Non-timber forest products **Fact sheet no. 17**

Produced by the Special Forest Products Program at Virginia Tech in collaboration with:
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Top of the Ozarks Resource Conservation & Development, Inc., Houston, Missouri; &
Missouri Department of Conservation, Jefferson City, Missouri.

Slippery elm

"Sing better with slippery elm!" That's how the herb has been recommended for professional singers since 1847. Even those of us who are not singers love the tangy taste of throat lozenges made from slippery elm. Surely the taste alone is no reason for craving these lozenges, now available in many more flavors. Almost all throat lozenges contain slippery elm, which is the best and most natural way to a quick, effective relief of dry or sore throat.

Slippery elm (*Ulmus rubra*) is a member of the Elm family (Ulmaceae). The tree is also called gray elm, Indian elm, moose elm, red elm, soft elm, and sweet elm. It is a medium-sized, deciduous tree of moderately fast growth growing to 50-80 feet tall. The trunk is dark brown to reddish brown. The bark is rough and thick.

The tree is identified by its "slippery" inner bark. Native Americans were the first to discover that the mucilage (slippery substance) surrounding the fibers swells when it comes in contact with water, and produces a soothing ointment. The inner bark provided one of the most versatile medicines for both the Native Americans and the early settlers, and was an official drug of the United States Pharmacopoeia from 1820 to 1936.

Medicinal properties

Native Americans used a tea made from the fresh inner bark as a laxative. They used the poultice of the bark for toothaches, and to extract thorns and shot pellets. A poultice is a soft mass (as of bread, bran, or medicated clay) which is usually heated and spread on cloth for application to sores, inflamed areas, or other lesions, to supply moist warmth, relieve pain, or act as a counterirritant or antiseptic. During the American Revolution, surgeons treated gunshot wounds with bark poultice.

The ethnobotanical uses of slippery elm include its use as an antitussive, demulcent, diuretic, emollient, laxative, and

preventative. The mucilage acts as an effective cough suppressant and soothes the throat. The high mucilage content also helps to heal the mucous membrane of the gastrointestinal tract and is used to treat gastritis, gastric catarrh, mucous colitis, and enteritis. (Please refer to the Dictionary of Modern Herbalism by Mills for further information on these terms.)

Slippery elm
Electronic source: Ohio Division of Forestry, Ohio State University

Salves containing slippery elm extract have been used to treat skin ailments such as chafe, burns, and wounds. Brews are used internally for treating diarrhea, constipation, kidney problems, and many other ailments. (Native American Ethnobotany by Moerman provides more information on uses of medicinal plants.)

The inner bark is highly nutritious and is made into gruel, a thick mixture like oatmeal. The gruel forms a wholesome and sustaining food which is easily digested by infants, convalescents, and invalids.

Slippery elm contains compounds called oligomeric procyanidins that exhibit antiseptic and anti-allergic properties. They find applications in treatment of asthma and bronchitis.

During pregnancy, Native Americans used a tea containing slippery elm powder for easy labor. In the powder form, slippery elm is used in suppositories with a little powdered white oak bark to treat mild hemorrhoids. In her book, A Modern Herbal, Mrs. M. Grieve presents a comprehensive account of the different applications of slippery elm.

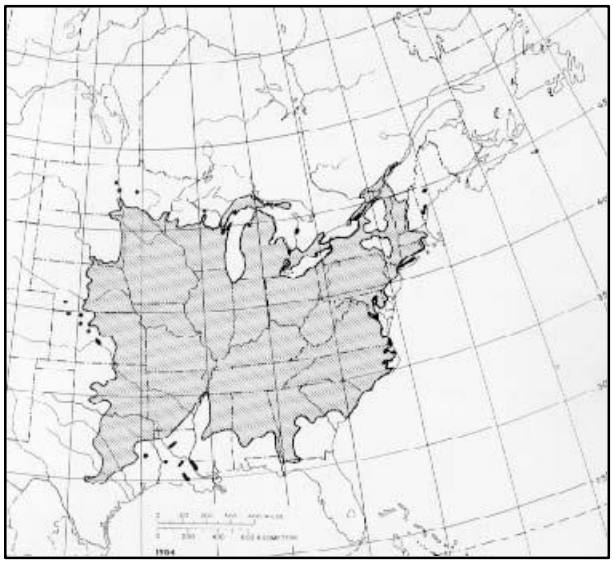
There are many complementary agents that enhance the effectiveness of slippery elm as a medicine. Slippery elm could be combined with parts of one or more of the following plants: aloe vera, marshmallow, mullein, saw palmetto, and thyme for treatment of other ailments.

It is important that you exercise caution when considering using slippery elm products for medicinal purposes; seek professional advice before using them.

Natural habitat

The United States Department of Agriculture, Forest Service maintains a website at http://www.na.fs.fed.us/spfo/ that provides information and assistance on forest health and tree care, natural resources management, and other forestry related topics. Among the other online publications

are the two volumes of ‘Silvics of North America’. These documents provide information about the biology of tree species growing in the forest lands of the United States.



Native range of slippery elm.
Electronic source: Cooley and Van Sambeek. 1990.

From that we found that the native range of slippery elm extends from southwestern Maine west to Central Texas. It includes extreme southern Quebec, southern Ontario, northern Michigan, central Minnesota, and eastern North Dakota; south to eastern South Dakota, central Nebraska, and southwestern Oklahoma; then east to northwestern Florida and Georgia. Slippery elm is less common in its range south of Kentucky and is most abundant just south of the Lake States and in the cornbelt of the Midwest.

Cultivation, harvest, storage, and processing

In his book, Miller (1998) mentions that slippery elm is a hardy perennial that can be cultivated by seeds in most soils in full sun. It can also be propagated by cuttings.

