isatis

Isatis (*Isatis tinctoria*) is an herb related to mustard. Early Europeans made blue dyes with isatis and also applied it to skin wounds. An important plant in Chinese medicine, the plant's roots and leaves are often used to treat conditions of "toxic heat," or the early stage of an infection, when a person's fever might be quite high and the individual feels very ill. Herbs used to treat these conditions were usually used for a short period of time, and many of these herbs have since been shown to have antiviral properties. As with other traditional Chinese remedies, such herbs were usually used in combination with others.

Several clinical studies done in China suggest that isatis is an effective treatment for viral infections. It has been successfully used to treat both hepatitis B and herpes. Based on these studies, many Chinese practitioners add isatis to the formulas they use to treat HIV.

There appears to be little available English information on its side effects, but it has a reputation for being a potent herb that should be used only for short periods of time. And this reputation suggests that, ideally, it be used under the supervision of a practitioner experienced in traditional Chinese medicine.



Lemon Balm

Lemon balm (*Melissa officinalis*) is a perennial herb and common garden plant in Europe. Medically, it's used primarily to treat anxiety and insomnia. It acts as a mild sedative and may also help those whose stomachs are upset for emotional reasons. In Germany, the herb is approved for these purposes.

Lemon balm is also commonly used for pre-menstrual syndrome and to help with the symptoms of menopause. As well, it has antiviral properties. Test-tube studies show that it's active against herpes as well as HIV. Many practitioners suggest that a solution of lemon balm be applied to the skin when the symptoms of a herpes cold sore are first felt. Case reports suggest that this treatment is often quite effective.

There have been no clinical trials on the use of Lemon Balm in the management of HIV infection. Lemon balm may decrease the activity of the thyroid, especially with long-term use. Naturopaths often suggest that people with underactive thyroids avoid this herb entirely.

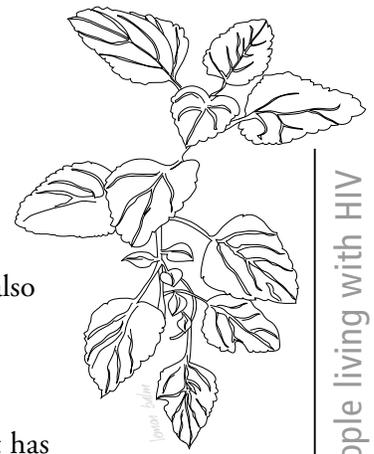
Licorice

Licorice (*Glycyrrhiza glabra*) root has been used medicinally throughout Europe and Asia for hundreds of years. The primary component of licorice root is glycyrrhizin, and the product may be sold under this name. People with HIV may have many uses for licorice. The herb has antiviral properties and may be active against HIV. It's also thought to slow the activation of dormant immune cells, preventing the production of more virus. It's not fully understood how licorice might accomplish this. But several small studies done in the early 1990s on an injectable form of glycyrrhizin seemed to show slower disease development and improved T-cell counts in subjects who were HIV-positive but showed no symptoms. In addition to its immune and antiviral effects, licorice is used to detoxify the liver. It may also counteract the effects of the long-term use of many of the current antiretroviral drugs, which can do significant damage to the cells of the liver and interfere with the liver's function.

However, it is not known if licorice interacts with antiretroviral drugs (see the section in this guide called *Herb-Drug Interactions*).

Licorice raises sodium levels and lowers potassium levels; it may elevate the blood pressure of those who use it regularly. Sodium, potassium, and chloride are known collectively as electrolytes. Electrolytes should be monitored carefully in people who intend to take licorice root regularly, because electrolyte imbalances can cause heart problems, fluid retention and other serious side effects. People who use licorice may also be wise to eat a low-salt diet with plenty of foods that contain potassium, such as bananas. The regular use of large amounts of licorice may also cause impotence by blocking the production of testosterone and estrogen. Further, it might increase other HIV-related problems tied to low testosterone, such as wasting.

Licorice root is available in a capsule form, which the body seems to absorb well.



Herbal therapies used by people living with HIV





Lomatium

Lomatium is primarily found in western North America, although related species grow in other areas. Several species are used for medical purposes, including *Lomatium dissectum* and *Lomatium suksdorfii*. The latter is an endangered plant. Aboriginal Peoples of western North America used lomatium for medical as well as ceremonial purposes. They applied it directly to wounds to help prevent infection and made tea from its roots to treat respiratory infections and congestion. The plant's roots continue to be used by some Aboriginal healers for viral infections.

Test-tube studies indicate that *Lomatium dissectum* is a powerful antiviral, and compounds isolated from *Lomatium suksdorfii* have been shown to specifically inhibit HIV. Herbalists and healers experienced with these herbs believe they may also stimulate the immune system. Lomatium is considered powerful and should only be used with the guidance of an experienced practitioner. It contains anti-clotting substances and may be dangerous if your platelets are low or if you have problems with nose bleeds or heavy menstrual bleeding. Lomatium is generally not recommended during pregnancy. High doses may cause a rash resembling the measles.

Marijuana

Marijuana (*Cannabis sativa*) is best-known as a recreational drug that promotes feelings of well-being and relaxation. The production and sale of marijuana is illegal, and the drug is not available from herbalists or other complementary therapy practitioners. Nonetheless, many people with HIV find it useful in preventing nausea and stimulating appetite. Some use it to control pain. Cesamet and Marinol, two drugs that contain components of marijuana, are approved in Canada to suppress nausea and stimulate appetite. However, many PHAs who have tried these drugs prefer to smoke the herb itself. Not only have they found the herb more effective but they believe that smoking marijuana makes it easier to control the dose. Both Cesamet and Marinol have been reported to cause brief, unpleasant periods of disorientation.



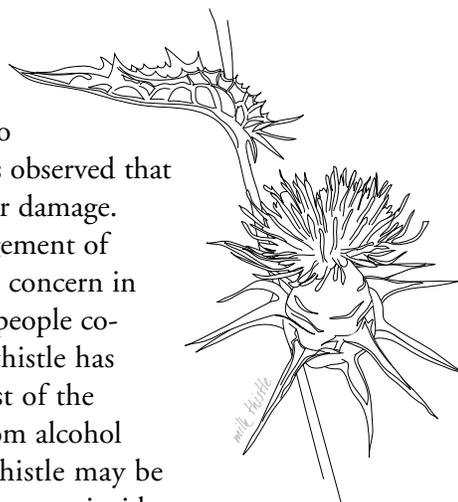
The Canadian federal government has set up a system to grant the legal right to grow, possess and use marijuana for medical reasons. These "Marihuana Medical Access Regulations" went into effect July 2001. People living with HIV who want to use marijuana medicinally need to have their physician (usually a specialist) fill out the required forms. The Spring 2002 issue of CATIE's magazine *The Positive Side* has more information about the use of marijuana in HIV infection, including how to access this restricted herb. *The Positive Side* is available at www.catie.ca or by calling 1 800 263-1638.

Marijuana itself has few side effects other than the usually pleasant mood and perception alterations that may accompany its use. It may cause tachycardia (rapid beating of the heart), which can usually be controlled by decreasing the dose. Smoking marijuana is associated with the same long-term side effects as smoking cigarettes,

including emphysema, high blood pressure and lung cancer. Alternatives to smoking include using the ground herb in baked goods (brownies, for example) and brewing it as a tea. Short-term studies indicate that marijuana can be safely used with some protease inhibitors.

