**Calendula officinalis, Asteraceae**

**Common names:** Calendula, Marigold, Pot Marigold, Mary Bud, Gold Bloom

**Plant description:** Calendula has a fibrous annual root, with a hollow, angularly branched stem about 30-60 cm in height. The green leaves are alternate, sessile, spatulate to oblanceolate, tips acute, the margins entire or finely serrate, covered in a fine pubescence. The bright orange flowers are borne on crown-shaped receptacles, succeeded by a circular corona of seeds. One feature of *Calendula* is that the flowers open with the rising of the sun and the close again as its sets. Many cultivars of *Calendula* exist, and may not conform to the above botanical description. The name ‘Marigold’ is also used for species in another genus within the Asteraceae called *Tagetes*, which does not have the same properties as *Calendula*.

**Habitat, ecology and distribution:** Calendula is originally native to the Mediterranean and northern Africa, and has since become a popular and common garden ornamental.

**Part used:** Petals (no bracts).

**History:** Calendula has long been utilized as an ornamental, medicinal and food plant throughout the ages. Its particular feature of opening and closing with the sun attracted the attention of early commentators, and hence acquired the names of *Solis sponsa* (‘bride of the sun’). The 12th century text Macer's Herbal states that it “…drawyth owt of ye heed wikked hirores [humors],” and that if you “…loke wyscely on golde erly at morwe [morning] yat day fro feures it schall ye borwe: ye odou r of ye golde is good to smelle.” In the *Winter's Tale*, Shakespeare writes of it, saying “…the marigold, that goes to bed wi' the sun and with him rises weeping: these are flowers of middle summer, and I think they are given to men of middle age” (Act 4, Scene IV). Calendula was commonly harvested and dried for use in soups and broths, and in *L'Agriculture et Maison Rustique* by Estienne and Liebault (1564), translated into English by Charles Stevens as the *Countrie Farme* (1699), mentions calendula as a specific for headache, jaundice, red eyes, toothache and ague. Stevens adds that the “…conserve made of the flowers and sugar, taken in the morning fasting, cureth the trembling of the harte, and is also given in the time of plague or pestilence.” Culpepper states that it is a “…herb of the Sun, and [is] under Leo. They strengthen the heart exceedingly, and are very expulsive…much used in possets, broths, and drink, as a comforter of the heart and spirits, and to expel any malignant or pestilential quality that might annoy them.”

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Constituents: Calendula’s constituents have undergone a significant amount of analysis. Among the more important components are the flavonoids (e.g. isorhamnetin, quercitin, isoquercitin, narcissin, neohesperidoside and rutin) and triterpenoid saponins (e.g. amyrin, lupeol, longispinogenin, oleanic acid, armidol, brein, calenduladiol, campesterol, erythrodol, faradiol, helantriols, maniladiol, sitosterol, stigmasterol and taraxasterol). Other constituents include volatile oils (e.g. menthone, isomenthone, caryophyllene, pedunculatine, ionine, and dihydroactinidiolide), bitter principles (e.g. loliolide), carotenoids, calendulin, gum, resins, mucilage and polysaccharides.

Medical Research: There are no reported human clinical trials for calendula and internal usage, but a few uncontrolled human clinic trials have shown the efficacy of calendula in the treatment of chronic suppurative otitis, and it has been shown to speed healing and reduces inflammation with topical use.

• Antioxidant: A butanolic fraction (BF) of Calendula officinalis, rich in a variety of bioactive metabolites including flavonoids and terpenoids, was found to possess free-radical scavenging activity against superoxide and hydroxyl radicals. Lipid peroxidation in liver microsomes induced by Fe(2+)/ascorbate was 100% inhibited by BF. The total reactive antioxidant potential of BF (TRAP) (in microM Trolox equivalents) was 368.14 +/- 23.03 and its total antioxidant reactivity (TAR) was calculated to be 249.19 +/- 14.5 microM.

• Anti-inflammatory: A methanolic extract and its 1-butanol-soluble fraction from the flowers of Calendula officinalis displayed a gastro-protective effect in ethanol and indomethacin induced gastric lesions in rats. The anti-oedematous activities of three isolated faradiol esters from the flower heads of Calendula were examined in Croton oil-induced edema of the mouse ear. These compounds showed nearly the same dose dependent anti-edematous activity. Newall et al report that a proprietary cream containing Calendula was found to be effective in lymphedema in rats, primarily due to an enhancement of macrophage proteolytic activity. Triterpene alcohols derived from Calendula officinalis were evaluated for their anti-inflammatory activity against 12-O-tetradecanoylphorbol-13-acetate-induced inflammation (1 mcgram per ear) in mice, showing marked inhibitory activity. Among the triterpenoids obtained from a CO2 extract of Calendula flowers, faradiol monoester appeared to be the most active anti-inflammatory compound, equal to indomethacin in activity, whereas other Calendula triterpenoids, including psi-taraxasterol, lupeol, taraxasterol, and beta-amyrin, were less active. The authors suggest that faradiol monoester may be a suitable parameter for the quality control of Calendula preparations.

