

Stoneroot – *Collinsonia canadensis* L.

1. Taxonomy

Collinsonia canadensis L.

Family: Lamiaceae

Common names: stoneroot (derived from the herb's extremely dense and hard "root"), horse balm, broadleaf collinsonia, hard hack, heal-all, horse weed, knobroot, ox balm, richweed.

Synonyms include: *C. angustifolia* Raf., *C. cuneata* Wender, *C. tuberosa* Michx., *C. urticifolia* Salisb.

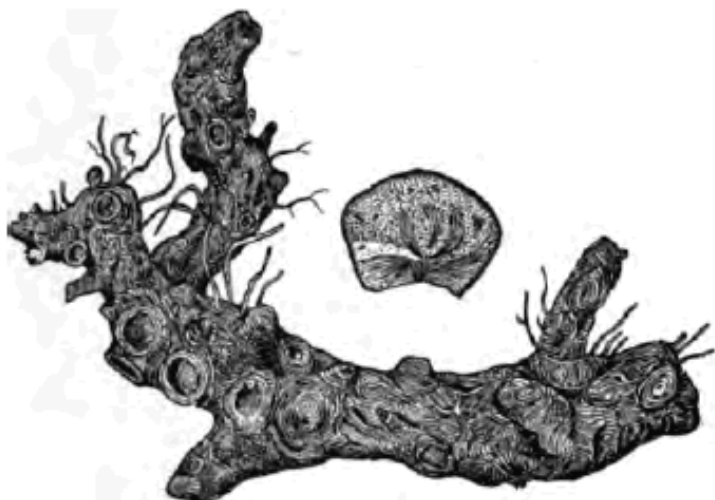


Figure 1. Image from *Handbook of Pharmacognosy* by Otto A. Wall 1917. C.V. Mosby Co., St. Louis.

2. Botanical description and distribution

C. canadensis is an upright perennial reaching up to four feet, with large simple leaves arranged opposite and decussate on the stem. The stems are more or less square in cross section in the fashion of the Lamiaceae family, but with slightly rounded corners. Leaves are ovate in shape, acuminate apex, coarsely serrated margins, and borne on long petioles. They have a distinct lemon-like smell when crushed. Flowers are light yellow and fragrant, bilabiate in shape and mainly arranged in terminal panicles. Two stamens bearing red anthers protrude beyond the lower lip of the corolla. The fruit is a nutlet containing four seeds. The rhizome is knotted and extremely hard ("stone root"), dark in color, and covered with a mass of fibrous roots (Krochmal, Walters, & Doughty, 1969; Elliott, 1976; Gleason & Cronquist, 1991; Wall, 2000; Rural Action, 2005).

Distribution of the species is confined mostly to the eastern part of the United States, from Northern Florida to Ontario and west to Missouri. It is typically found in woodlands and has a preference for sandy loam soils (Rural Action, 2005; Albrecht, 2006).

Part used

Rhizome, harvested in the fall.

Aerial parts (less frequently employed)

Note: In line with traditional literature, the terms “root” and “rhizome” may be used interchangeably.

3. Traditional uses

Traditional uses in Appalachia

All parts of *C. canadensis* have been employed as remedies for both topical and internal uses. The flower and leaves are often used as a fragrant deodorant, and an infusion of the aerial parts is used for headaches and rheumatism (Howell, 2006). When used as a poultice, it is reported to treat bruises, wounds, sprains, and contusions. When taken internally as an infusion, it relieves headaches, colic, cramps, drowsy and indigestion (Millsbaugh, 1974).

Traditional uses outside Appalachia

Native American use

Often referred to as “rich weed”, *C. canadensis* was applied topically for a number of dermatological issues, including boils and swollen breasts, and as a treatment for headaches. As a leg and foot soak it was also considered useful for rheumatism. Internally, a decoction of the root was used for kidney or heart troubles (Moerman, 1998; Banks, 2004).

Physiomedical

C. canadensis was commonly used as a dermatological, kidney and mucous membrane aide, and for cases of mild diarrhea to tonify weak and depleted tissues. Topically, it was applied to any swollen areas of the skin and considered an excellent application for sprains and bruises (Cook, 1869).

Eclectic

Scudder (1870) found *C. canadensis* to be an unparalleled medicine for indications of “minister’s sore throat” where there is irritation due to over activity. It was also employed for chronic laryngitis, chronic bronchitis, and phthisis - allaying irritation and checking cough, making this a reliable remedy for nearly all afflictions of the throat and lungs. Scudder also used this as a secondary digestive aide for improving appetite and digestion. Its strengthening effects on the kidneys allowed the herb to work well as a tonic for the entire urinary tract.