Milk Thistle

Milk thistle (*Silybum marianum*) is a plant native to Europe. For hundreds of years, European herbalists observed that it helped reverse the jaundice that often signals liver damage. Today, milk thistle is sometimes used in the management of liver-related problems. Liver health is an important concern in the management of HIV infection, particularly in people co-infected with viral hepatitis. Unfortunately, milk thistle has not been well studied for these conditions, as most of the studies have involved people with liver damage from alcohol abuse. Recent test-tube studies suggest that milk thistle may be protective of the kidney. Milk thistle may also act as an antioxidant.

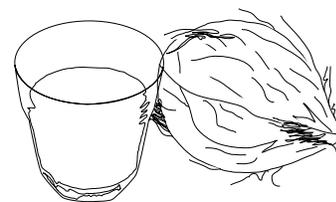


Milk thistle is available in health food stores and in drugstores that sell herbal products. Extracts used in clinical trials are standardized to 80 per cent of an active ingredient called silymarin. Milk thistle occasionally has been reported to cause mild diarrhea but has no other reported side effects. It may, however, cause a reaction in people who are allergic to plants from the Asteraceae (daisy) family.

People taking medications, including antiretroviral drugs, should be cautious about the use of milk thistle as it may interact with them. This is because herb-drug interactions can lead to increased side effects or reduced effectiveness of drug therapy (see the section in this guide called Herb-Drug Interactions).

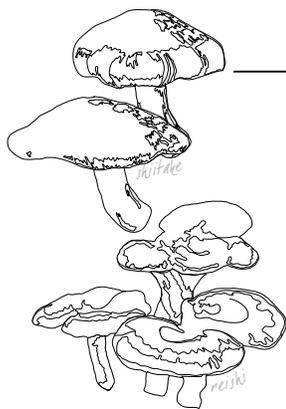
Monolaurin

Monolaurin is a form of the fatty acid called lauric acid, which is found in large quantities in coconut milk and human milk. Some fatty acids, including lauric acid, reportedly have anti-bacterial, anti-fungal and antiviral properties. In test-tube studies, monolaurin has been shown to have antiviral activity against a number of viruses, including influenza and herpes. It seems to work by disrupting the lipid envelope of these viruses. Limited test-tube data also suggest that lauric acid may increase the production of immune cells in the body. There have been no clinical studies of monolaurin in people with HIV. Monolaurin comes in capsules—however, lauric acid can also be found in raw or processed coconut.



Mushrooms

Mushrooms are used medicinally in many cultures worldwide. They contain a variety of nutrients and vitamins, and many have medicinal effects. Three mushrooms grown in Asia—reishi, shiitake and maitake—may be of potential interest to people with HIV. All three are used in kampo, the traditional medical system of Japan. They are

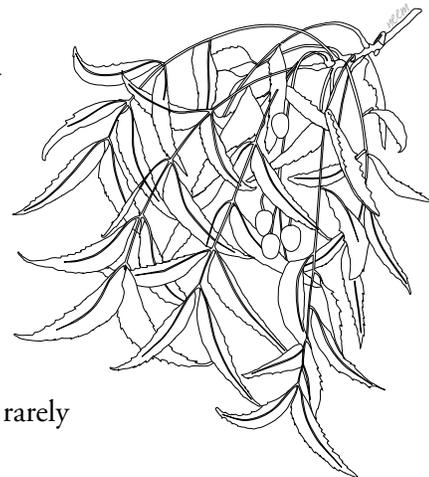


best known as immune modulators and may have antiviral properties. These mushrooms are also adaptogens, which are substances that help the body cope with illness and stress. Some people use them for their nutritional value.

Of the three mushrooms, shiitake is the most widely studied in the context of HIV, although some Chinese medicine practitioners and herbalists believe that maitake is the most powerful. Unfortunately, lentinan, a substance isolated from shiitake, has not shown clinical benefit in the management of HIV infection. Fresh mushrooms can be included in a regular diet if they're properly prepared; and dried mushrooms can be brewed to make tea. Capsules containing dried mushrooms (sometimes combined with other herbs, such as ginseng) are available. Mushrooms can occasionally cause stomach upset or diarrhea, particularly if taken on an empty stomach. People with allergies to any kind of mushroom should not take mushrooms in any form. Severe allergic reactions are possible and can be life-threatening.

Neem

Neem (*Azadiracta indica*) is a tropical evergreen tree sometimes known in India as “the village pharmacy.” The essential oil of this tree is an antibiotic used against a variety of micro-organisms. It is particularly useful for skin conditions, including fungal infections, eczema and scabies. It is also used for muscle and joint aches. For these purposes, the oil is usually diluted and blended into a cream for application to the skin. Neem oil is also blended into toothpaste to prevent thrush and gingivitis. It has many properties similar to tea tree oil. The essential oil is rarely ingested.

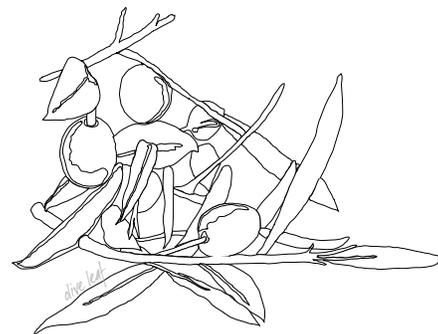


Other parts of the neem tree have medicinal properties and are used in Ayurvedic formulas to treat fevers and even serious infections like malaria. When taken orally, neem should only be used under the supervision of an Ayurvedic practitioner and should not be used when fatigue or wasting is evident.

Olive Leaf

Olive leaf (*Olea europaea*) extract is a modern version of traditional a Mediterranean remedy for preventing fevers. It is also reputed to have antioxidant properties. Like many herbs, test-tube studies of olive leaf extract have found antiretroviral properties. However, there have been no clinical trials in people with HIV.

Olive leaf extract is available in many health food stores. Olive leaf may be dried and brewed as a tea and is available as an extract in capsule form.



Peppermint

Peppermint (*Mentha piperita*) is a common domestic plant grown in Europe and North America. Both its oil and dried leaves are used medicinally.

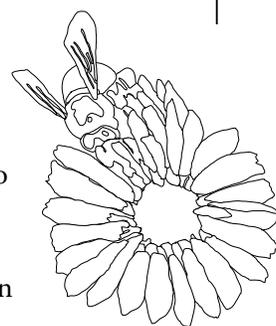
Peppermint is helpful against nausea and is used by some to treat diarrhea and irritable bowel syndrome. It is often combined with other herbs for digestive complaints. One study showed that it reduced abdominal pain and diarrhea in people with irritable bowel syndrome. It is also thought to improve circulation and relieve tension headaches. It can be combined with vegetable oil and other essential oils and smeared on the forehead. Indeed, a small German trial suggests that a solution containing 10 per cent peppermint oil applied to the forehead is as effective as acetaminophen in relieving tension headaches. The oil should not, however, be used on too large a surface of skin because it can have a “freezing” effect. One common way to use the plant is to pour hot water over dried peppermint leaves, cover the mixture, let sit ten minutes and then take as a tea. Peppermint oil is usually available where other essential oils are sold and is also available in a pill form called Colpermin, which has an enteric coating to protect the stomach. Colpermin, available in Canada with a prescription, is covered by many health plans. Dried peppermint leaves can be purchased loose or in capsule form in most health food stores and from herbalists. The plant is also easy to grow in most areas of Canada.