The bark can be collected in spring or fall from the bole and larger branches. It is not recommended that the whole bark be shaved from the tree trunk. It is better to use the bark of the branches that may need pruning. The coarse outer bark should be removed to expose the inner layer. A knife, hatchet, or machete can be used for the purpose.

After the outer bark is removed, the inner portion can be removed in strips, squares, or chips. The inner bark should be dried under pressure so that it remains flat. Miller (1998) mentions that slippery elm bark can be sun-cured within a temperature range of 90 °F to 140 °F. He also mentions that the dried bark should be packaged in burlap sacks and stored in unheated warehouse.

The ideal particle size of slippery elm bark on powdering in the milling operation is 1/16 inch. This process results in high loss in dust. Screen sizes are standardized as United States Standard (USS). For example, 1/8 inch is also known as a 8 mesh USS. Tableting requires a 40 to 60 mesh USS and capsulating requires even finer grades, usually as small as 80 to 120 mesh USS.

As with the processing of many medicinals, to process dusts this fine, special ventilation and capture systems for airborne particles are required to minimize losses.

Slippery elm
Photo copyright Steven Foster
Electronic source: Natural HealthLink

Marketing

Slippery elm is marketed as an herbal expectorant and as a general herbal supplement. It is marketed in the form of dried inner bark (as flat pieces or powdered), liquid extracts, capsules, lozenges, tablets, and tea by many manufacturers of herbal products. These companies include Flora, Frontier Herbs, Naturade, and Nature's Way. The powdered bark is sold in two forms: a coarse powder for use as poultices and a fine powder for making a mucilaginous drink

Many companies sell tea containing herbs. These teas differ in the herb used as an ingredient. The tea is generally sold in tea bags. A company, Traditional Medicinals markets a tea containing slippery elm as one of the main constituents as 'supporting throat health and respiratory system' under brand names Throat Coat and Herba Tussin. Another company, Celestial Seasoning markets its slippery elm tea under the brand name Throat Soothes Tea.

Throat lozenges are marketed as treatment for common colds by Quantum and Thayers, among other manufacturers. Thayers markets its throat lozenges under brand names such as Original Slippery Elm Lozenges, Wild Cherry Slippery Elm Lozenges, and Tangerine Slippery Elm Lozenges with Rose Hips and Vitamin C. The company has recently introduced diabetic-safe, sugar-free lozenges.

The U. S. Food and Drug Administration (FDA), the nation's oldest and foremost consumer protection agency, provides public health information on a variety of consumer products. The FDA has declared slippery elm safe and approved it as a nonprescription product for demulcent (soothing of the mucous membranes) use.

Conservation and management concerns

Large quantities are collected, especially in the lower part of Michigan. As the wood has no apparent commercial value, the tree is fully stripped of the bark and consequently dies. Ethical wildcrafters recommend first gauging the amount needed and then stripping the bark from 1/4th or less of the branches. It takes almost ten years for the

slippery elm tree to reach harvest age. Reforestation could be a serious problem in the areas being harvested. Therefore, it is recommended that planting of saplings should accompany harvesting of the tree.

We can reduce the demand for slippery elm by using substitutes. According to Rosemary Gladstar, a highly respected herbalist, marshmallow root is the best overall substitute as it contains a high percentage of mucilage and works well to soothe mucous membranes. She recommends licorice root for soothing the throat and lungs, and white flax and psyllium for the lower bowels.

Marshmallow (*Althaea officinalis*) is found in salt marshes from Massachusetts to Virginia and in the mountains of the western U.S. It can be grown from seeds and can also be propagated by cuttings and division. The plant does well in almost all moist soils. The leaves, root, and flowers are used in medicine, though the roots are used to a greater extent than the other parts. Both root and leaves contain mucilagin, the substance that makes the tea made from it slimy.

References and information resources

(You may be able to find these or other publications in your local library. Another valuable resource is your local cooperative extension office.)

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Electronic resources

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Cooley, John H. and J. W. Van Sambeek. 1990. Slippery Elm. In Silvics of North America. Russell M. Burns and Barbara H. Honkala, technical coordinators. Agriculture Handbook 654. U. S. Department of Agriculture. Washington, D.C.
http://www.na.fs.fed.us/spfo/pubs/silvics_manual/volume_2/ulmus/rubra.htm

Natural HealthLink
http://www.naturalhealthlink.com/ReferenceLibrary/healthnotes.asp?ArticleID=641&type=1

(The following web site can be queried for ethnobotanical information on slippery elm)

Phytochemical Database, USDA - ARS - NGRL, Beltsville Agricultural Research Center, Beltsville, Maryland
http://www.ars-grin.gov/duke/ethnobot.html

(The following two web sites provide information on slippery elm)

A Modern Herbal by Mrs. M. Grieve
http://www.botanical.com/botanical/mgmh/e/elmsli09.html

The Longwood Herbal Task Force Publications
http://www.mcp.edu/herbal/slipperyelm/slipperyelm.htm

(The following are home pages for companies that manufacture herbal medicines)

Frontier Natural Products Co-op
http://www.frontiercoop.com/

Thayers Natural Pharmaceuticals
http://www.thayers.com/

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This is part of a series of fact sheets on non-timber forest products. The full set of fact sheets is available at the Non-timber Forest Products website: http://www.sfp.forprod.vt.edu/

Please give us your comments on this fact sheet and suggestions for future fact sheets. Direct your comments to Tom Hammett, Department of Wood Science and Forest Products, 210 Cheatham Hall (0323), Virginia Tech, Blacksburg VA 24061. Phone: (540)-231-2716. E-mail: himal@vt.edu.