• Antiviral: Extracts of dried flowers from Calendula officinalis were examined for their ability to inhibit the human immunodeficiency virus type 1 (HIV-1) replication. The organic extract was found to be relatively nontoxic to human lymphocytic Molt-4 cells and exhibited potent anti-HIV activity in an in vitro MTT/tetrazolium-based assay. This extract also caused a significant dose and time dependent reduction of HIV-1 reverse transcription.
• **Anti-mutagenic:** Researchers examined whether *Calendula officinalis* extracts induce unscheduled DNA synthesis (UDS) in rat liver cell cultures, and if these extracts can reverse diethylnitrosamine (DEN)-induced UDS. Four different flower extracts were prepared: aqueous (AE), aqueous-ethanol (AEE), ethanol (EE) and chloroform (CE). In the UDS assay in liver cell cultures, DEN at 1.25 microM produced a maximal increase of 40% (3)H-thymidine ((3)HdT) incorporation, and both, AE and AEE showed complete reversion of the DEN effect at around 50 mg/ml and between 0.4 to 16 mg/ml, respectively. In the absence of DEN, these two polar extracts induced UDS at concentrations of 25 mcg for AE and 3.7 mcg/ml for AEE to 100 mcg/ml in rat liver cell cultures. Concentrations producing genotoxic damage were three orders of magnitude above concentrations that conferred total protection against the DEN effect. Thus, at the lower end, mg/ml concentrations of the two polar extracts AE and AEE conferred total protection against the DEN effect and at the higher end, g/ml concentrations produced genotoxic effects. These results justify the study of *C. officinalis* flower extracts to obtain products with biological activity and to define their genotoxic or chemo-preventive properties.\(^{12}\) Saponins isolated and identified from *Calendula arvensis* were assessed for their mutagenic and anti-mutagenic activities using a modified liquid incubation technique of the Salmonella/microsomal assay. Screening of the anti-mutagenic activity was performed with benzo-[a]pyrene (BaP) and a mutagenic urine concentrate from a smoker (SU). Anti-mutagenic activities were also compared with the activity of chlorophyllin. All the saponins were found to be non-toxic and non-mutagenic, and four saponins from *C. arvensis* showed anti-mutagenic activity against BaP (1 mcgram) and SU (5 microliters) with a dose-response relationship\(^{13}\)

**Toxicity:** Calendula is considered safe (within dosage range) for both internal and external use.\(^{14}\) Acute toxicity studies with *Calendula officinalis* applied topically in rats and mice indicate that the extract is relatively nontoxic. Animal tests showed at most minimal skin irritation, and no sensitization or photo-toxicity. Minimal ocular irritation was seen with one formulation and no irritation with others.\(^{15}\)

**Herbal action:** vulnerary, anti-inflammatory, styptic, antimicrobial, cholagogue, mild antispasmodic, emmenagogue, mild diaphoretic, lymphagogue

**Indications:** abrasions, wounds, burns, eczema, varicosities, inflammation and irritation of the respiratory and digestive tracts, lymphadenopathy, vaginitis, urethritis, conjunctivitis
Contraindications and cautions: Calendula is contraindicated for internal usage during pregnancy due to reported emmenagogue activity.16

