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TRENDS IN PHARMACY AND PHARMACEUTICAL CARE

Herbal therapies: The facts and the fiction

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For thousands of years, Eastern and Western civilizations have recorded myriad medical uses for plants and herbs. Over time, as modern scientific methodologies emerged, these herbal remedies began to lose their popularity. During the mid- to late 19th century, however, chemists began to isolate active plant ingredients and rationally synthesize large numbers of organic compounds with pharmacological activities.

With an increasing number of new therapeutic agents available to it, the American public began to demand regulation of pharmaceuticals to ensure their safety and efficacy. While herbal remedies continued to be used in the home, their manufacturers and suppliers were unable to provide the scientific data to support the safety and efficacy of their products to comply with new legislation. Thus, early in the 20th century, the majority of herbal remedies disappeared from use.

As the 20th century progressed and modern medicine was making some of its most significant impacts on society, the dark side of technology was forging a crack in the foundation of modern science. Oil spills, nuclear waste, and industrial waste contamination in the 1970s spawned a revolution of "back-to-nature" fundamentalism. Over the past two decades, Americans have been increasingly attracted to "all natural" products in many aspects of their lives, including what they eat, drink, and wear. This "back-to-nature" fundamentalism, combined with America's new health consciousness, has resulted in the resurgence of interest in herbal therapies.

Unfortunately, "all natural" has become synonymous with "better," and herbal therapy has quickly become a multibillion-dollar business. Herbal product manufacturers and promoters, freed from the stringent requirements that regulate the drug industry, are able to promote unproven herbal remedies for their therapeutic properties. Just catching a small wave on the Internet, an amateur surfer can quickly find an enormous amount of information about the use of herbs for the treatment and cure of almost any physical or mental ailment. "Cures" for terminal illnesses such as cancer and AIDS abound. If one were to believe the testimonials, it would be hard to imagine why anyone would be overweight, suffer from premature baldness, or continue to wrestle with the ravages of disease.

In 1994, under pressure by lobbyists for the manufacturers of herbs and vitamins, the Food & Drug Administration (FDA) enacted legislation (Dietary Supplement Health & Education Act P.L. 103-417) that redefines dietary supplements to include herbs, vitamins, minerals, and amino acids. In addition, the legislation allows advertisements for dietary supplements to include information about the ways these products affect the structure and function of the human body. These health claims need not be approved by the FDA; however, the advertisements must include a disclaimer stating that the product has not yet been evaluated by the FDA for treating, curing, or preventing any disease.

Although the legislation prohibits manufacturers from making direct claims for the product's use in treating, curing, or preventing human diseases, it does not, unfortunately, prevent third

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GOAL:
To provide the pharmacist with an understanding of potential uses and misuses of herbal therapy

OBJECTIVES:
This lesson, good for two CE credits, requires a passing grade of 70%. Upon completion of this article, the pharmacist should be able to:

- ✔ *Describe the history of disease treatment with herbal therapies*
- ✔ *Explain the origin of the resurgence of interest in herbal therapies*
- ✔ *Cite the legal differences between drugs and dietary supplements*
- ✔ *Identify the risks and benefits of treatment with a variety of common herbal remedies*
- ✔ *Counsel patients about the appropriate use of herbal products*

parties from making claims about a supplement's use. In addition, the legislation provides a gigantic loophole for the promotion of products that do not have established safety and efficacy. As a result, advertisements are allowed to claim potential therapeutic benefits for dietary supplements.

The recent explosion of interest in herbal therapy has created a paradox for the pharmacist. Should the pharmacist, who is ethically committed to dispensing, promoting, and distributing only those pharmaceuticals that meet the legal standards of safety and efficacy, support the use of these products as drugs? Should the pharmacist counsel about the use of these products as therapeutics? There is currently a great deal of discussion about these issues, and it may be many years before laws are enacted to govern the appropriate use of herbal products. Until then, each pharmacist will be left with the decision as to how he or she should deal with these products.

Clearly, responsible pharmacists should familiarize themselves with herbal products. They should know their potential uses and misuses, their potential toxicities, and their potential to interact with other therapies. The public demands that the R.Ph., as the drug expert, be prepared to offer ethical and sound advice about any drug or any product being used as a drug.

There are literally hundreds of herbs being marketed as dietary supplements throughout the United States. The pharmacist should keep in mind several points when counseling patients about herbal therapy, among them that the majority of popular claims associated with herbal products are probably either false or unproved. Dr. Varro Tyler, one of the most authoritative sources of herbal therapy information (*The Honest Herbal; Herbs of Choice*), concedes that there is no botanical remedy currently available for the effective treatment of obesity, arthritis, cancer, HIV, or AIDS. In addition, there is absolutely no evidence that antioxidant herbs and vitamins provide any enhancement of longevity. Given these facts, it is safe to conclude that many therapeutic claims associated with dietary supplements are unsubstantiated.

