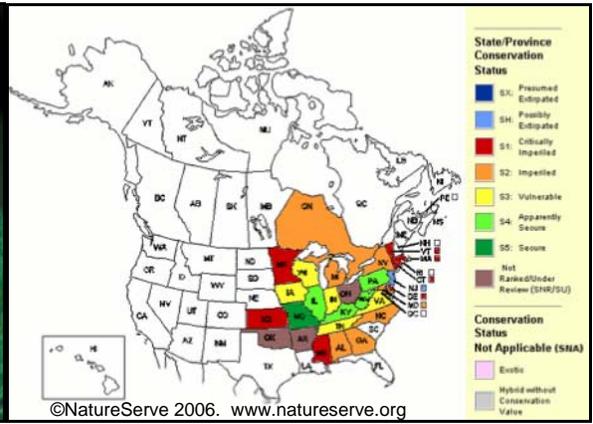


Medicinal Plant Fact Sheet: *Hydrastis canadensis* / Goldenseal



Common Name

Goldenseal, yellow root, yellow-puccoon, sceau d'or, ground raspberry, eye-balm, Indian turmeric

Scientific Name

Hydrastis canadensis L. (Ranunculaceae or Buttercup family)

Description

Goldenseal is a slow-growing perennial herb that spreads via root-like, yellow underground stems (rhizomes). Juvenile plants are often single-stemmed. Mature (reproductive-aged) individuals are characterized by a pair of leaves arranged alternately on a forked stalk that may reach about 30 cm. (one foot) in height. Leaves are palmately-lobed with toothed margins. Short minute hairs cover the stems and leaves.

Goldenseal flowers from April to May. A single white-green flower is borne atop a short flowering stalk emanating from the uppermost leaf. Fruits resemble raspberries, containing 10-30 black, shiny smooth seeds (Flora of North America 1993).

Distribution

Goldenseal is native to the woodlands of the Eastern United States and Southern Canada, growing in rich, moist, and often alkaline soils at altitudes of 50 to 1,200 meters (164-3,937 feet; USDA-NRCS 2007).

Reproduction

Although capable of producing viable seed through self- and cross-fertilization around 4-5 years of age, (Burkhart & Jacobsen 2006), goldenseal reproduces primarily vegetatively (clonally via rhizomes), rather than from seed. This reproductive strategy results in the characteristically patchy goldenseal populations.

Pollinators and Dispersal: Observed pollinators include small bees of the genera *Dialictus* and *Evylaeus* in Canada, and syrphid flies and some larger bees in the United States (Sharp 2003; Sinclair *et al.* 2000). The red fruits are eaten by animals, especially birds. But, dispersal methods may be ineffective, as seedlings are rarely found in the wild.

Medicinal Uses

Goldenseal is one of the oldest documented medicinal plants of North American origin (Foster 2000). The alkaloids berberine, canadine and hydrastine are believed to be responsible for goldenseal's medicinal activity. Native Americans have used goldenseal internally (for respiratory, immune system and gastrointestinal ailments), and externally for inflammation (Moerman 1998). Many beneficial uses have been ascribed to goldenseal, including antibacterial, antifungal and anti-yeast activity, especially against digestive pathogens. Some herbalists are challenging the practice of using goldenseal as a first defense against colds and flu, favoring other, more abundant substitutes (Blumenthal 2000; Bergner 1996/7).

Trade

Goldenseal has been a top selling medicinal herb on the international market for many years (Bannerman 1997; Sinclair and Catling 2001). A 2007 worldwide market analysis lists goldenseal among the twenty leading herbal supplements (BCC 2007). Goldenseal is marketed in over 500 medicinal products worldwide and is often used in combination with other herbs, especially *Echinacea* (Bannerman 1997; NatureServe 2007). Powdered root is believed to be the main form of goldenseal in international trade.

Disclaimer: The information contained in this fact sheet is not intended nor implied to be a substitute for professional medical advice relative to your specific medical condition or question. All medical and other healthcare information that is given here should be carefully reviewed by the individual reader and their qualified healthcare professional.

Though the species is in cultivation, most goldenseal is still wild-collected, according to the American Herbal Products Association (AHPA 2003). Limited supplies from the wild and increased demand have resulted in increasing prices. Wholesale prices skyrocketed in the 1990s, from about \$8.00 to \$100.00 per pound (Foster 2000). A downturn in prices in 2000 appears to be slowly rebounding and in 2005, Pennsylvania dealers paid an average of \$25 per pound of dry root (Burkhart & Jacobsen 2006).

Legal Protection and Conservation Status

Major threats to goldenseal populations are loss of habitat, due to development and logging, and over-harvest for the medicinal trade. Population reductions reported in the core of the goldenseal's range, including Kentucky and Ohio, have been mainly attributed to over-collecting (Jones & Szymanski 1999; Mulligan 2003). In many areas populations have been completely eliminated by herb collectors and in some areas, poaching is also a problem (NatureServe 2007).

In Canada goldenseal is listed as threatened (NatureServe 2007). In the United States, it is listed as endangered, threatened, vulnerable or of special concern in Connecticut, Georgia, Maryland, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina and Vermont (NatureServe 2007). Goldenseal is listed as "At Risk" by United Plant Savers.

Goldenseal has been listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) since 1997. International trade in Appendix II species must not be detrimental to the survival of wild populations. However, CITES currently does not regulate goldenseal *powder*, which is believed to be the main commodity in trade. This situation is currently being reviewed by CITES Parties.

Sustainable Use and Conservation

Goldenseal is a slow-growing perennial forest herb that could easily become commercially extinct unless wild populations are strictly managed and greater emphasis is given to cultivation. Though the species is in cultivation, it continues to be primarily wild-harvested. Since root harvest results in mortality of the plant, and because wild populations tend to occur in patches, wild goldenseal populations are prone to over-harvest. Sexually reproducing individuals are important for maintaining genetic integrity and diversity within each population. The following good stewardship practices can help to maintain or enhance wild goldenseal populations.

Sustainable Actions

- 🌿 **Wild-harvesters:** Find out the legal requirements for wild-harvesting goldenseal in your state; rotate harvest areas; thin patches rather than collecting all available plants; leave a portion of mature and juvenile individuals untouched; replant parts of harvested roots (More info: Behrens *et al.* 2002; Burkhart & Jacobsen 2006; Lockard & Swanson 2004).
- 🌿 **Growers:** Find out the legal requirements for cultivating goldenseal in your state; ensure planting stock is obtained in a way that does not threaten wild populations; consult local experts and resources for cultivation requirements in your area (More info: Burkhart 2006; Davis & Greenfield 2004; Gladstar & Hirsch 2000; Lockard & Swanson 2004; Persons & Davis 2005).
- 🌿 **Practitioners and Consumers:** Choose ethically-wildcrafted or verifiably cultivated sources of goldenseal bulk herbs or supplements; use goldenseal only when it is best indicated; when choosing substitutes, exercise caution not to choose a species that is equally as vulnerable to overharvest (More info: Blumenthal 1999; Blumenthal *et al.* 2003; Gladstar & Hirsch 2000).

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More Information

For more information on Goldenseal, including a list of references, go to http://www.plantconservationwiki.org/wiki/Hydrastis_canadensis.



<http://www.iucn.org/themes/ssc/sgs/mpsg>



<http://www.nappc.org>



<http://www.nps.gov/plants/medicinal>

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