Medicinal uses: Calendula is best known as a wound remedy, used as a folk remedy by Samuel Hahnemann and adopted at full strength into homeopathic medicine. It is a styptic vulnerary that contains little tannin, with an anti-inflammatory property that makes it an effective topical remedy in the treatment of infected and poorly healing wounds, especially in sensitive skin. Its gentle activity makes it particularly suitable for pediatrics, as in diaper rash and skinned knees. But before relegating calendula to only such conditions, it is wise to remember just how valuable a topical remedy calendula was considered in the past. According to Simon Mills, a physician from the American Civil war named Dr. R.G. Reynolds used it as a compress for healing bullet wounds. Similarly, Felter and Lloyd states that surgeons valued calendula as a local application to heal surgical wounds and prevent gangrene and tetanus.17 It has also been used in the local treatment of “…indolent ulcers with capillary impairment,” and has been used as a wash in abscesses, eczema, ulceration and vaginitis, endocervicitis, gonorrhoea, and urethritis. Applied as a wash or as succus (fresh juice extract) calendula is particularly useful in burns, broken capillaries or sunburn. In the treatment of conjunctivitis King’s mentions it in doses of five drops to 30 ml of rose water, instilled into the eye.18 Similarly, the cooled infusion is an effective eyewash for conjunctivitis and blepharitis. Combined with Echinacea and Tabebiua, calendula can be used treat fungal and bacterial infections of the vagina, used in infusion as a sitz bath, particularly to heal irritations and ulcerations. It is similarly used as a sitz bath for lacerations of the perineum after delivery, and can be used to heal sore, cracked and otherwise painful nipples. Calendula also has a history of use as a uterine antispasmodic, indicated in dysmenorrhea, acting as a cholagogue to relieve pelvic congestion. Felter and Lloyd state that calendula is a “vasomotor stimulant,” acting to relieve capillary engorgement, and is thus used both topically and internally in varicose veins. Cook states that the flowers are “…a mild and diffusive stimulant, with some relaxing properties, expending their power chiefly upon the nerves, and moderately upon the capillary circulation. Like all other articles of such qualities, they are nerveine and antispasmodic; and have been used in hysteria and general nervousness, and to promote moisture at the surface. They are reputed to act upon the uterus beneficially in painful menstruation”. Many herbalists both report that calendula is an effective remedy for swollen glands and lymphatic stasis, with or without fever.19,20 It is particularly indicated in “…catarrhal conditions of the nose and throat, with raw and tender membranes”,21 and “…wherever there is unresolved infection or erosion in the upper [respiratory and digestive] tracts, particularly if there is evidence of bleeding”.22 The bright orange flowers were traditionally thought of as encompassing the energy of more solar influences, and perhaps this quality is activated when dampness and congestion set it.
These solar influences appear to indicate that Calendula may be an effective remedy in seasonal affective disorder, to clear the mind of negative and morose thoughts during winter. For this purpose a cup of the tea or a handful of the flowers thrown into soups and broths may be the best usage of the herb.

Calendula can also be used on sunburns, burns, sores, insect bite, bruises, ulcers and pus-filled wounds. Some herbalist also list this herb as an emmenagogue for dysmenorrhea.

Pharmacy and dosage:
• *Fresh Plant Tincture*: fresh flowers, no bracts, 1:2, 95% alcohol, 3-20 gtt.
• *Dry Plant Tincture*: recently dried flowers, no bracts, 1:5, 70% alcohol 3-30 gtt., 1-3 ml
• *Succus*: fresh juice combined with an equal volume of 95% alcohol, reduced by low heat to half the total volume, 5-30 gtt.
• *Hot Infusion*: recently dried flowers, no bracts, 1:20, 30-120 mL

NHP Monographs

- Traditionally used in Herbal Medicine to aid in wound healing
- Traditionally used in Herbal Medicine to help relieve skin inflammations and irritations
- Traditionally used in Herbal Medicine to help relieve inflammatory conditions of the digestive system
- Traditionally used in Herbal Medicine to help relieve mucous membrane inflammations of the mouth and/or throat

Licensing: As of Dec 01, 2010; 105 Canadian NHP licenses have been issued for products containing calendula.

REFERENCES


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16 Newall, Carol A., Linda A. Anderson and J.D. Phillipson. 1996
21 Felter, HW and JU Lloyd. 1893. *King’s American Dispensatory*
Botanical Name: *Plantago major*, Plantaginaceae


Similar species: Most of the weedy species in the *Plantago* genus are used interchangeably with *P. major*, including *P. lanceolata*, *P. media*, *P. ovata* and *P. macrocarpa*.

Plant description: Plantain is an annual, biennial or perennial plant with a fibrous root, and a basal rosette, the flowering stalk attaining a height up to 60 cm. The stalked leaves are ovate, with smooth margins, glabrous, 5-30 cm long and up to 12 cm wide, with 3-7 prominent ribs on the underside. The flower clusters are white and very small, borne on a cylindrical spike, and give way to a small egg-shaped capsule, 2-4 mm long.

Habitat, ecology and distribution: *Plantago major* is native to Europe, and since first appearing in North America in the mid-1700’s, is now widely distributed in temperate, moist locales, along roadsides, in fields and pastures, lawns and gardens.

Part used: Leaf, root, seed.