It is clear that the FDA does not consider dietary supplements to be drugs; therefore, pharmacists recommending these products for therapeutic use should be especially aware of the potential for liability. Unlike prescription or standard over-the-counter drug products, dietary supplements do not have the blessing of the FDA. Therefore, little is provided by the manufacturers about risks associated with potential hypersensitivities or drug interactions. The FDA has abrogated any responsibility by requiring products to be labeled as not approved.

Because these preparations are not subject to rigorous quality control, content may vary from one batch to another and from manufacturer to manufacturer. Even the few manufacturers that use quality control measures and quantitate the major constituents in their products do not know whether they are controlling the quantities of all of the potentially biologically active ingredients contained within their products.

Finally, the vast majority of herbal products are deficient in appropriate human toxicological analysis. A common misconception is that these "all natural" remedies are safe. Over the past few years deaths attributed to the use/misuse of such products have increased. In 1994, Jin Bu Huan herbal tablets, sold as sedatives, were directly linked to cases of severe liver toxicity in both adults and children. In 1992, the FDA had to warn both Nature's Way and General Nutrition Centers to stop distributing dietary supplements containing gum guar after numerous cases of, and at least one death from, esophageal obstruction were linked to use of these products. More recently, claims of death resulting from ma-huang or ephedra misuse in adolescents and young adults forced the FDA to place restraints on the unethical advertising practices used by manufacturers of these products.

While it is almost impossible to individually review each of the herbals marketed as dietary supplements, we have chosen some of the more popular herbs to review in greater depth. In addition, a comprehensive table lists popular herbs and their purported pharmacological activities and potential uses.

Alfalfa (*Medicago sativa*). Alfalfa has been touted as a natural laxative, a natural diuretic, an antifungal, a liver detoxifier, a treatment for kidney stones and urinary infections, and a promoter of pituitary gland function. In addition, this plant is marketed as an excellent source of vitamins and minerals.

Alfalfa is an important animal feed worldwide, and its chemical constituents are well known. It has been concluded that alfalfa contains nothing of any significant therapeutic value in the amounts generally recommended. While alfalfa in moderation is generally harmless, the seeds contain an amino acid, L-canavanine, implicated in pancytopenia in humans and induction of systemic lupus erythematosus in monkeys.

Allergic reactions are reported to be provoked in some users, as well. Potential interactions of alfalfa supplements with specific over-the-counter and prescription medications are unknown.

Aloe vera (**Aloe vera).** Potions of this plant have been used both internally and externally. Aloe is popularly touted as a general tonic and a "cure-all"; one can find aloe products marketed for virtually any common malady.

More specifically, it has been advertised for use in treating acne, burns, minor wounds, colitis, and peptic ulcers. It is also sold as a laxative, a digestive aid, a blood and lymphatic circulation aid, and a liver and gall bladder function aid. Although the FDA does not recognize the use of aloe for treatment of any condition, there is evidence to suggest that fresh aloe gel is an effective demulcent.

Data to support the claims of wound healing by aloe are inconclusive. External use of the fresh aloe gel is, for the most part, harmless when treating minor cuts, abrasions, and burns.

Arnica (**Arnica montana).** Arnica, also called leopard's bane, is used for stimulating blood circulation, raising blood pressure, and as an antibiotic. It is used also to treat arthritis, muscle aches, sprains, burns, ulcers, eczema, and acne.

The active components in arnica are certain sesquiterpene lactones, which, for the most part, act as counterirritants. Internal use has resulted in severe, even fatal, cases of cardiotoxicity and should always be strongly discouraged. Externally, arnica is generally harmless; however, topical dermatitis attributed to the sesquiterpene components of arnica is common.

Bilberry **(Vaccinium myrtillus).** Bilberry, also known as blueberry, is touted for use in connection with vascular and blood disorders and in treating varicose veins, thrombosis, diarrhea, and angina. Some preliminary studies suggest that bilberry may benefit visual acuity as well as provide protection from macular degeneration, glaucoma, cataracts, and other visual maladies. Currently, there is little clinical evidence to support the use of bilberry as a treatment or preventative for any medical condition.

Potential interactions of bilberry supplements with specific over-the-counter and prescription medications are unknown.

Cat's claw (**Uncaria tomentosa).** Cat's claw, touted to boost the body's immune system, is marketed for the treatment and prevention of colds, flu, cancer, and AIDS. It is also purported to act as an antihypertensive; to reduce the risk of stroke and heart attack; to reduce cholesterol levels; and to be useful in the treatment of Crohn's disease, gastric ulcers and tumors, parasites, colitis, diabetes, premenstrual syndrome (PMS), chronic fatigue syndrome, lupus, gastritis, diverticulitis, and leaky bowel syndrome.