As a venous tonic, *C. canadensis* was one of the preferred herbal choices for stagnation and for irritated mucous membranes (Felter, 1922). Being mildly astringent, it was used in early stages of hemorrhoids (Mundy, 1904). It was considered to have a profound fortifying effect on the heart, strengthening the capillary flow and improving circulation throughout the body (particularly in the throat and rectum). Felter found *C. canadensis* to be beneficial in nearly all cases of restricted blood flow, with an associated, “sense of weight and constriction, venous engorgement, dilated capillaries, and muscular atony” (Felter, 1922).

Homeopathic

It is regarded as a specific remedy for pelvic and portal congestion, and for dull headaches associated with suppressed hemorrhoids. It is particularly indicted for females with organ prolapse and congestive dysmenorrhea (Boericke, 1927).

Regulars

Although relatively underused by allopathic physicians, use of *C. canadensis* is recorded for catarrh of the bladder, leucorrhea, gravel, and dropsy when administered as a decoction (Remington & Wood, 1918). The Philadelphia-based physician John Shoemaker MD, described several case studies using *C. canadensis* for the *British Medical Journal* (Shoemaker, 1887). He found it to be effective for promoting expulsion of urinary calculi, diminishing irritation in the bladder and urethra and assisting in the treatment of acute cystitis and enuresis. He further describes cases of constipation associated with hemorrhoids which he believed were due to spasms of the anal sphincter, and his successful treatment using suppositories containing *C. canadensis* root powder (Shoemaker, 1887).

4. Scientific Research

Phytochemistry

Saponins

Joshi, Moore, Pelletier, Puar, & Pramanik (1992) isolated three saponins in *C. canadensis* root extracts. Akeboside, derived from the aglycone hederagenin, had been previously identified in other plant species. A second saponin, named collinsonidin, also yielded hederagenin upon hydrolysis. However a third saponin named collinsonin yielded a previously unknown aglycone; this was designated collinsogenin (Joshi et al., 1992).

Flavonoids

A rare type of flavonoid, a 2-hydroxyflavanone, was isolated from *C. canadensis* leaf and stem surface exudates, along with the flavones baicalein dimethyl ether, norwogenin dimethyl ether and tectochrysin (Stevens, Ivancic, Deinzer, & Wollenweber, 1999).

Essential oil

The aerial parts contain the aromatic terpenes germacrene, elemicin, β -elemine and α -nagitanine, while caryophyllene has been found in the rootstock (Duke, 1992).

Other compounds

Tannins, resin, mucilage, caffeic acid derivatives including rosmarinic acid, and an alkaloid. (Skenderi, 2003; Rural Action 2005).

Pharmacology

No published pharmacological reports were found in the literature review

Clinical trials

No published clinical trials were found in the literature review

5. Modern Phytotherapy

Modern therapeutic use of *C. canadensis* reflects traditional indications. *Naturae Medicina and Naturopathic Dispensatory* (Kuts-Cheraux, 1953) describes it as “an excellent astringent to

irritated mucous membranes,” and notes its usefulness in laryngitis, cystitis and gastrointestinal disorders. Venous stasis contributing to hemorrhoids and uterine congestion is also discussed as an indication – the British herbalist Frank Roberts claims it will ‘cure’ hemorrhoids (Roberts, 1978).

The British Herbal Pharmacopoeia (1983) emphasizes its use in urinary calculi but the benefit here is of some doubt. Unlike gravel root (*Eupatorium purpureum*), *C. canadensis* was likely not named for any benefits in treating kidney calculi but instead named for the hardness of the rhizome.

In alignment with Eclectic use, the most common modern uses for *C. canadensis* are for the venous congestion of hemorrhoids and as a local application for laryngitis secondary to overuse of the vocal cords (so called “minister’s sore throat”).

Table 1: Modern phytotherapeutic uses of *C. canadensis*

ACTIONS	
Diuretic	Antilithic
Astringent	Vulnerary
Tonic	Mild diaphoretic
THERAPEUTIC INDICATIONS	
Internal or external piles (hemorrhoids), varicose veins, anal fissures	
Chronic laryngitis	
Urinary calculus	
Amenorrhea, dysmenorrhea, menorrhagia, prolapsed uterus	
Non-ulcer dyspepsia with flatulence, cramps	
Poultice for bruises, wounds, ulcers	

(Roberts, 1978; British Herbal Medicine Association 1983; Skenderi, 2003).

Specific indication

Hemorrhoids

Minister’s sore throat

Combinations

C. canadensis has been combined with *Podophyllum peltatum* L. and *Hamamelis virginiana* L. for hemorrhoids (Roberts, 1978).

Preparations and dosage

Decoction: 1-4g three times daily

Tincture (1:5; 40% EtOH): 2-8mL three times daily (British Herbal Medicine Association, 1983)

Toxicology and contraindications.

The Botanical Safety Handbook lists *C.canadensis* as Class 1: “Herbs that can be used safely when used appropriately” (McGuffin, Hobbs, Upton, & Goldberg, 1997).