Peppermint may irritate the stomach, particularly when taken in higher doses or on an empty stomach. Other rare side effects include rashes, heartburn, slowing of the heart beat and muscle tremors. People applying peppermint oil to the skin may experience a rash caused by an allergic reaction. Peppermint may interact with some antidepressants.



Propolis

Propolis is a sticky substance that bees make from the sap (or resin) found around the buds of trees and other plants. This sap has natural antibiotic properties and protects the plant from infection. Because bees collect propolis from a variety of plants, it contains many different disease-resistant compounds. In fact, it's spread on the inside of hives to prevent disease. Propolis can also be spread on the skin of people to prevent infections around cuts or to treat minor skin infections, including those seen in HIV. Some people spread the substance on skin affected by shingles or herpes cold sores. Test-tube studies suggest that propolis is effective against the herpes virus. People with HIV may also chew raw propolis (or use the tincture as a mouth wash) to prevent or treat mild thrush. Raw ground propolis is available from health food stores and beekeepers. Propolis may be dissolved in a tincture or added to skin creams.

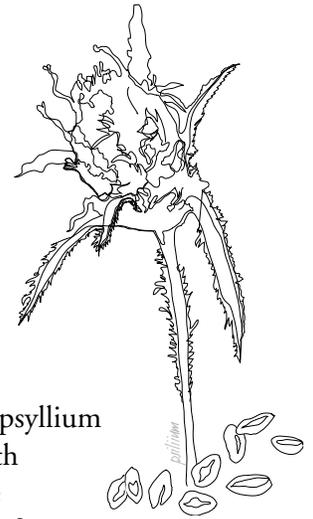


Psyllium

Psyllium is the seed and husk of the plant *Plantago isphagula*. It is used to control diarrhea and constipation. Psyllium is the major component of many over-the-counter laxatives such as Metamucil. It absorbs water in the intestine, making stools firmer and more regular. People with HIV often use it to control drug-related diarrhea. One small study used psyllium fiber bars to treat HIV-positive people who were experiencing diarrhea as a side effect of protease inhibitors. Ninety-three per cent of people in the study found that psyllium improved their condition.

Psyllium, because it is a fibre, may also help lower cholesterol levels. No psyllium studies have looked specifically at the cholesterol problems associated with HIV treatments, although a study of diabetic men (who didn't require insulin) with high cholesterol levels showed that psyllium twice a day for eight weeks lowered cholesterol levels.

Psyllium can be purchased as ground seed and taken with water. It can also be purchased in nutrition bars. People taking psyllium should be sure to drink lots of water to prevent it from causing blockage in the intestine. Psyllium interferes with the absorption of other herbs or drugs because it slows the passage of food through the intestine. Wait an hour or two after other treatments before taking psyllium.

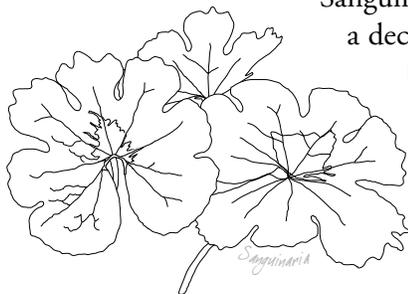


Sanguinaria

Sanguinaria canadensis is commonly called bloodroot. It is a powerful medicinal herb used by Aboriginal healers in North America and was traditionally used to treat respiratory infections, primarily by the Iroquois and Cherokee peoples. It's now used by some Aboriginal healers and herbalists to treat *Pneumocystis carinii* pneumonia (PCP) and other lung infections, such as tuberculosis. These are serious infections that people living with HIV should not attempt to treat without the support of an experienced healer and without consulting a physician.

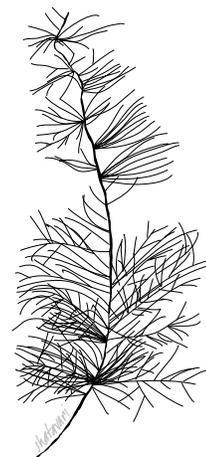
Sanguinaria is also added to toothpastes and mouthwashes to prevent a number of oral problems, including swollen gums (*gingivitis*) and plaque buildup that can lead to tooth decay. Gingivitis is common among HIV-positive people. Studies indicate that Sanguinaria is both effective and safe for combatting gingivitis, although some observers are still concerned that long-term use may increase the risk of oral leukoplakia (precancerous growths in the mouth that may result from constant irritation).

Sanguinaria is collected in the autumn, dried and prepared as a decoction or tincture. It is toxic if not carefully prepared by an experienced herbalist. The primary sign of overdose is vomiting, but diarrhea, headache and irritation of the mucous membranes may also occur. Aboriginal healers traditionally use bloodroot for short periods of time.

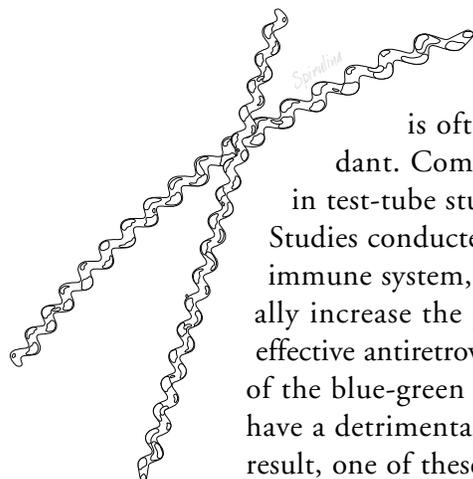


Shatvari

Shatvari (*Asparagus racemosus*) is a tonic and an adaptogen, a substance that helps the body cope with changes and stress. In Ayurvedic medicine, shatvari is used to rejuvenate the female body in much the same way that Ashwagandha is used in men. Shatvari is traditionally used to stimulate breast milk production in new mothers and to counteract the symptoms of menopause. In Ayurvedic medicine, AIDS is thought to be a disease of decreased ojas, the essential energy of the body. Shatvari is said to aid in the formation of ojas and is used as an immune therapy. Animal studies have shown that it stimulates macrophages (immune cells that capture invading micro-organisms). It has also been shown to help counter the immunosuppressive effects of cancer chemotherapy in mice. Shatvari is available in capsules or as a powder that can be taken with warm milk sweetened with raw sugar.



Spirulina



Spirulina (*Arthrospira platensis*) is a type of blue-green algae harvested from lakes and oceans or grown in controlled ponds and tanks. It contains a variety of vitamins and nutrients and is often taken as a nutritional supplement. It's also a strong antioxidant. Compounds isolated from spirulina inhibit the replication of HIV in test-tube studies and are effective against viruses such as herpes as well. Studies conducted in animals also suggest that spirulina may stimulate the immune system, although some herbalists believe that this ability could actually increase the production of HIV. This may be less of a concern for those on effective antiretroviral therapy. Although spirulina is probably the most studied of the blue-green algae, other algae produce antiviral compounds. Spirulina may have a detrimental effect on the body's ability to produce vitamin B12. As a result, one of these other algae may eventually prove to be more appropriate for HIV-positive people. Some species of algae may be toxic, however. In general, algae are very susceptible to environmental contamination and are often deliberately used to soak up toxic substances. Given these concerns, there is currently no consensus among herbalists about whether the use of blue-green algae supplements is appropriate for people living with HIV.