Although in vitro analyses of some components of this botanical are providing potential leads for natural product chemists, there are as yet no clinical studies that would support its use as treatment for or prevention of any medical condition. Reports of diarrhea associated with the use of these supplements are common. Potential interactions of cat's claw supplements with specific over-the-counter and prescription medications are unknown.

Dong quai **(Angelica sinensis).** Dong quai is recommended by herbalists for almost every gynecological complaint imaginable, including menstrual cramps, irregularity, retarded flow, and menopausal symptoms. It is also touted as a general blood tonic and a strengthening treatment for the heart, spleen, liver, and kidneys. Researchers have identified numerous antispasmodic and vasodilating coumarin derivatives in dong quai; however, other coumarins identified have been associated with dermatitis and photosensitization. For this reason—in addition to the fact that there is no clinical evidence to support the effectiveness of dong quai in the treatment or prevention of any medical condition—use of supplements containing this herb should be strongly discouraged.

Echinacea **(Echinacea purpurea).** Echinacea is touted as a nonspecific immunostimulant useful in the treatment or prevention of colds, flu, bacterial and fungal infections, cancer, arthritis, the side effects of radiation poisoning, and AIDS. To date, the exact pharmacological components of echinacea and their mechanisms of action in the human body are unclear; however, complex polysaccharides found in echinacea appear to hold some promise as lead compounds for immunostimulant drug discovery.

In general, echinacea appears to be relatively safe, but clinical information to support echinacea consumption for medical benefit is still lacking. Potential interactions of echinacea supplements with specific over-the-counter and prescription medications are unknown.

Ephedra **(Ephedra sinica).** Ephedra (ma-huang) has been used in China for more than 4,000 years to treat symptoms of asthma and upper respiratory infections. Currently, ephedra is used as a nasal decongestant and for relief of the constriction and congestion associated with bronchial asthma.

The pharmacologically active ingredients found in ephedra include the central nervous system stimulant ephedrine. Over the past few years, popular culture has touted ephedra as a weight loss product, an energy booster, an aphrodisiac, and a mental stimulant. Recent misuse of ephedra-containing products by young adults forced the FDA to enact regulations regarding the advertising and manufacture of these products. Several deaths have even been attributed to their misuse.

There exists a host of FDA-approved and -tested medications that contain ephedrine and pseudoephedrine, making the use of nonapproved ephedra supplements unnecessary. The use of any ephedrine-containing medications is contraindicated in persons suffering from heart conditions, diabetes, hypertension, or thyroid disease.

Feverfew **(Chrysanthemum parthenium).** Feverfew has a long history of use in traditional and folk medicine as a treatment for fever, headache, menstrual irregularities, and stomachache. More recently, feverfew has been touted as a treatment for migraine headaches, arthritis, and insect bites.

Feverfew contains sesquiterpene lactones that act as either antagonists or agonists of the vasoactive serotonin. There is also some evidence that feverfew acts to lower the pain threshold.

One study of commercially available feverfew products found none of the active sesquiterpene lactone ingredients in two-thirds of the products tested. There are no long-term human toxicity data about the use of feverfew, and the potential for interactions of feverfew supplements with specific OTC and Rx medications is unknown.

Garlic (Allium sativum). Garlic and related alliums have been used for thousands of years as both a food and a medicine. Garlic has been touted as a cure-all by herbalists and naturalists for many years. It is purportedly useful as an antibiotic, an antiviral, and a general tonic. It also enjoys a reputation for being able to treat and prevent arteriosclerosis, reduce blood cholesterol and blood pressure, and regulate the circulatory system.

When garlic is crushed, it produces allicin, which possesses some antibiotic, antiplatelet, and antihyperlipidemic properties. In addition, other sulfurous compounds found in garlic, such as the ajoenes, possess some antithrombotic properties. Unfortunately, studies thus far indicate that these positive pharmacological effects are seen only with the consumption of large amounts of fresh garlic. The activity of most commercial garlic supplement products is at best questionable.

For the most part, consumption of moderate amounts of garlic is harmless; large doses, however, are likely to stimulate heartburn, flatulence, and other gastrointestinal distress.

Ginkgo biloba (Ginkgo biloba). Ginkgo supplements have been touted by herbalists for years as a way to beat life's inevitable aging process and the normal bodily deterioration that goes along with it.

The most popular use of ginkgo products is in treating and preventing peripheral vascular disease. There is scientific evidence to suggest that some components of ginkgo extracts, possibly in combination, promote improved blood flow; this could account for many of the positive pharmacological effects attributed to ginkgo. Unfortunately, clinical research has not yet provided sufficient data to suggest appropriate therapeutic doses, and there is little bioequivalence among various products. Few side effects have been reported with the use of ginkgo, and potential interactions of ginkgo supplements with specific OTC and Rx medications are unknown.