Regulatory Status

C. canadensis is regulated in the U.S.A. as a Dietary Supplement.

6. Sustainability considerations

Ecological status-RTE status

The USDA plants database lists *Collinsonia verticillata* as stoneroot and *C. canadensis* as richweed which may result in some confusion among wild-crafters. NatureServe notes six states (DE, GA, KY, NY, NC & WV) as having secure populations of *C. canadensis*. However, United Plants Savers (Filaw, 2006) lists it as an “at-risk” plant. The lack of current information on the populations, status and clear identity of this medicinal plant makes accurate assessment of ecological status difficult.

Harvesting & Collection regulations

Wisconsin requires a permit for gathering any plants listed as endangered or threatened (Filaw, 2006; Wisconsin DNR, 2011). The National Forest Service (Rees, 2003) considers *C. canadensis* threatened by the continued loss or alteration of habitats, and the increased construction of roads and trails.

Market data - harvesting impact, tonnage surveys

Albrecht (2006) records that *C. canadensis* is wild-harvested and woods cultivated primarily for the European market.

In 2005, price per pound for bulk sales of dried root of *C. canadensis* was \$1.00–\$1.50, consumer wholesale prices ranged from \$4.95–\$5.25 per pound while consumer retail prices were between \$6.30–\$8.25 per pound (Persons & Davis, 2005; Filaw, 2006). In 2011, prices for listed cut & sift wildcrafted roots ranged from \$18.00/pound to \$32.40/pound, indicating a substantial increase in pricing over the past five years (Starwest Botanicals, 2011; Stony Mountain, 2011; Dragon Herbarium). Pacific Botanicals (2010) posted bulk prices ranging from \$11.50/lb (1-4 pounds) to \$9.00/lb (100+ pounds).

Cultivation

Habitat:

C. Canadensis prefers damp, shady situations in moist woodlands with a slightly acidic soil (Harding, 1908; Filaw, 2006). Wall (2000) notes that it can often be found in stream corridors. Most authors list shade as being essential (Wall, 2000; Filyaw, 2006) and the Plant Conservation Alliance (2011) indicates that *C. canadensis* can be grown under trees with shallow roots.

Propagation

Seeds

Seed is best sown outdoors in late fall or early spring, in a coldframe or covered flat (Filyaw, 2006). The plant will germinate in 8-10 weeks. Wall (2000) notes that a long cold stratification helps improve germination to about 60%. Studies support a longer cold stratification, for while 4 and 8 wks of cold stratification did break the dormancy in *C. canadensis* seeds, those seeds germinated at a slower speed and overall lower rates compared to the 12 wk cold stratification (Albrecht & McCarthy, 2006; Albrecht, 2006). Albrecht (2006) noted that seeds might best be sown fresh and allowed to move through a natural cold stratification which eliminates any loss of viability from dry storage.

According to the Plant Conservation Alliance (2011) seedlings may be planted out as soon as they are large enough to handle (Filyaw, 2006), however they recommend keeping the seedlings in pots under shade or greenhouse conditions for 1-2 years before planting out.

Root cuttings

Using very sharp shears, roots are divided between buds (Wall, 2000; Cech, 2002). Perry (1998) lists division of dormant clumps as the preferred method of propagation.

Pests:

C. canadensis provides a food source for several butterflies (Bird, 1907) whose larva have been observed boring into the roots, and songbirds like the bobwhite (Miller & Miller, 2005). There are some natural smuts, rusts, leaf spot and root rots that are known to affect it in the wild (Perry, 1998) and which become more prevalent if plants are grown in larger populations or under field conditions.

Harvesting

For roots

The roots are dug in the fall after three years when the plant begins to lose its leaves (Cech, 2002; Harding, 1908; Wall, 2000) and all excess dirt is removed by washing in cool water which reduces molding and spoiling (Wall, 2000; Filyaw, 2006). Wall (2000) suggests cuttings the roots while fresh if the plant is to be dried. Filyaw (2006) advises that improper drying conditions can decrease the medicinal value of the plant and he suggests high airflow with air temperatures between 95-100 degrees Fahrenheit.

For whole plants to be processed fresh

When the whole plant is harvested, wait until the first flowers begin to open (Wall, 2000) and then gather the whole plant, replanting some bud-bearing rhizomes for future harvests.

7. Summary – some possibilities moving forward

This species is highly respected by herbalists, eclectics and homoeopaths alike, having an impressive track record for assisting in the management and cure of a range of conditions, many of which are difficult to treat with conventional medicine. However *C. canadensis* has long been ignored by scientists, and to this date there is no experimental or clinical data available to support or refute any of its traditional uses. Considering the species is still used by phytotherapists and naturopaths, there is an urgent need for comprehensive scientific studies

from field to clinic – encompassing ecology, cultivation, phytochemistry, bioactivity, toxicological and clinical investigations.

8. References

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Appendix I. Voucher specimen lodged at the Claude E. Phillips Herbarium, Delaware State University. Specimen collected at Ohio Botanic Sanctuary, via Rutledge, OH. May 2011.