History: Like other weedy European species such as Dandelion, Plantain appears to have followed the migration of European colonists to almost every part of the world, and in North America it has been called by First Nations peoples as “White Man’s Foot.” The Anglo-Saxons valued Plantain highly and in an 11th century text on magical charms called the Lacnunga (“Leech-knowing”), “Weybroed” is mentioned as one of nine sacred herbs (“warts”): “And you, Plantain, mother of herbs, inwardly mighty; over you carts creaked, over you queens rode, over you brides bridalled, over you bulls bellowed. All these you weathered and withstood; so may you withstand poison and venom, and the enemy who travels over the earth” (Chappell 2003). Culpepper states that us that the Plantain is “…in the command of Venus and cures the head by antipathy to Mars.”

Constituents: Plantago contains a wide variety of glycosides, including flavonoids (baicalin, baicalein, scutellarin apigenin, apigenin-7-glucoside, plantagoside, luteolin, asperuloside, syringin hispidulin, nepetin, plantagonine), iridoids (catalpol, aucubin and acubin derivatives, plantarenaloside), and terpenoids. Plantain also contains small
amounts of the sulfur-containing glucoraphenine and sulforaphene. Other constituents include plant acids (caffeic, chlorogenic, cinnamic, ferulic, fumaric, coumaric, plantagic, plantalic, salicylic, ursolic, and vanillic acid), alkaloids (boschniakine and the methyl ester of boschniakine acid), allantoin, mucilage, sugars (d-glucose, d-xylose, di-o-methylgalactose, l-fructose, saccharose, sorbitol), sterols, tannins, and potassium salts (Duke 2003; Samuelsen 2000; Newall et al 1996, 210). Agricultural researchers determined that catalpol, aucubin, and acteoside concentrations in the leaves of *P. lanceolata* were, on average, present in highest concentrations in mid-autumn (Tamura and Nishibe 2002).

**Medical Research:** There is a limited amount of experimental data on *Plantago* species, with much of the research focused on the use of the husk (i.e. *P. psyllium*, Ispaghula), which is beyond the scope of this paper. In one clinical study, twenty five patients with chronic bronchitis were treated with an extract of *P. major*. A rapid effect on subjective complaints and objective findings was obtained in 80 per cent of the cases, with good tolerance and no toxic effect on gastrointestinal tract, liver, kidneys, and hemopoiesis (Matev et al 1982). The following is a selection of *in vitro* and *in vivo* experimental research:

- **Wound-healing:** *In vitro* and *in vivo* studies examined the mechanisms involved in the wound-healing properties of the mucopolysaccharides derived from psyllium husk, assessing fluid absorption, bacterial adherence and *in vitro* stimulatory effects on macrophages. Researchers found that the mucopolysaccharides showed an optimal profile and supported its clinical use in wound healing (Westerhof et al 2001).

- **Immune:** Researchers determined that a methanol extract from the leaves of *P. major* were associated with an increases in nitric oxide and TNF-alpha production by rat peritoneal macrophages, and potentiated Con A-induced lymphoproliferation in a dose-dependent fashion (Gomez-Flores et al 2000).

- **Antiviral:** Researchers examined the antiviral activity of an aqueous extract and purified constituents of *P. major* on herpesviruses (HSV-1, HSV-2) and adenoviruses (ADV-3, ADV-8, ADV-11). Results indicated that an aqueous extract of *P. major* possessed only a slight anti-herpes virus activity, whereas caffeic acid exhibited a much stronger activity against HSV-1, with chlorogenic acid active against ADV-11 (Chiang et al 2002). An orally-administered aqueous extract of *Plantago ovata*, consisting of a mixture of polysaccharides and glycosides, on the humoral immune responses in rabbits, was shown to promote a significant decrease in anti-HD antibody titre (hepatitis D antibody), as well as a significant increase in white blood cells (WBC) and spleen leukocytes counts (Rezaeipoor et al 2000).
**Antibacterial:** The antibacterial effect of a soluble pectin polysaccharide (PMII) isolated from the leaves of *Plantago major* was examined in mice infected with *Streptococcus pneumoniae*. The data obtained indicates that PMII protects against pneumococcal infection in mice when administered systemically as a prechallenge, and its protective effects is due to the stimulation of non-specific mechanisms of defense and not immunity (Hetland et al 2000).

**Antiinflammatory:** Acteoside and plantamajoside isolated from *Plantago lanceolata* showed inhibitory effects on arachidonic acid-induced mouse ear edema (Murai et al 1995).

**Bronchitis:** There is preliminary evidence that suggests taking great plantain orally might be beneficial for treating chronic bronchitis.

**Common cold:** There is preliminary evidence that suggests taking great plantain orally might help reduce the symptoms of the common cold.