Ginseng (Panax ginseng)

Ginseng is commonly used as an adaptogen, a substance that supports general good health. It is also marketed as an aphrodisiac. As with the majority of herbal potions, few clinical studies have been performed on ginseng, and those that have been done have shown ambiguous results. Some clinicians suggest that apparent adaptogenlike effects may be psychological or associated with a patient's renewed interest in his or her health. To date, there has been no proven effect from the use of ginseng products. In addition, studies of commercial products have shown these potions to range in ginseng content from moderate to none.

Commercial products vary widely, but moderate ginseng consumption now appears to have relatively low risk.

St. John's wort (Hypericum perforatum). St. John's wort is a bushy perennial plant with numerous yellow flowers that seem to be particularly abundant on the date celebrated as Saint John the Baptist's birthday. The herb is popularly marketed for several uses, the most common being the treatment of depression, anxiety, or AIDS.

While some of the constituents of this herb seem to show a minimal amount of antidepressant activity, and other constituents may offer some benefits as antiviral agents, there is limited clinical evidence to suggest that St. John's wort is effective in the treatment of depression or AIDS in humans. Depression is a serious illness that should be treated by qualified physicians with adjunctive psychological therapy. Like cancer or heart disease, it is not a disease to be treated with OTC medications or dietary supplements. Likewise, there are no herbal remedies known to prevent or cure AIDS. Pharmacists should never suggest dietary supplements for the treatment of depression or AIDS.

Saw palmetto (Serenoa repens). Saw palmetto was once an official drug that was used for a variety of ailments, particularly urogenital disorders. After World War II, physicians in the United States began to question the efficacy of the herb, and it subsequently disappeared from use.

More recently, German clinical studies have concluded that saw palmetto possesses a beneficial antiandrogenic and anti-inflammatory effect of particular benefit in treating benign prostatic hypertrophy (BPH). Unfortunately, the herb has yet to pass the rigorous safety and efficacy tests demanded by the FDA. It has been shown that contraction of human prostate is mediated by alpha-adrenoreceptors and that prazosin, an alpha-adrenoreceptor antagonist, produces significant symptomatic relief of BPH. There are no studies to suggest that the unapproved saw palmetto offers any preferential, or even equivalent, treatment of BPH when compared with prazosin. Again, there exists no bioequivalence among various saw palmetto products. No significant toxicity data for long-term use of this herb are available, and potential interactions of saw palmetto supplements with specific OTC and Rx medications are unknown.

Although there are several herbals—chaparral, comfrey, and yohimbine—that, because of their toxic nature, should never be used, pharmacists might keep in mind that there are no botanical remedies currently available for the effective treatment of obesity, arthritis, cancer, HIV, or AIDS. With regard to the relatively harmless use of certain products, pharmacists will have to weigh the risks of their use against the psychological benefits for each individual patient.

It is expected that as Americans continue to seek "natural" medicines, the use of herbal remedies will increase; therefore, it is likely that charlatans will continue to espouse "secret cures" for disease. Thus, it is imperative that U.S. pharmacists continue to serve as the ultimate source of accurate scientific information about legitimate drugs and about all products being used and touted as drugs.

References are available upon request.