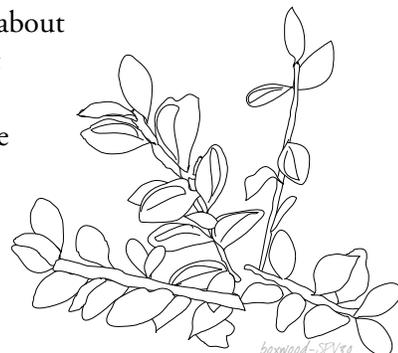
If you're taking algae simply for their nutritional benefits, an approach like juicing, which is described in CATIE's *Practical Guide to Complementary Therapies*, may be a better option.

Algae are available in powder, capsule or liquid form and can be purchased at health food stores and through buyers' clubs. Powders are generally the least expensive option. To avoid environmental contamination, buy a brand that is well-known and that has gone through the most extensive quality control process possible. Side effects are uncommon even with regular use, but rashes and nausea, possibly due to environmental toxins, have occasionally been reported.

SPV30

SPV30 (also known as boxwood extract) is derived from the boxwood tree (*Buxus sempervirens*). In the mid nineties there was a lot of excitement about the use of SPV30 for HIV infection. Unfortunately, subsequent studies demonstrated very little benefit. Because highly active antiretroviral therapy has been shown to be much more effective in managing HIV infection, there is no longer much interest in this herb.

SPV30 is usually sold in capsules. It is not widely available. SPV30 has few known side effects, although some people in an American study reported occasional episodes of diarrhea or abdominal cramps.



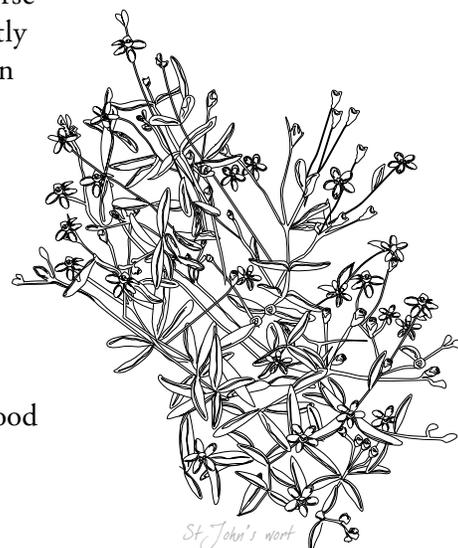
St. John's Wort

St. John's wort (*Hypericum perforatum*) is a European herbal remedy widely used to treat depression. Many people find that it improves their outlook and sense of equilibrium without creating the feeling of being drugged. A number of trials of St. John's wort as a treatment for mild to moderate depression have been done, and clinical improvements have been observed. Although test-tube studies found that hypericin, one active ingredient in St. John's wort, has antiretroviral properties when exposed to light, it is not useful for the management of HIV infection.

St. John's wort is usually sold as a standardized extract (0.03% hypericin or 3% hyperforin), although it can also be taken as an oil, a tincture or a tea. Its most frequently reported side effect is photosensitivity, which means that it will make you more sensitive to the sun and increase your risk of sunburn and rash. St. John's wort interacts with many medications, including antidepressants, birth control pills, Viagra, transplant drugs, amphetamines, narcotics, methadone and some over-the-counter cold and flu remedies. St. John's wort may also interact with street drugs and methadone.

St. John's wort (including its extracts) interacts with antiretroviral drugs (protease inhibitors and non-nucleoside reverse transcriptase inhibitors). This interaction can significantly impact your health by increasing side effects. It also can weaken the effectiveness of HIV medications, leading to treatment failure, drug resistance, and reduced options for future treatment. **If you want to use St. John's wort or any of its extracts, it is very important that you discuss this with all of your health care providers**, including your doctor, pharmacist and natural health practitioner (see the section in this guide called Herb-Drug Interactions).

St. John's wort should not be used by people with high blood pressure.



Sterinols

Sterinols, or sterols, are plant fats. They can be derived from virtually all plants, but their concentrations vary. Sterinols are found in fairly high concentrations in the oils of unprocessed seeds and nuts and, to a lesser extent, in fruits and vegetables. Unfortunately, modern diets are often deficient in these foods, and the refining of food products reduces the amount of sterinols present. These nutrients can't be manufactured by the human body, and you must eat them daily to maintain a stable amount in the body. These plant fats are structurally similar to cholesterol and may reduce cholesterol levels by decreasing the body's cholesterol absorption. They may also be important for maintaining the health of the immune system. Certain sterols look promising in breast and prostate cancer cell line studies.

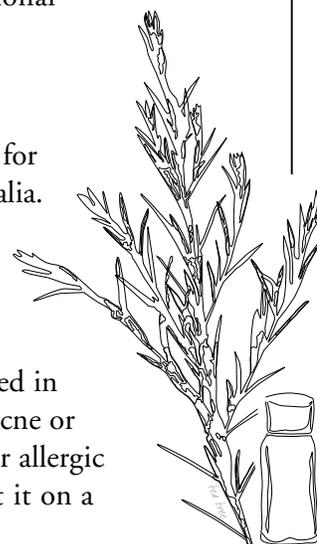


In the late nineties there was some interest in the application of sterinols to the treatment of HIV. Mostly this interest was in resource limited settings with no access to antiretroviral drugs. A preliminary study, conducted in South Africa, found some changes in immune system functions as a result of the sterinol beta-sitosterol (sold under the brand name Moducare), although the clinical implications were not clear. Unfortunately, for people with severe immune suppression (fewer than 200 CD4 cells/ μ l), this sterinol did not improve their health. The South African study was not a controlled clinical trial. Therefore it is not known what role sterinols may have, if any, in the management of HIV infection without further study. Despite the lack of clear clinical evidence, sterinol products are being widely marketed to people with HIV.

Some PHAs are incorporating oils rich in sterinols into their diet, including the oils of sesame and pumpkin seeds that, preferably, are organically grown. In general, high-quality oils are those that are cold-pressed and then packaged in dark containers. Sterinol supplements have been used in Germany for many years for prostate problems and reportedly have no side effects other than an occasional mild irritation of the stomach.

Tea Tree Oil

Tea tree oil (*Melaleuca alternifolia*) has become a popular treatment for people with HIV. It is made from a tree that is native only to Australia. Tea tree oil is used to prevent or treat mild cases of a variety of infections, particularly fungal infections such as thrush. It is also useful against certain viral infections such as herpes simplex. Tea tree oil is available in lozenge, drop or capsule form and is sometimes added to toothpaste to ward off thrush. The essential oil is used in aromatherapy and may be diluted and rubbed on the skin to treat acne or fungal infections of the skin or nails. Several cases of hives and other allergic skin reactions to tea tree oil have been reported, so be sure to test it on a



small area before you apply it more broadly. The results of test-tube studies support the idea that tea tree oil is effective against fungal infections, and several small studies evaluating its effectiveness against skin and nail infections have shown benefit. In one study of 13 men with AIDS who had thrush that was resistant to the anti-fungal drug fluconazole, gargling with a tea tree oil solution was effective in more than half of these hard-to-treat cases. Tea tree oil should not be swallowed.

Tricosanthin

Tricosanthin is derived from the root of the Chinese herb *Trichosanthes kirilowii* or guo lou. The dried root was used by traditional practitioners to induce abortions and to help women expel placenta after giving birth. It is **not** used by traditional Chinese practitioners to treat HIV.