**Mechanism:**
*Plantago major* contains low levels of tannins, and relatively high concentrations of vitamin K, beta-carotene, and calcium. It also contains a variety of acids, amino acids, carbohydrates, and iridoids. The anti-inflammatory and wound-healing effects demonstrated in animal studies are attributed to the constituents chlorogenic acid and neochlorogenic acid. Studies in humans show great plantain is beneficial in treating chronic bronchitis and the common cold. In guinea pigs, an aqueous extract had bronchodilator effects; however, effects were less and had shorter duration than salbutamol or atropine. In animals, great plantain extract also lowers blood pressure, and decreases total plasma lipids, cholesterol, and triglycerides. In vitro, an aqueous extract increases animal uterine tissue tone.

**Toxicity:** Plantain husk is approved for use in bulk-laxative preparations, and as such, the whole plant is generally regarded as non-toxic. Newall et al report an oral LD$_{50}$ of 4g/kg in experimental animals. Moore warns that the immature leaves of the toxic Green Hellebore (*Veratrum viridis*) resemble Plantain (1979, 129).

**Herbal action:** vulnerary, antiinflammatory, analgesic, antioxidant, mild antimicrobial, immunomodulant, antiulcerogenic, diuretic

**Indications:** wounds, insect bites, skin irritation and mild infections, diaper rash, gastric and duodenal ulcers, diarrhea and dysentery, hemorrhoids (topically and internally), bronchitis, asthma, dental caries, earache, enuresis (in children), constipation (seeds)

**Contraindications and cautions:** Some sensitive individuals may exhibit an IgE-mediated allergic response (Newall et al 1996, 211).
**Medicinal uses:** As the Lacnunga suggests, Plantain is an oft forgotten herb, trod over and ignored, perhaps too ubiquitous to be of much note to most people. Nonetheless, herbalists value Plantain as an important remedy, especially in first-aid, in which it is picked fresh, masticated and placed on top of small wounds and insect bites and covered with a whole leaf as a bandage. Used in this way, Plantain often affords immediate pain relief and helps to stop bleeding, and within a half hour of application, leaves a well-healing injury. Wood mentions Plantain as a “drawing-agent,” used to draw splinters, dirt, pus and infection from wounds, and infers this property from Plantain’s ability to draw nutrients from hard, compacted soils (1997, 390). Similarly, Plantain is mentioned in King’s as an analgesic in toothaches (Felter and Lloyd 1893), Wood suggesting that Plantain’s drawing power works equally well in infections of mouth, teeth and gums (1997, 392). Moore mentions the usage of the fresh leaf internally in gastrointestinal inflammation, as in stomach ulcers, dysentery or hemorrhoids, and is equally helpful in cystitis (1979, 129). Plantain has long been regarded as an important vulnerary in irritation and inflammation of the respiratory tract, drunk as an infusion of the dried leaves. The seeds are mixed with water and drunk as a hydrophilic bulk laxative in atonic constipation. King’s mentions Plantain in enuresis in children, “…due to [a] relaxed vesical sphincter, with profuse colorless discharge of urine” (Felter and Lloyd 1893). King’s also states that “…the best forms of administration are the juice dissolved in diluted alcohol, and evaporated by gentle heat to the consistence of an extract…the dose of which is from 1 to 5 drops” (Felter and Lloyd 1893).

**Pharmacy and dosage:**
- **Fresh Plant Tincture:** fresh leaf and root, 1:2, 95% alcohol, 3-20 gtt,
- **Dry Plant Tincture:** recently dried leaf and root, 1:5, 25% alcohol, 40-60 gtt, 1-5 mL
- **Succus:** fresh juice combined with an equal volume of 95% alcohol, reduced by low heat to half the total volume, 5-30 gtt.
- **Hot Infusion:** recently dried plant, 1:20, 60-120 mL
- **Fresh juice:** 10-25 mL
- **Medicated oil:** recently dried plant, powdered, 1:7, apply ad libitum

**REFERENCES**


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**Botanical Name:** *Quercus alba*, Fagaceae

**Common names:** White Oak.

**Similar species:** Most species of Oak are used interchangeably with *Q. alba*, including *Q. robur*, *Q. tinctoria*, *Q. elongata*, *Q. coccinea*, *Q. petraea*, *Q. garryana*, *Q. kelloggii*, *Q. macracarpa*, *Q. accutissima*, *Q. borealis*, *Q. palustris*, and *Q. phellos*.