Herbs, their purported properties and uses

Herb	Purported properties/uses
Adonis	Blood, heart, and circulation problems
Alfalfa	Arthritis; blood purifier
Aloe vera	Soothing agent; ulcers; toxin absorber; regulator of intestinal flora
Angelica	Antiflatulent; diuretic; diaphoretic; emmenagogue; abortifacient; abortion
Anise	Expectorant; antitussive
Arnica	Stimulates blood circulation; increases blood pressure; arthritis; burns; ulcers; eczema; acne; analgesic; anti-inflammatory; improves wound healing
Astragalus	Tonic to the immune system; promotes wound healing
Barberry	Bitter tonic; appetite stimulant; ulcers; heartburn; cathartic
Barley grass	Increases strength and stamina; reduces blood cholesterol; reduces cancer risks; stimulates blood circulation
Basil	Gum disease
Bayberry	Expectorant; diarrhea; stimulant; emetic; ulcers; astringent
Bearberry	Urinary tract infections; diuretic
Bee pollen	Increases energy, stamina, and strength
Betony	Astringent; diarrhea; canker sores; anxiety; headache
Bilberry	Blood disorders; varicose veins; thrombosis; angina; prevents capillary fragility; thins the blood; stimulates the release of vasodilators; antioxidant; lowers blood pressure; reduces clotting; improves blood supply to the nervous system; lowers blood sugar; poor vision; improves night vision; retinitis; glaucoma; myopia; diarrhea; nausea
Black cohosh	Lowers blood cholesterol; sinusitis; analgesic; morning sickness; hot flashes; menstrual cramps; poisonous bites
Black walnut	Tuberculosis; diarrhea; female disorders; sore throat; lung disease; anthelmintic
Bladderwrack	Obesity; goiter; stimulates kidney function; anthelmintic
Blessed thistle	Appetite stimulant; blood purifier; strengthens heart and liver; pneumonitis
Blue cohosh	Fever; colds; flu; pneumonia; anti-asthmatic; anti-inflammatory; anthelmintic; anxiety; epilepsy; headaches; skin disorders; female disorders; expectorant
Boneset	Colds; catarrh; flu; rheumatism; fever
Borage	Diuretic; expectorant; antidepressant
Buchu	Anti-inflammatory; sinusitis; diabetes; ulcers; kidney and bladder problems
Burdock	Skin disorders; gout; blood purifier; immunostimulant
Butcher's broom	Gout; circulatory disorders; varicose veins; hemorrhoids; phlebitis; thrombosis; jaundice; anti-inflammatory
Cacao	Antiasthmatic; CNS stimulant; headaches
Calamus	Digestive aid
Calendula	Burns; wounds
Camphor	Counterirritant; topical analgesic
Capsicum	Improves circulation; aids digestion; nausea; rheumatism; arthritis; pleurisy
Cascara	Liver disorders; gallstones; leukemia; colitis; anthelmintic; diverticulitis; laxative
Catnip	Fever; colic; flu; colds; anti-inflammatory; analgesic; stimulates appetite; aids digestion; insomnia; stress
Cat's claw	Immunostimulant; cancer; antiviral
Chamomile	Nerve tonic; sleep aid; appetite stimulant; digestive aid; colds; anti-asthmatic; colitis; diverticulitis; fever; headaches; hemorrhoids; analgesic; anti-inflammatory; rheumatism; anthelmintic
Chaparral	Bitter tonic; skin disorders; arthritis; analgesic; cancer
Chickweed	Constipation; skin diseases; ulcers; antiasthmatic; blood purifier; lung diseases; obesity
Chicory	General tonic; diuretic; laxative; tachycardia; anti-inflammatory
Coltsfoot	Skin disorders; persistent cough; fever; anti-inflammatory; anti-asthmatic; catarrh; ulcers; burns; diarrhea
Comfrey	Blood purifier; antiasthmatic; catarrh; analgesic; burns; tuberculosis; ulcers

Herb	Purported properties/uses
Curcubita	Anthelmintic; prostatic hypertrophy
Damiana	General tonic; aphrodisiac; bed-wetting; depression
Dandelion	Gallbladder and bile disorders; general tonic; diuretic; blood sugar regulator; lowering blood pressure; gout
Devil's claw	Rheumatism; arthritis; inflammation; antiviral
Dong quai	Female disorders; stress; sedative; blood purifier; headaches
Echinacea	Bitter tonic; antiseptic for lymphatic system; tonsillitis; blood poisoning; vasodilator; antimicrobial; immuno-stimulant; antiasthmatic; nasal decongestant; snakebite; glandular swelling
Elderberry	Diuretic; laxative; nerve disorders; back pain; anti-inflammatory; astringent; colds; flu
Elecampane	Expectorant; lung tonic; general debility; diuretic; promotes perspiration and eliminates toxins; antimicrobial; antitussive; bronchitis; emphysema
Eleuthro	General tonic; immunostimulant; increases work output and athletic performance; stabilizes blood sugar; hypertension; cancer; heart disease
English walnut	Local astringent; dermatitis
Ephedra	Bronchial asthma; nasal decongestant; circulatory/cardio-vascular stimulant; blood pressure elevator; hayfever; emphysema; weight loss
Evening primrose	Obesity; hypertension; skin disorders; female disorders; multiple sclerosis; arthritis; alcoholism
Eyebright	All eye disorders
Fennel	Indigestion; antiseptic; antispasmodic; appetite suppressant; carminative; anti-inflammatory; diarrhea in children; flatulence; colic; increases secretion of mother's milk
Fenugreek	Antiasthmatic; sinusitis; lung disorders; laxative; fever; reduces cholesterol; intestinal lubricant; eye disorders
Feverfew	Migraine headaches; anti-inflammatory; promotes menstruation; eliminates worms; relieves muscle tension; appetite stimulant; fever
Flaxseed	Female disorders; colon problems; anti-inflammatory; antitumor; promotes strong bones, teeth, nails and skin
Garlic	Antibiotic; detoxifies the body; strengthens blood vessels; lowers blood pressure; quickens circulation; reduces blood cholesterol; immune support for respiratory system; bronchitis; catarrh; anthelmintic; antiviral; antibacterial; antispasmodic
Gentian	Appetite stimulant; digestive aid; increases circulation; antimalarial; fever; colds; gout
Ginger	Motion sickness; colitis; diverticulitis; indigestion; diarrhea; nausea; gas; vomiting; menstrual cramps; colon cleanser
Ginkgo biloba	Increases mental alertness; stimulates circulation to the extremities; anti-oxidant; antiallergy; tinnitus; vertigo; stress; senility; antiasthmatic; Alzheimer's disease
Ginseng	Impotence; stress; cocaine withdrawal; diabetes; increases energy levels; lung function; immunostimulant; appetite stimulant
Goldenseal	Gum disease; canker sores; anti-inflammatory; indigestion; appetite stimulant; liver problems; skin diseases
Gotu kola	Stress; improves mental and physical abilities; high blood pressure; senility; aging; anti-inflammatory; diuretic; fever
Hawthorn	Lowers blood pressure; strengthens heart; tonic to cardiovascular/circulatory systems; angina; heart valve murmurs; arteriosclerosis; sore throat; skin sores; diarrhea; abdominal distention
Hibiscus	Laxative; diuretic
Honey	Sedative; arthritis
Hops	Sedative; analgesic; carminative; insomnia; headaches; anxiety; toothaches; ear aches; gonorrhea; ulcers; circulation; muscle cramps; shock; alcoholism
Horehound	Antitussive; antiasthmatic; jaundice; sore throat; anthelmintic; expectorant
Horsetail	Diuretic; kidney stones; strengthens hair, nails, bones, and teeth; cystitis; rheumatism; gout