The protein tricosanthin was isolated from the herb in the early 1970s. A company called Genelabs dubbed it GLQ223, and it was tested as a treatment for HIV in the late 1980s. It became known as Compound Q. (Compound Q should not be confused with Co-enzyme Q10, which is a completely different substance.) In test-tube studies, Compound Q has destroyed HIV-infected cells while leaving uninfected cells intact. In those studies, the compound was shown to be effective against both infected T-lymphocytes and infected macrophages. Clinical trials of tricosanthin began in 1989 with the participation of several U.S.-based AIDS community groups. Compound Q was given intravenously at a variety of doses. Although some of the small dosing trials reported at the San Francisco AIDS Conference in 1990 seemed to suggest that compound Q might be beneficial for some people, a larger trial of 148 subjects started in 1991 showed no significant improvement with this treatment.

Compound Q causes a range of side effects, including muscle and joint pain, raised liver enzymes and flu-like symptoms. Several cases of serious neurological problems, including disorientation, hallucinations and coma, have also been reported. By the mid-1990s, interest in tricosanthin had declined. Although some herbalists and researchers continue to believe that this herb will eventually find a role in the treatment of HIV, there is currently little interest in using *Trichosanthes kirilowii* or compounds derived from it for this purpose. Given the plant's traditional use in women, it should clearly not be used during pregnancy.

Turmeric

Turmeric (*Curcuma longa*) is an Indian plant related to ginger. Its roots contain a substance called curcumin, which is a strong antioxidant and anti-inflammatory that is used in Ayurvedic medicine to reduce swelling caused by arthritis or injury. Before the advent of highly active antiretroviral therapy (HAART), there was some

interest curcumin, based on results of test-tube studies. Subsequent studies in PHAs gave disappointing results.

Turmeric is usually sold in the form of capsules in which the curcumin content has been standardized to a particular percentage. The trials mentioned above used doses of curcumin ranging from 2,500 mg per day to 4,800 mg per day. These doses are substantially higher than those used to treat inflammation. At high doses, curcumin can cause stomach upset and perhaps even ulcers. People with low platelets levels or who are using anticoagulents should use curcumin with caution. Curcumin is sometimes blended with other herbs to improve absorption.



Herbal combination formulas

Herbalists and other complementary therapy practitioners sometimes use single herb therapies like those described above, but the general tendency is to blend several herbs into combination therapies. A naturopathic doctor, herbalist or a practitioner of Chinese medicine, Ayurveda or Aboriginal healing methods may create unique blends of herbs specific to your health needs. There are several reasons for doing this. Some herbs work well together by achieving the same goal in different ways. For example, several herbs that support the digestive system are combined in the Triphala formula. Herbs may also perform different functions that, when combined, make the mixture more specific to a particular problem. For example, the herb eyebright has a tendency to travel to the eye when taken into the body. Combining this herb with an antiviral herb like Lomatium might, therefore, help prevent an eye infection.

Some herbs are combined simply because they are traditionally thought to work best together. Although the theory behind this connection is not always fully understood, practitioners are reluctant to change combinations that derive from many years of observation and use.

Some herbs are combined to make them easier to take. For example, adding ginger or licorice to an herbal formula that has an unpleasant taste might make the combination more appealing and encourage patients to follow their treatment more closely.

Examples of herbal combinations

Chyavanprash is a jelly used in Ayurvedic medicine. It contains 49 herbs plus the amla fruit, its main ingredient (for details, see the triphala formula section). Chyavanprash is used to boost digestion and increase muscle mass. It may also lower blood pressure and blood cholesterol and enhance the healing of tissue.

Composition A is a combination of Chinese herbs used in HIV infection. It contains more than 20 different herbs, including licorice, maitake mushrooms, astragalus, Atractylodes and ginseng. Composition A blends Chinese herbs used to treat toxic heat, which are often antivirals, with yang tonics that may support the immune system and marrow-strengthening herbs that may both stimulate the immune system and improve the circulation of blood cells. Composition A may be prescribed by a traditional Chinese medicine doctor. Its main side effect is gastrointestinal upset.

Essiac Tea contains burdock root, sheep sorrel, slippery elm bark and turkey rhubarb root. Sheep sorrel and turkey rhubarb root are not indigenous to North America, although Rene Caisse, the original creator of this mixture, based her formula on the teachings of an Ojibwa healer. Essiac tea is sometimes taken by people with cancer. Although the name Essiac is a registered trademark of the Resperin corporation, several other manufacturers make similar formulas.

LIV-52 is an Ayurvedic formula containing herbs that are believed to treat liver disease and prevent liver damage. No side effects have been observed when LIV-52 is used as prescribed.

Sho-saiko-to is a traditional Japanese herbal remedy. It is approved in Japan for the treatment of hepatitis. A small study of combination therapy with sho-saiko-to and the antiretroviral drug 3TC showed that this mixture may be effective against HIV. A possible complication of sho-saiko-to is a serious lung condition called interstitial pneumonia. This complication is more likely to occur in people with existing respiratory problems. If you develop a dry cough or fever while taking sho-saiko-to, you should stop taking the preparation and seek medical attention immediately.

Triphala is a combination of three fruits—haritaki, amalaki and bibhitaki—used in Ayurvedic medicine. It is used to help maintain a healthy digestive system. It improves digestion and appetite and works as a laxative. Triphala is a good example of an herbal formula that combines several herbs with similar properties that work together.

Haritaki (*Terminalia chebula*) is used extensively in Tibetan medicine. It is the strongest laxative of the three and helps to prevent cramping. It may also be active against intestinal parasites. Amla, or amalaki (*Emblica officinalis*), is used to rejuvenate the digestive system and improve appetite and digestion. It contains large amounts of vitamin C (3,000 mg per fruit) and is said to rejuvenate the circulatory system, helping to rebuild new tissue and maintain the red blood cell count. Bibhitaki (*Terminalia bellerica*) tones and protects the stomach and is also used as an appetite stimulant. Bibhitaki is also taken for sore throats and respiratory illnesses. Triphala or other formulas containing haritaki should not be used by pregnant women or when a person is experiencing fatigue, wasting or diarrhea.

Note: the herbal formulas above have not been well studied in clinical trials.

Making decisions about herbal therapies

This guide has described various herbs that are often used medicinally. So how do people with HIV choose the herbs that will be most useful? As North Americans, we live in a culture where people take a pill and expect the problem to go away. We expect that anyone who has taken the time to read about a product can go to a store and make an informed choice. This may not always be true for herbal therapies. As we mentioned earlier, learning about these therapies involves piecing together many different types of information, and some questions remain unanswered. One way to sort through all of this information is to consult a complementary therapy practitioner experienced in treating people with HIV.

Herbal practitioners

Several different types of practitioners are trained in the use of herbal therapies. The following section outlines the qualifications of each type. Although these qualifications are important, it's equally important to find a practitioner that you trust. We urge you to ask questions about a practitioner's experience treating HIV and to look for practitioners who are knowledgeable about your condition. If you don't know where to find an experienced practitioner in your area, call your local AIDS service organization or one of the organizations listed in this guide.

Practitioners who specialize in herbal treatments are often called herbalists. Herbalists practise according to many different traditions. There is no standardized training in Canada, but a number of provincial organizations set standards for membership. Several different terms are used to describe the training an herbal practitioner has received. These terms may overlap, but here are some of the most common designations:

Consultant herbalist is a loosely used term describing people who have one or two years of formal training. Practitioners with this level of training often serve as consultants in health food stores.

Chartered herbalists usually have a diploma from an herbalist college and have completed at least two years of formal training.

The term **clinical herbalist** may be used to identify a graduate of a full-time three- or four-year program at an herbalist college.

Master herbalist is a term that generally reflects a high level of experience, although the exact definition varies from organization to organization. This designation usually describes someone with the formal training of a chartered or clinical herbalist as well as a specified amount of practical experience.

