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Goldenseal

Goldenseal (*Hydrastis canadensis*) is a member of the Buttercup family, Ranunculaceae. The generic name, *Hydrastis*, is derived from two Greek words, meaning 'water' and 'to accomplish'. The plant has been given this name because of its effect on the inflammations of the mucous membranes for which the roots were primarily used. It is also known as yellow root, yellow puccoon, orange root, turmeric root, jaundice root, Indian dye, Indian paint, eye root, eye balm, ground raspberry, and many more names.

Goldenseal was listed in the United States Pharmacopoeia in 1830. It was dropped in 1840 but was listed again from 1860 to 1926. The plant was also listed in the National Formulary, a pharmacists' reference book, until 1955.

Goldenseal is a small perennial herb with a horizontal, irregularly knotted, bright yellow rootstock. The yellow rootstock sends up an erect hairy stem. The plant derives its common name from the yellow scars left on

the rhizome by the stem that bursts forth every spring. These scars resemble the imprint of an old-fashioned letter seal. The stem bears two prominently-veined and wrinkled dark-green leaves. The stem gives rise to a greenish-white solitary flower in April-May. The mature red fruit looks like a raspberry; hence, the name ground raspberry. The rootstock is collected in autumn after the ripening of the seeds. The leaves are collected in late summer.



Medicinal properties

Ethnobotanical uses include using the rhizome and roots as an alterative, antiperiodic, antiseptic, aperient, aperitif, astringent, cicatrizant, detergent, hemostat in uterine hemorrhage, insect repellent, tonic and uterotonic. It has been used as a remedy against catarrh, enterorrhagia, hemorrhoids, metrorrhagia, stomatitis. (Please refer to the Dictionary of Modern Herbalism by Mills for further information on these terms.)

Goldenseal has also been used as an anticancer agent and for treatment of stomach, liver, mucous membranes, sores and wounds. Strained infusions have traditionally been used as a soothing eyewash. Goldenseal root is brewed as tea to be taken for stomachaches and as a douche for vaginal inflammations.

Goldenseal's medicinal effects are attributed to the isoquinoline alkaloids hydrastine, berberastine, berberine, canadine, and reticuline. Herbal medicines are based on the holistic approach wherein, the whole is more than the sum of the parts. Goldenseal is a very good example of this approach because the sum of the chemical parts of this medicinal plant is greater than its individual components and a synergistic action of several components produces the medicinal effect rather than single chemical components.

In addition to possessing medicinal properties of its own, the roots of goldenseal are said to enhance the potency of other herbs. For this reason, the roots of goldenseal are used in many herbal remedies. There are many complementary agents that enhance the effectiveness of goldenseal as a medicine. Goldenseal could be combined with one or more of the following plants: echinacea, black cohosh, chamomile or dong quai.

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



Non-medicinal uses

American Indians used goldenseal as a dye in addition to its use as a medicinal plant. The juice is used as a yellow dye. The American Indians used its yellow juice as a stain for their faces and as a dye for their clothes and weapons. It can be mixed with indigo to make green-colored dyes for wool, silk and cotton.



Natural habitat

Goldenseal is native to the Eastern North American deciduous forest. The geographical range extends from southern New York to Minnesota and Kansas, south to Georgia, Alabama, Missouri and Mississippi, and east to Kentucky and the Carolinas. In the past, most commercial supplies were obtained from Ohio Valley. At present, goldenseal is becoming scarce throughout its range due to overharvest. Hence, many goldenseal cultivation projects were initiated in the 1990s.



Cultivation, harvest, storage, and processing

The USDA National Agroforestry Center (NAC) has published a technical brochure with titled, 'Forest Production of Goldenseal' (Davis1999). According to that, goldenseal grows best in a rich, moist, well-aerated loamy soil with good water

drainage. It is most reliably propagated by dividing healthy rhizomes into ½-inch or larger pieces containing a bud and roots. Goldenseal should be mulched. It does not require irrigation when grown under a forest canopy.

Goldenseal roots are ready to harvest in three to five years. The roots should be dug carefully, keeping the many fibrous roots intact. The roots should be washed by spraying with a hose over a large-mesh screen. The clean roots should be dried in a well-ventilated area in the shade or in a forced air drier. Miller (1992) mentions that sun cure of goldenseal roots results in the problem of split roots. He also mentions that the dried roots are to be packaged in polypropylene sacks and stored in heated warehouse.

Miller (1992) mentions that the particle size of goldenseal roots in the milling operation should be 1/16 inch on powdering. He mentions that the roots are hard to powder. 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. To process dusts this fine, special ventilation and capture systems for airborne particles are required to minimize losses.



Marketing

Goldenseal is marketed as an herbal supplement for its anti-inflammatory and antibiotic-like actions. Goldenseal is marketed in the form of dried roots (either whole or in powdered form), leaves, extracts (both fluid and solid), capsules and tablets, lotions, salves, tinctures and ointments. The fluid extract is extracted in either glycerin or alcohol.

Goldenseal is marketed by many manufacturers of herbal products. Some of them are Frontier Herbs, Nutraceutical Corp. (with the SOLARAY line of supplements), Nature's Way, and Herbs Etc.



Conservation and management concerns

Overharvesting of goldenseal has been reported to cause serious reductions in plant populations in Illinois, Ohio, Indiana and eastern Kentucky. This has caused concern and has resulted in the listing of goldenseal in the Appendix II of the Convention for International Trade in Endangered Species of Wild Flora and Fauna (CITES) in 1997. Though this listing imposed controls on the trade of goldenseal, it has not kept people from collecting it in the wild and, therefore, the population of goldenseal continues to decline.



References and information resources

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

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Electronic resources

New Crops News, Spring 1994, vol. 4 no. 1
<http://www.hort.purdue.edu/newcrop/NewCropsNews/94-4-1/ginseng.html>

Terry Willard. Herbs for your Health - Goldenseal Root
<http://www.agric.gov.ab.ca/crops/special/mcdconf/willardc.html>

Jeanine M. Davis. Advances In Goldenseal Cultivation
<http://www.ces.ncsu.edu/hil/hil-131.html>

R. D. Reeleder. Goldenseal - *Hydrastis canadensis* Southern Crop Protection & Food Research Centre, Agriculture and Agri-Food Canada
<http://res2.agr.ca/london/pmrc/study/newcrops/goldseal.html>

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

The American Herbal Pharmacopoeia
<http://www.herbal-ahp.org/>

The National Center for the Preservation of Medicinal Herbs
<http://www.ncpmh.org/>

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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.

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