**Plant description:** The White Oak is a large and broadly-branched deciduous tree that can attain a great age. Some specimens of Oak are believed to be 1000 years old or more. White Oak is typically pyramidal in youth, developing a broad crown with age. It can attain a magnificent size, 30 m in height or more, the main trunk in some specimens so large that several people can stand around its base with arms outstretched. Some specimens of Oak are reported to have a girth of more than 20 meters in circumference. White Oak is differentiated from the other oaks by its whitish bark, the leaves characteristically oak-like, regularly divided into deep lobes, obtuse, five to nine in number, bright greenish-blue above and paler below, becoming reddish brown in fall. The acorns are about 2-3 cm or more in length, ovate, in shallow saucer-shaped cups. The inner bark is coarse, fibrous, tough, and light-brown.

**Habitat, ecology and distribution:** White Oak is native the deciduous forest of eastern North America, thriving in deep, moist, well-drained, acid soils. Oaks have a worldwide distribution, found in both temperate and more southerly climes.

**Part used:** Inner bark, leaves, “oak-apples.”

**History:** The Oak has long been considered to be important and valuable, not simply as a source of timber or medicine, but as a tree of great spiritual significance, venerated by many ancient peoples, including Druids. Although the true source of the term ‘druid’ remains obscured by time, some researchers believe that this was a name given to the priests and priestesses observed by the Roman Pliny the Elder when he traveled to the British Isles, derived from the Greek words *drus* meaning ‘oak,’ and the Old Irish word *wid*, meaning ‘knowledge’. Thus the name Druid may represent an honorary title given to wise people that possessed the ‘knowledge of the oak.’ The Oak tree is an important host to the Mistletoe, the Druids harvesting this parasitic plant from its branches in the elaborate rituals that characterize this ancient religion. In pagan cultures the long-lived and venerable Oak tree has long been a symbol of strength, courage and wisdom, often associated with the primary masculine God, be it Odin in the Scandinavian mythos, or Zeus in the ancient Greek religion.
folklore, the famous round table of King Arthur was furnished from a single slice of a giant oak.

**Constituents:** Oak bark is best noted for its tannins and pseudotannins, including catechin, ellagitannin, phlobatannin, gallic acid and gallocatechin. Included as well is the pentacyclic triterpene friedelin and its derivatives friedelinol and 3-friedelanone; the inositolos meso-inositol, scyllitol and 1-viburnitol; anthocyanins leucoyanidin and leucodelphinidin; as well as flavonoids quercetin, quercitrin and quercin. White Oak has also been shown to contain elemental lanthanum, silver and yttrium.

**Medical Research:** There is a limited amount of research on *Quercus spp.*, and very little on *Quercus alba*:

• **Urolithiasis:** The efficacy of an Oak extract (unidentified species) was examined in an uncontrolled clinical trial 97 patients suffering from urolithiasis, 82 of them with ureteral stones and the other 15 with kidney stones. The extract was administered in doses of 1350 mg a day, the treatment lasting between 8 and 225 days, the average duration being 58 days. Researchers report that the extract inhibited bacterial growth, and displayed antiinflammatory and diuretic effects. The researchers conclude that Oak extract is an efficacious remedy in urolithiasis and is well tolerated.

• **Antioxidant:** The effect of five compounds isolated from *Quercus dentata* on superoxide generation and protein phosphorylation in human neutrophils was investigated. The compounds were kaempferol 3-O-beta-D-glucopyranoside (B), quercetin 3-O-beta-D-glucopyranoside (DA), kaempferol 3-O-(6"-trans-p-coumaroyl)-beta-D-glucopyranoside (D1), kaempferol 3-O-(2"-6"-di-trans-p-coumaroyl)-beta-D-glucopyranoside (D7) and kaempferol 3-O-(2",4"-di-acetyl-3"-cis-p-coumaroyl-6"-trans-p-coumaroyl)-beta-D-glucopyranoside (A). D7 suppressed significantly the superoxide generation induced by N-formyl-methionyl-leucyl-phenylalanine (fMLP). D1 and DA suppressed significantly the superoxide generation induced by arachidonic acid (AA). However, the superoxide generation induced by phorbol 12-myristate 13-acetate (PMA) was suppressed by all compounds. When the cells were incubated with fMLP and D7, the tyrosyl phosphorylation of 67, 60, 58 and 38 kDa proteins of the cells were markedly decreased in a concentration-dependent manner (Meng et al 2001). Nine phenolic compounds, catechin, epicatechin, gallocahechin, epigallocatechin, procyanidin B-4, catechin-3-O-rhamnoside, rutin, queroglanin and isoqueroglanin were isolated from *Quercus glauca* and tested for scavenging effects against the superoxide anion in the whole blood of patients with ankylosing spondylitis. The results showed that isoqueroglanin displayed the strongest inhibition activity (73.55%), followed by queroglanin (68.81%) and then gallocatechin (66.97%) and epigallocatechin (60.17%).