NIMH—These letters stand for National Institute of Medical Herbalists. This British designation is the highest level an herbalist can reach in the English-speaking world. It's estimated that there are only about half a dozen of these highly trained herbalists in Canada.

Sessions with a qualified herbalist cost between \$40 and \$75.

Naturopathic Doctors are trained to use natural substances to promote the healing power of the human body. These practitioners use herbal therapies extensively. They take several courses on biochemistry and botanical medicine as part of the four-year training necessary to become a naturopathic doctor. Naturopaths must be registered with their provincial association to practise in British Columbia, Manitoba, Ontario and Saskatchewan. A system of provincial registration is currently being developed in Nova Scotia and Alberta. An introductory session with a naturopath usually costs between \$90 and \$250. Follow-up visits generally cost \$40 to \$100, although many practitioners offer cheaper rates for those with low incomes. The services of a naturopath are covered by some private health plans.

Many non-European medical traditions use herbal medicines extensively. Most prominent in Canada are traditional Chinese medicine, Ayurveda and the traditional healing methods of Canada's Aboriginal Peoples. Specific herbal therapies used in each of these traditions have been discussed in this guide.

Finally, a variety of folk traditions make use of herbal remedies. **Folk traditions** rely on word of mouth to pass information from one generation to the next. Folk traditions rarely offer any sort of formal training. Instead, practitioners learn through informal apprenticeships with experienced healers. This is the way that healers are trained in most Aboriginal cultures throughout the world. It is also the method used in the "wise woman" traditions of Europe.

Choosing over-the-counter herbal products

Many people with HIV use the pre-packaged herbal therapies they find in herbal and health food stores and that are becoming increasingly available in drug stores and department stores. They may find that researching and choosing their own therapies lets them feel more in control of their illness. Over-the-counter therapies are also cheaper and generally more available than the individually prepared therapies you might get from an herbal practitioner. If you decide to use pre-packaged therapies, make sure you have properly identified your illness. Although herbal treatments generally have few side effects, delaying the treatment of a serious illness because you have misdiagnosed it can be deadly. This is particularly true for HIV-positive people whose immune function may already be limited by HIV infection. Check with a doctor or another health-care professional about any new symptoms or changes in your health. It's also wise to tell your doctor about any herbal therapies you're using. Remember that the store where you buy your treatments can be a major source of information. Here are some of the questions to ask yourself when choosing where to buy herbal treatments:

- Are staff at the store available to answer questions?
- Are staff consulting herbalists or have they other professional qualifications?
- Do staff members have the time to answer questions completely and do they try to do so?
- How does the store decide which product lines to sell?
- How does the store assess the quality of a product?
- Am I comfortable with the people in the store?
- Can I ask them questions without worrying about what they might do with any health information they glean?
- Do they regularly carry products I want at a price I can afford?

You should be aware that over-the-counter herbal products vary widely, both in terms of content, quality and the accuracy of labelling.

Here are a few things to consider when purchasing over-the-counter herbal preparations:

Does the product meet the new Canadian standards?

The Natural Health Products Directorate, Health Canada, has established a new regulatory framework for all natural health products sold in Canada. For more on this framework, see the section below called Regulation of Natural Health Products.

Does the label say the product was prepared according to GMP?

Good Manufacturing Practice (GMP) encompasses a series of quality control standards that have been established for foods, drugs and medical devices by the American Food and Drug Administration. Many manufacturers in all parts of the world choose to make their products according to these standards to assure their customers that high standards of quality control have been applied. GMP does not apply to all products in the American market.

Is the product of good quality?

To obtain the maximum benefit from an herbal remedy, it is best to choose products that are grown organically.

Does the label tell you about side effects and drug interactions?

Although the producers of herbal therapies can't make claims about the medical benefits of a preparation unless it has been approved as a drug, they can tell you about possible side effects or drug interactions. A manufacturer's decision to include this information on the label suggests a responsible attitude toward the production of medicinal herbs.

Is the label properly glued and clearly printed?

This may sound silly, but it's probably fair to say that a manufacturer that is careless about packaging its product may also be careless about what's inside

Does the label tell you how much product is in each capsule and how much to take?

Since the manufacturer knows more than anyone about the content and potency of its product, such information is useful when deciding what dose to use. This information is also useful when comparing products. Sometimes, inexpensive products will contain as many capsules as more expensive products but include less herb (or less of the primary active ingredient) in each capsule. It may help to bring a pocket calculator to the store to compare competing products. The label should also state how much of the desired principal active ingredient or of each herb is available in each capsule or tablet.

Is the product available in a form you can absorb?

Pills and tablets may be difficult for some people to digest and so are probably not the best option. For some people, suppositories or sublingual forms, which are able to reach the bloodstream without passing through the liver, may be most useful. Tinctures, made using water and alcohol for the extraction, are generally well absorbed.

Is the herb a rare or endangered species?

Some of the plants used to make herbal products are rare, endangered or are not readily available in natural environments. This includes some of the herbs discussed in this guide, such as goldenseal, ginseng and cat's claw. You may want to take this into consideration when choosing an herbal product. Look for products which use cultivated plants, grown in ways that mimic the natural, native environment.

Regulation of herbal products

In response to growing concerns about the regulatory environment for herbal remedies, Health Canada developed a new regulatory framework for natural health products, which came into effect January 1, 2004.

This framework is the product of extensive consultation with a range of stakeholders. Previously natural health products were sold as either drugs or foods under the Foods and Drugs Act and Regulations. The new Natural Health Products Regulations call for improved labelling, good manufacturing practices, product and site licensing, and provision for a full range of health claims that will be supported by evidence. The products that fall within the new Regulations include herbal remedies, homeopathic medicines, vitamins, minerals, traditional medicines, probiotics, amino acids and essential fatty acids. All natural health products in Canada require a product licence before being marketed. For site licensing, there is a two year transition period (2004–2005) and for product licensing, a six year transition period (2004–2009) for products who already have drug identification numbers (DIN). This will allow manufacturers, labellers, packagers, importers and distributors time to meet the new requirements.

Obtaining a product license will require detailed information on the product submitted to Health Canada, including medicinal ingredients, source, potency, non-medicinal ingredients and recommended use. Once a product has been assessed by Health Canada, the product label will bear a product licence number preceded by the distinct letters NPN, or, in the case of a homeopathic medicine, by the letters DIN-HM. The product licence number on the label will inform consumers that the product has been reviewed and approved by Health Canada for safety and efficacy.

With improved, standardized labelling, consumers will be able to make more informed decisions about the natural health products they buy. Labels will be required to specify directions for use, the recommended use or purpose (health claim), medicinal and non-medicinal ingredients, and any cautions, contra-indications or known adverse reactions associated with the product.

For further information on the regulatory framework, contact:

Natural Health Products Directorate, Health Canada
2936 Baseline Road
Qualicum Tower A
Postal Locator: 3302A
Ottawa, Ontario
K1A 0K9
(613) 948-8096 (Ottawa) or 1 888 774-5555
<http://www.hc-sc.gc.ca/hpfb-dgpsa/nhpd-dpsn/>

How herbal therapies are prepared

Herbal medicines can be purchased in several forms, any of which may be appropriate, depending on the intended use. Herbal products usually contain a variety of biochemicals found naturally in plants. Many different biochemicals contribute to a plant's medicinal benefit. Chemicals known to have medicinal benefits are called active ingredients. The terms primary and secondary ingredients are sometimes used to indicate the relative importance of each biochemical constituent.