Herbs (continued)

Herb	Purported properties/uses
Huckleberry	Diabetes; sinusitis; kidney and bladder problems; ulcers
Hydrangea	Diuretic; kidney stones; euphoric
Hyssop	Immunostimulant; fevers; sore throats; expectorant; antimicrobial; promotes wound healing
Iceland moss	Antitussive; irritations of the mouth and throat
Ipecac	Expectorant; emetic
Irish moss	Thyroid problems; colon disorders; obesity; diarrhea
Jewel weed	Poison ivy; contact dermatitis
Jojoba Oil	Dandruff; hair loss; warts; cancer
Juniper	Stimulant; diuretic; antiseptic; anti-inflammatory; sinusitis; bladder problems; hypoglycemia
Kava kava	Nervousness; anxiety; insomnia; analgesic; gonorrhea; rheumatism; gout; anti-inflammatory; analgesic; diuretic; genitourinary disorders
Kelp	Constipation; bronchitis; emphysema; asthma; indigestion; ulcers; colitis; gallstones; obesity; genitourinary and reproductive disorders; blood purifier; strengthen disease resistance; rheumatism; arthritis; stress; skin diseases; burns; insect bites
Kola nut	Stimulant; headaches; diuretic; depression; migraines
Kudzu	Decreases blood alcohol and acetaldehyde levels
Lavender	Headache; gas; analgesic; antiseptic; antitussive
Lettuce opium	Sedative; analgesic
Licorice	Gastric ulcers; hormone regulator; hypoglycemia; blood sugar regulator; adrenal support; colitis; diverticulitis; stress; expectorant; antispasmodic; antitussive; bronchitis
Life root	Female regulator
Linden flowers	Diaphoretic; tranquilizer; stimulant; headache; indigestion; hysteria; diarrhea
Lobelia	Antitussive; fever; cold symptoms; sore throat; colic; antiasthmatic; bronchitis; angina; epilepsy
Lovage	Stomach disorders; kidney and bladder problems; migraine; gout; rheumatism; female disorders
Ma-huang	*See* Ephedra
Mango	Plaque formation; periodontal disease
Marijuana	Appetite stimulant; nausea; diarrhea; euphoric; glaucoma
Marshmallow	Antitussive; demulcent; gastric ulcer; expectorant; diuretic
Milk thistle	Liver disorders
Milkweed	Gastrointestinal tract stimulant; gallbladder and female disorders; kidney disorders; arthritis; anti-asthmatic; bronchitis
Mistletoe	Smooth muscle stimulant; antispasmodic; anxiety; hypotension; cancer; anthelmintic
Mormon tea	*See* Ephedra
Mullein	Antiasthmatic; difficult breathing; hay fever; analgesic; insomnia; laxative; warts
Myrrh	Antiseptic; astringent; hemorrhoids; bed sores; wounds; ulcers; indigestion; bronchial congestion; cancer; leprosy; syphilis
Neem	Plaque formation; periodontal disease
Nettle	Diuretic; prostatic hypertrophy; anti asthmatic; colon and urinary disorders; arthritis; hemorrhoids; cystitis; diarrhea; eczema; anthelmintic; goiter; analgesic; hair growth stimulator
Oak bark	Local astringent; dermatitis
Oats	Stress; sedative; antidepressant; impotence; cardiac tonic
Oleander	Blood, heart, and circulatory problems
Pacific yew	Cancer
Papaya	Digestive aid; anthelmintic
Parsley	Diuretic; goiter; obesity; edema; bed-wetting; rheumatism; indigestion; menstrual disorders; anthelmintic
Passion flower	Antispasmodic; sedative; nerve tonic; insomnia; headache; shingles
Pau d'arco	Antibacterial; wound healing; blood purifier; candidiasis; smoker's cough; warts; diabetes; ulcers; AIDS; cancer; allergy; arthritis; liver disease
Pennyroyal	Colds; expectorant; respiratory disorders; jaundice; nausea; skin disorders; ulcers; headache; fever; gout; gas; blood purifier
Peppermint	Chills; colic; fever; nausea; diarrhea; heart disorders; rheumatism; convulsions; spasms; headaches
Pokeroot	Cathartic; emetic; cancer; dyspepsia; rheumatism; ringworm; scabies; ulcers; arthritis