• **Antitumor:** A methylene chloride and methanol extract of *Quercus robur* demonstrated an inhibitory activity on thrombin and mouse leukemia L1210 cells. Purpurogallin, a polyphenol from *Quercus spp.* nutgall, was found to inhibit the tyrosine-specific protein kinase of the human erb-b oncogene product (epidermal growth factor receptor) for both autophosphorylation (IC50 = 27.5 microM) and phosphorylation of an exogenous substrate (IC50 = 45.3 microM). An examination of enzyme kinetics indicated that purpurogallin is a competitive inhibitor of both ATP (Ki = 54.9 microM for autophosphorylation, Ki = 33.9 microM for phosphorylation of exogenous substrate) and
the tyrosine-containing acceptor substrate poly(glutamate, alanine, tyrosine) 6:3:1 (Ki = 83.7 microM).  

**Antiulcerogenic:** An ethanolic extract of *Quercus coccifera* significantly lowered the severity of ethanol-induced gastric damage in rats with a curative ratio of 99.5%.  

**Toxicity:** Quercus is safe when used orally for up to 3-4 days for treating diarrhea. Also safe when used topically up to 2-3 weeks on intact skin. Two outbreaks of oak poisoning in cattle in South Africa have been reported, with clinical signs that included severe weakness with a swaying gait, diarrhea and dehydration. Upon postmortem examination of three animals there was a non-suppurative interstitial nephritis accompanied by edema and ulceration of the cecum and colon.  

**Herbal action:** astringent, tonic, antiseptic, vulnerary  

**Indications:** diarrhea, varicosities, ulcerations, hemorrhage, hemorrhoids, pharyngitis, pyorrhea, leucorrhea, anal prolapse, eczema, burns, abrasions, wounds  

**Contraindications and cautions:** In lieu of any data to suggest otherwise, oak should probably be avoided during pregnancy and lactation.  

**Medicinal uses:** White Oak and other similar species are among the most potent astringent remedies in the material medica, useful in chronic diarrhea, chronic mucus discharges, and hemorrhages. As a decoction, oak bark is a good external agent for ulcerations and wounds, and as a sitz bath or injection, can be used in hemorrhoids, leucorrhrea and rectal prolapse. Oak bark decoction is a similarly efficient remedy as a gargle in pharyngitis, particularly when marked by excessive mucus discharge. Similarly, Cook states that oak is a useful “...gargle in aphthous sores, putrid sore throat, and diphtheria; where it is of much service, especially if combined with Xanthoxyloium or a little Capsicum”. Felter and Lloyd state that the ground bark can form an effective poultice in gangrenous conditions. Both Cook, and Felter and Lloyd, state that a coffee made from roasted acorns is a good remedy in the treatment of the primary lesions of tuberculosis (scrofula). In the treatment of hemorrhages, bleeding gums, and piles Cook recommends equal parts oak bark and Lobelia seeds, in powdered form, used in bleeding piles that are “...painful but not inflamed”. Cook also mentions that oak bark can be an effective remedy to prevent dandruff and hair loss, “...combined with a little Capsicum”. Weiss mentions oak bark as an important treatment for weeping eczema when used as a fomentation. Similarly, oak bark tincture can be added to a cream base (15% v/v) in weeping eczema to promote healing. Moore mentions oak bark...
as a treatment for first and second degree burns, to speed healing and prevent secondary infection.\textsuperscript{15} In the treatment of varicosities, oak bark should be considered as an adjunct to other remedies, its powerful astringent properties combined with its flavonoid constituents promoting good capillary tone, helping to repair weakened blood vessels. Theo-apple gall wasp (\textit{Biorhiza pallida}) lays its eggs in the twigs of the oak tree, and as the larvae develop they secrete enzymes that cause the plant to form “oak apples” around them. Moore states that these “apples” contain two to three times the tannins found in the bark, and can be harvested as an even more potent astringent remedy.

**Flower Essence:** According to Edward Bach, oak is useful “…for those who are struggling and fighting strongly to get well, or in connection with the affairs of their daily life. They will go on trying one thing after another, though their case may seem hopeless”. In a similar manner, oak is often used to help regain strength in exhausted and debilitating conditions. The acorns of white oak are sweet and quite edible. The ends of the twigs of oak can be chewed and then used like a toothbrush to clean the teeth, and similarly, can be powdered and used as a dentifrice.