The way an herb is prepared may effect how much of each active ingredient is in the product. The time and season of harvest, as well as the type of soil in which it grows, will also affect the potency of an herb.

Therapies are generally prepared by grinding the parts of the plant that are used medicinally. This ground plant matter is called the **macerate**.

Depending on the type of plant and the process used, the macerate may be dried before it's ground. The macerate is then soaked in liquids used to extract the active ingredients from the plant. These liquids are called **menstrua**, and this process is done in several different ways.

Infusions

Macerate—usually dried leaves or flowers

Menstruum—water

Infusions are created by pouring boiling or near boiling water on the dried macerate. A tea is probably the most common type of infusion. Infusions may be left to sit covered from a few minutes to several hours, depending on the herb used and the desired strength. Creating an infusion may be the most useful way to prepare a powerful herb when only a modest effect is desired. For example, you might use this method to create a strong herbal laxative.

Decoctions

Macerate—usually roots and bark

Menstruum—water

Decoctions are made by combining the macerate and menstruum at room temperature. The mixture is then heated gently or boiled for varying lengths of time. On the one hand, decoctions are not appropriate in cases where heat destroys the active ingredients. On the other hand, heat may enhance the effect of some active ingredients. Microwaves are not appropriate for this process.

Tinctures

Macerate—any ground plant material

Menstrua—varying concentrations of water and alcohol or other solvents such as vinegar or glycerin

Tinctures are made by soaking the macerate in the menstrua and then pressing it to remove the liquid. Menstrua containing combinations of substances remove the active ingredients from the macerate more effectively than water alone. The preparation process may be enhanced by letting the mixture sit for a longer period or by exposing it to sunlight or heat. Although tinctures are more powerful than infusions or decoctions, their strengths can vary. The strength of a tincture is usually indicated by the ratio of macerate to menstruum.

Extracts (liquid and solid)

Macerate—any ground plant material

Menstrua—varying concentrations of water and alcohol or other solvents such as vinegar or glycerin

Although extracts are similar to tinctures, they are more concentrated, because the alcohol (or other solvent) is removed by distillation, a process that may or may not involve heat. Liquid extracts have been distilled to the point at which most of the alcohol has been removed. Solid extracts have been distilled to the point at which all fluids are gone.

The label of an herbal therapy will usually indicate which of these methods was used to prepare the product and may also reveal the relative amounts of macerate and menstruum used. This information is usually expressed in the form of a ratio. For example, if an extract is labelled 4:1, it means that four kilograms of plant material were soaked in one kilogram of fluid, or it means that the extract has been concentrated fourfold.

The labels of certain herbal products indicate that the product's content has been standardized to contain a particular amount of a specified biochemical constituent. For example, the silymarin content of milk thistle is often standardized to 80 per cent. In some cases, the specified biochemical is one of the primary active ingredients, or it may simply be a "marker" that is easy to measure. Standardization gives the buyer a measure of potency by which to judge the quality of the product and to compare dosage to that of clinical trials. It also helps ensure that the manufacturer has used the correct herb. Unfortunately, since the amount of other active ingredients can vary according to the growing season, knowing the quantity of one biochemical does not necessarily mean that all the active ingredients are present in adequate doses. In fact, some herbalists are concerned that the widespread use of standardization may actually compromise the quality of herbal products and ensure that the herbal market becomes more dominated by pharmaceutical companies. For an excellent summary of this viewpoint, see Michael Tierra's article "*Why Standardize Herbal Extracts?*" posted on the Planet Herbs Web site at <http://www.planetherbs.com>. It should also be noted that some manufacturers now use the term standardized very loosely to mean only that the product has been prepared for market in some standard way.

Learning more

There are generally three kinds of information people need to collect when learning about a treatment they wish to take, whether that treatment is an herb or a drug. Each category of information is listed below in the form of a question, below which you will find additional questions you might choose to ask.

What is known about this treatment?

- Is this therapy used by other people with HIV?
- Am I able to talk to any of them about their experience?
- What research has been done on this therapy?
- What anecdotal or traditional knowledge is available?

What could be the downside of this treatment ?

- What are the side effects of the therapy, if any?
- How much of this treatment is too much, and what are the early signs of taking too much?
- Does it interact with anything else I'm taking?

What practical, common sense things do I need to know to take the treatment?

- What am I hoping to get out of this therapy?
- What sort of commitment do I need to make before using this treatment?
- Where can I get it, and will it be available on a regular basis?
- How much does it cost, and can I afford to take it regularly?

Try to collect information from as many sources as possible. If you visit an herbalist, a naturopath or another type of herbal practitioner, she or he should be able to answer your questions. As we have suggested, you can also ask questions where you buy the herb. In some cases, you may be able to call and ask for information from the people who manufacture the product.

Resources

A number of good reference books on herbal therapies have been written by knowledgeable practitioners. Public libraries often have a selection of books on herbal therapies. There are also several good herbal directories available on the Internet, as well as lots of information on specific herbs. Pay attention to the source of information offered on the Web. If you're unsure, check with your herbalist, practitioner or doctor. Some useful books and Web sites are listed below. Call CATIE at 1 800 263-1638 if you can't find them on the Internet or in your local library or bookstore. CATIE and other local AIDS treatment agencies can also help you find answers to other treatment questions.

Books on herbal therapies

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Chandler R, Bombardier C, et al. *Herbs: Everyday Reference for Health Professionals*. Ottawa: Canadian Pharmacy Association – Canadian Medical Association, 2000.

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Murray MT. *Healing Power of Herbs*. 2nd Edition. Rocklin CA: Prima Health, 1995.

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Tyler VE, Foster S. *Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies*. Binghamton: Haworth, 1998.

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Weiss R. *Herbal Medicine, translation of 6th German Edition*. Beaconsfield UK: Beaconsfield Publishers Ltd, 1988.

Hsu H. *Oriental Materia Medica: a Concise Guide*. Long Beach: Oriental Healing Arts Institute, 1986.

Books on complementary therapies that include herbs

Cassileth BR. *The Alternative Medicine Handbook*. New York: WW Norton and Company, 1998.

Cohen MR, Doner K. *The HIV Wellness Sourcebook: An East/West Guide to Living Well With HIV/AIDS and Related Conditions*. New York: Henry Holt, 1998.

Harden BL and Harden CR. *Alternative Health Care: The Canadian Directory*. Toronto: Nobel Ages Publishing Ltd., 1997.

Web sites with information on HIV and herbal therapies

CATIE

<http://www.catie.ca>

1 800 263-1638

Contains a wealth of resources on complementary therapies, including *The Positive Side* magazine on holistic health, *Practical Guides* on nutrition and complementary therapies, *Fact Sheets* on specific herbs and supplements, and links to other reviewed articles and Web sites on the Internet. *CATIE-News*, *TreatmentUpdate* and *Innovations* cover new developments in research on complementary therapies.

AIDSmap (NAM, United Kingdom)

<http://www.aidsmap.com>

Includes publications on complementary therapies produced by the National AIDS Manual.

Alternative Medicine

<http://hsl.mcmaster.ca/tomflem/altmed.html>

Canadian site with a great list of links to various sources of alternative medicine.

Bastyr University

<http://www.bastyr.edu>

Contains a “Library-Resources” section featuring Bastyr’s library catalogue, research guides, book reviews, and links to other online resources.