Herb	Purported properties/uses
Psyllium	Stool softener; prevents constipation; colitis; hemorrhoids
Pumpkin	Prostate disorders; stomach problems; anthelmintic; morning sickness
Red clover	Blood purifier; antibacterial; tuberculosis; appetite suppressant; whooping cough; AIDS; arthritis; skin disorders; cancer
Red raspberry	Sore throat; canker sores; intestinal tonic; uterine relaxant; morning sickness; hot flashes; menstrual cramps
Reishi	Longevity; immunostimulant; reduces blood cholesterol
Rhatany	Canker sores; sore throat
Rhubarb	Bitter tonic; astringent; laxative; diarrhea; antispasmodic; appetite stimulant; ulcers; hemorrhoids; headache
Rose hips	All infections; bladder problems; stress
Rosemary	General tonic; astringent; diaphoretic; aids digestion; prevents baldness; emmenagogue; stimulant
Rue	Antispasmodic; anxiety; emmenagogue; abortifacient
Sabal	*See* Saw palmetto
Sage	Antiseptic; astringent; anti-inflammatory; reduces excessive perspiration
St. John's wort	Depression; antibacterial; antifungal; AIDS; anxiety; headache; anti-inflammatory; arthritis; astringent
Sarsaparilla	Blood tonic; antiseptic; rheumatism; arthritis; impotence; gout; venereal disease; stress; epilepsy; diabetes; eczema
Sassafras	Tonic; blood cleanser; stimulant; antispasmodic; rheumatism
Savory	Aphrodisiac; aids digestion; flatulence; appetite stimulant; diarrhea; carminative; expectorant; antitussive
Saw palmetto	Prostatic hypertrophy; antiseptic; diuretic
Schisandra	Immunostimulant; aids liver function; longevity; stress; motion sickness; lowers cholesterol; increases energy and stamina
Senna	Cathartic; laxative
Skullcap	Anxiety; hysteria; migraine; rheumatism; epilepsy; analgesic; insomnia; improves circulation
Slippery elm	Immunostimulant; diarrhea
Snakeroot	Expectorant; snakebite; antiasthmatic; colds; bronchitis
Spirulina	Weight loss; diabetes; hepatitis; cirrhosis; anemia; stress; pancreatitis; cataracts; glaucoma; ulcers; hair loss
Suma	Anemia; fatigue; stress; diabetes; immunostimulant
Tea	Headache; plaque formation; periodontal disease
Thyme	Sinusitis; antiasthmatic; fever; headache; colds; flu; sore throat; lowers blood cholesterol
Turmeric	Gallbladder and bile disorders
Turpentine	Counterirritant
Uva ursi	Bitter tonic; urinary disorders; diuretic; female disorders; hemorrhoids; diabetes
Valerian	Sedative; analgesic; tranquilizer; antispasmodic; anxiety; restlessness; headache; hysteria; gas
Vitex	Female hormone regulator; PMS discomfort; menopause; hot flashes; acne
Watercress	Urinary disorders; edema; indigestion
White oak	Hemorrhoids; PMS; varicose veins; goiter; gallstones; kidney stones; fever; cold sores
White willow	Antispasmodic; antiseptic; astringent; fever; analgesic
Wild yam	Anti-inflammatory; nasal congestion; antispasmodic; dysmenorrhea; uterine tonic; rheumatism
Witch hazel	Astringent; varicose veins; skin disorders
Wormwood	Bitter tonic; psychotomimetic
Yellow dock	Astringent; laxative, skin tonic
Yerbamate	Constipation; headache; hemorrhoids; diuretic; obesity; fatigue; stress; allergies; blood purifier; longevity
Yohimbine	Impotence; angina; aphrodisiac
Yucca	Laxative; anti-inflammatory; rheumatism; gout; arthritis

Adapted from: Williamson, J. S. and Wyandt, C. M. 1997, *Herbal therapy for the Pharmacist,* 7(4), 34-41.

TEST QUESTIONS

Write your answers on the answer form appearing on page 87 (photocopies of the answer form are acceptable) or on a separate sheet of paper. Mark only one correct answer.

1. In general, most herbal remedies marketed as dietary supplements have been:
   a. Clinically tested for efficacy
   b. Clinically tested for safety
   c. Clinically tested for drug interactions
   d. None of the above

2. An adaptogen can be described as:
   a. An agent that cures a specific disease
   b. An agent that prevents a specific disease
   c. An agent that supports general good health
   d. None of the above

3. Benign prostatic hypertrophy is a result of the contraction of the human prostate, thereby exacerbating the obstruction of the prostatic urethra. Contraction of the human prostrate is mediated by:
   a. Dopamine receptors
   b. Alpha-adrenoreceptors
   c. Beta-adrenoreceptors
   d. None of the above

4. Due to their toxic nature, dietary supplements containing these botanicals should never be recommended for any reason:
   a. Comfrey
   b. Chaparral
   c. Yohimbine
   d. All of the above

5. Scientific data suggest that alfalfa:
   a. Can be effective in the treatment of kidney stones
   b. Has been implicated in causing pancytopenia in humans
   c. Can be effective as a promoter of pituitary gland function
   d. None of the above

6. The FDA has approved aloe vera for use as:
   a. A demulcent
   b. A wounding-healing agent
   c. An emmenagogue
   d. None of the above

7. Dietary supplements containing this herb have been reported to cause severe, even fatal, cases of cardiotoxicity:
   a. Bilberry
   b. Garlic
   c. Arnica
   d. Aloe vera

8. This botanical, also known as blueberry, has been touted for its use as a treatment for cataracts and glaucoma:
   a. Bilberry
   b. Garlic
   c. Arnica
   d. Aloe vera

9. The most popular use of echinacea (*Echinacea purpurea*) is probably related to its alleged properties as:
   a. A stimulator of hair growth
   b. A weight loss product
   c. An immunostimulant
   d. A rich source of vitamin A

10. This dietary supplement, known as ma-huang, is popularly misused and abused for its CNS stimulant properties:
    a. Echinacea
    b. Garlic
    c. Aloe vera
    d. Ephedra

11. The CNS stimulant properties of dietary supplements containing ephedra are probably due to this pharmacologically active component:
    a. Allicin
    b. Vitamin C
    c. Ephedrine
    d. None of the above

12. When fresh garlic (*Allium sativum*) is crushed, it produces this somewhat unstable moiety, which has been reported to elicit antibiotic, antiplatelet, and antihyperlipidemic properties:
    a. Allicin
    b. Vitamin C
    c. Ephedrine
    d. None of the above

13. The most popular use of ginkgo (*Ginkgo biloba*) dietary supplements is for:
    a. Increased energy and stamina
    b. Treating and preventing peripheral vascular disease
    c. Treating and preventing AIDS
    d. None of the above

14. Over the past few years, herbal therapy has become:
    a. A multibillion dollar business
    b. Less and less popular
    c. More stringently regulated with regard to toxicity studies
    d. More stringently regulated with regard to efficacy studies

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15. In 1994, what legislation was enacted that redefined dietary supplements to include herbs, vitamins, minerals and amino acids?
    a. The Herb & Vitamin Act
    b. The Drug Safety & Efficacy Act
    c. The Dietary Supplement Health & Education Act
    d. The Remedy & Tonic Act

16. According to Varro Tyler, there is no botanical remedy currently available for the effective treatment of:
    a. Insomnia
    b. Obesity
    c. Migraines
    d. Motion sickness

17. Dietary supplements containing this popular botanical, isolated from a tropical vine, are touted for treatment and prevention of AIDS, cancer, stroke, heart attack, Crohn's disease, lupus, chronic fatigue syndrome, as well as a host of other ailments:
    a. Cat's claw
    b. Garlic
    c. Arnica
    d. Aloe vera

18. Dong quai (*Angelica sinensis*) is most popularly touted as:
    a. The all-purpose men's tonic herb
    b. The all purpose women's tonic herb
    c. The all-purpose children's tonic herb
    d. None of the above

19. Manufacturers of dietary supplements are required to label products with:
    a. Potential side effects
    b. Potential toxicities
    c. A notation that the product is not FDA-approved
    d. Potential drug interactions

20. The most popular use of ginseng (*Panax gingseng*) dietary supplements is:
    a. As an adaptogen
    b. For treating and preventing peripheral vascular disease
    c. For treating and preventing AIDS
    d. None of the above

1997 CEU CREDIT REQUEST

ANSWER FORM

HERBAL THERAPIES — AUGUST 4, 1997 — 032-999-97-016-H01 — Test questions start on opposite page

1. a. b. c. d.	**6.** a. b. c. d.	**11.** a. b. c. d.	**16.** a. b. c. d.
2. a. b. c. d.	**7.** a. b. c. d.	**12.** a. b. c. d.	**17.** a. b. c. d.
3. a. b. c. d.	**8.** a. b. c. d.	**13.** a. b. c. d.	**18.** a. b. c. d.
4. a. b. c. d.	**9.** a. b. c. d.	**14.** a. b. c. d.	**19.** a. b. c. d.
5. a. b. c. d.	**10.** a. b. c. d.	**15.** a. b. c. d.	**20.** a. b. c. d.

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