British Columbia Persons with AIDS Society (BCPWA)

<http://www.bcpwa.org>

Contains articles and resources on complementary therapies for people living with HIV/AIDS

CAM PubMed

<http://www.nlm.nih.gov/nccam/camonpubmed.html>

Free online searching of the medical literature for information on complementary therapies.

The Canadian College of Naturopathic Medicine (CCNM)

<http://www.ccnm.edu>

Contains a “Learning Resources Center” for links to online databases, journal indexes, and the library’s catalogue.

Canadian Health Network, Complementary and Alternative Health Centre

<http://www.canadianhealthnetwork.ca>

Contains consumer-oriented, quality assured, web-based resources on a variety of complementary therapies topics.

COMP_THERAPIES_HIV

http://groups.yahoo.com/group/comp_therapies_hiv

E-mail news service containing reviews of research and news from around the world about complementary therapies pertaining to HIV/AIDS.

Dominion Herbal College

<http://www.dominionherbal.com>

Contains information about common herbs, with colour photos. “Netta’s Garden” section gives details about specific herbs including use, and recipes. “Friends” section provides an extensive list of links to other Web sites providing herbal information

HerbMed

<http://www.herbmed.org/index.asp>

Evidence-based, interactive herbal database. Provides links to scientific data regarding the use of medicinal herbs.

WholeHealthMD.com

<http://www.wholehealthmd.com/index/>

Features the latest news and advancements in complementary and alternative medicine.

Appendix A: Alternative names for herbal therapies

(The terms used in this guide appear in bold.)

Scientific Name	Commonly Used English Name	Other Names and Substances Derived From These Herbs
	grapefruit seed	Nutribiotic, Citracidal – brand names
<i>Allium sativum</i>	garlic	
Aloe vera	aloe	Acemannan—drug derived from herb
Andrographis paniculata	green chiretta	<i>chuan-Hsin-Lien, chuan-Xin-Lian,</i> or <i>i-chien-hsi</i> – Chinese names Androvir – drug derived from the herb
<i>Arthrospira platensis</i>	spirulina	one type of algae or blue-green algae
<i>Asparagus racemosus</i>	shatvari	
<i>Astragalus membranaceus</i>	astragalus	<i>huang-qi</i> – Chinese name
Atractylodes macrocephala		<i>baizhu</i> – Chinese name
<i>Azadiracta indica</i>	neem	
<i>Berberis vulgaris</i>	barberry	berberine – a primary ingredient (discussed under goldenseal)
<i>Buxus sempervirens</i>	boxwood	SPV30 – drug derived from the herb
<i>Cannabis sativa</i>	marijuana	Cesamet, Marinol – drugs derived from the herb
<i>Chelidonium majus</i>	greater celandine	Ukrain – drug derived from the herb
<i>Cocos nucifera</i>	coconut	one source of monolaurin
<i>Commiphora mukul</i>	guggul	guggulipid – name of standardized product approved in India as a drug
<i>Coptis trifolia</i>	goldenthread	berberine – a primary ingredient (discussed under goldenseal)
<i>Curcuma longa</i>	turmeric	curcumin – a primary ingredient
Echinacea	purple coneflower	
<i>Eleutherococcus senticosus</i>	Siberian ginseng	<i>wujia</i> — Chinese name (discussed under ginseng)
<i>lucidum</i>	reishi	(discussed under mushrooms)
<i>Ginkgo biloba</i>	ginkgo	
<i>Glycyrrhiza galbra</i>	licorice	glycyrrhizin – injectable drug derived from this herb
<i>Grifola frondosa</i>	maitake	(discussed under mushrooms)
<i>Hydrastis canadensis</i>	goldenseal	berberine – a primary ingredient
<i>Hypericum perforatum</i>	St. John's wort	hypericin – a primary ingredient
<i>Hypoxis rooperi</i>	African potato	one source of sterinols
Isatis tinctoria		woad—European name (used as a dye)

Scientific Name	Commonly Used English Name	Other Names and Substances Derived From These Herbs
<i>Lentinus edodes</i>	shiitake	lentinan – drug derived from herb (discussed under mushrooms)
Lomatium dissectum	desert parsley	biscuitroot
<i>Mahonia aquifolium</i>	Oregon grape	berberine – a primary ingredient (discussed under goldenseal)
<i>Melaleuca alternifolia</i>	tea tree	
<i>Melissa officinalis</i>	lemon balm	
<i>Mentha piperita</i>	peppermint	Colpermin – drug derived from herb
<i>Olea europaea</i>	olive leaf	
<i>Panax ginseng</i>	ginseng	Korean or Chinese ginseng
<i>Panax quinquefolium</i>	American ginseng	(discussed under ginseng)
<i>Plantago isphagula</i>	psyllium	
<i>Sambucus nigra</i>	elder	
Sanguinaria canadensis	bloodroot	
<i>Silybum marianum</i>	milk thistle	silymarin – a primary ingredient
<i>Trichosanthes kirilowii</i>	tricosanthin	<i>guo lou</i> – Chinese name GLQ233 or Compound Q – both refer to an injectable drug derived from this herb
<i>Uncaria tomentosa</i>	cat's claw	<i>uña de gato</i> – Spanish name
<i>Withania somnifera</i>	ashwagandha	Indian ginseng
<i>Zingiber officinale</i>	ginger	

Appendix B: References to scientific research on herbal therapies

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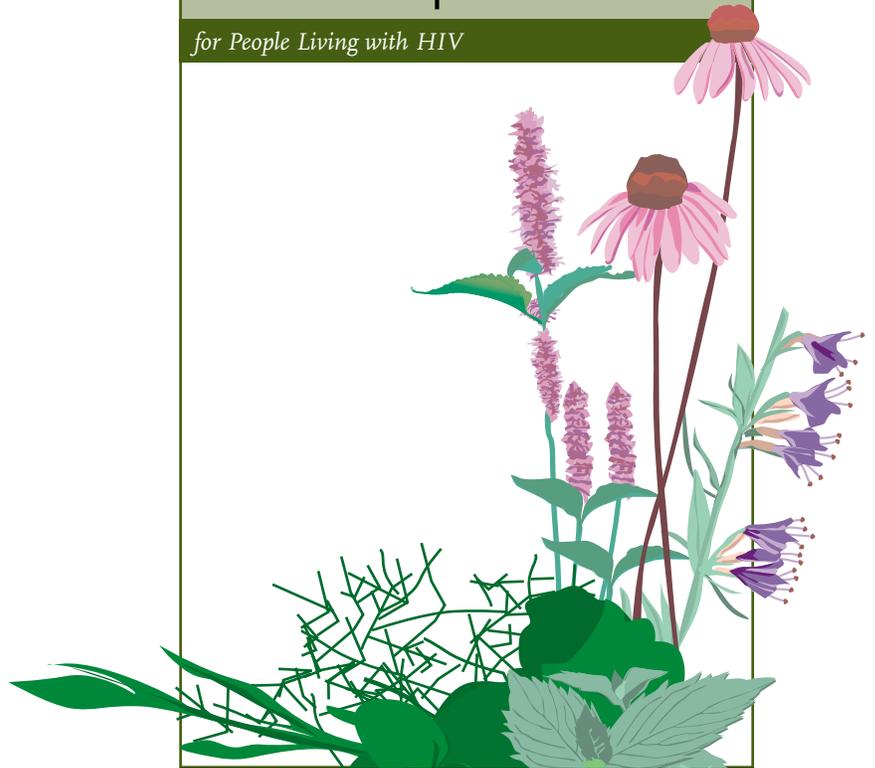
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