**Pharmacy and dosage:**

- **Fresh Plant Tincture:** fresh bark, 1:2, 95% alcohol, 3-20 gtt.
- **Dry Plant Tincture:** recently dried bark, 1:5, 50% alcohol, 3-40 gtt., 1-5 mL
- **Decoction:** recently dried bark, 1:20, 30-90 mL
- **Powder:** recently dried bark, 500-2000 mg

**Licensing:** As of Dec 2, 2010, 12 Canadian NHP licenses have been issued for products containing oak.

**REFERENCES**


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http://www.occultresearch.org/druidism/druidism_macleod.htm


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http://www.occultresearch.org/druidism/druidism_macleod.htm


Botanical Name: *Prunella vulgaris*, Lamiaceae

**Common names:** Self Heal, Prunella, All Heal, Hook Heal, Slough Heal, Brunella, Heart of the Earth. Blue Curls.

**Plant description:** Self Heal is a herbaceous perennial that arises from a fibrous root, with solitary or clustered stems, erect to spreading and even decumbent, up to 50 cm tall, with the characteristic square shaped edges of the Lamiaceae. The leaves are few, arranged in an opposite fashion, oblong to elliptic, glabrous or slightly pubescent, on short petioles, the margins smooth or slightly toothed. The flowers are bright purple to pink, sometimes white, 1-2 cm long, on short stalks, arranged in a spike-like cluster at the top of the stem. The reddish-brown sepals are united into a two-lipped spine-tipped tube, and the petals are fused into a two-lipped corolla, the upper lip hooded like a bonnet or hat, the lower lip divided into three parts, middle portion sometimes fringed.

**Habitat, ecology and distribution:** Self Heal has a worldwide distribution, found in temperate regions along roadsides, in clearings, fields, pastures, lawns and gardens, common at low to mid elevations.

**Part used:** Aerial portions.

** Constituents:** There is a limited amount of constituent data for Self Heal. Some of the components include anthocyanin glycosides cyanidin and delphinidin, as well as flavonoids such as hyperoside and rutin. Self Heal has also been shown to contain a few plant acids including betulinic acid, caffeic acid, rosmarinic acid, oleanolic acid, and ursolic acid. Other constituents include a volatile oil (d-camphor, d-fenchone), and potassium chloride.

**Medical Research:** There is also a limited amount of experimental data on Self Heal.

• *Arthritis:* In one clinical trial, a purified extract containing a mixture of *Clematis mandshurica*, *Trichosanthes kirilowii* and *Prunella vulgaris* (SKI 306X) was examined in a double-blind, placebo-controlled clinical trial to evaluate its efficacy and safety in 96 patients with osteoarthritis of the knee. Patients were randomized to four treatment groups: placebo, 200 mg, 400 mg and 600 mg of SKI 306X, t.i.d. Clinical efficacy and safety were evaluated for 4 weeks continuous treatment. SKI 306X demonstrated its clinical efficacy, as assessed by 100 mm visual analogue scale (VAS), Lequesne index and patients' and investigators opinion of the therapeutic effect compared with placebo.
The results of the study indicated that SKI 306X provided clinical efficacy in patients with osteoarthritis, with no significant adverse events reported.²

**Antioxidant:** The activity-guided fractionation of the extract of the herb of *Prunella vulgaris* led to the isolation of four triterpenes, i.e., betulinic acid, ursolic acid, 2 alpha, 3 alpha-dihydroxyurs-12-en-28-oic acid, and 2 alpha-hydroxyursolic acid. Of these compounds, 2 alpha, 3 alpha-dihydroxyursolic acid, demonstrated significant inhibition on the release of beta-hexosaminidase from the cultured RBL-2H3 cells in a dose-dependent manner. When these isolated compounds were tested for their effects on the production of nitric oxide from cultured murine macrophages, ursolic acid and 2 alpha-hydroxyursolic acid exhibited strong inhibitory activities.³ The antioxidant and superoxide and hydroxyl radical scavenging activities of *Prunella vulgaris* were examined, and was found to inhibit rat erythrocyte hemolysis and lipid peroxidation in rat kidney and brain homogenates.⁴

**Antiallergenic:** The effect of an aqueous extract of *Prunella vulgaris* on immediate-type allergic reactions was studied, and displayed dose-dependent inhibition of systemic anaphylactic shock induced in rats.⁵

**Antiviral:** A water-soluble anionic polysaccharide isolated from *Prunella vulgaris* was found to be active against the herpes simplex virus types 1 and 2 (HSV-1 and HSV-2). The results indicated that the polysaccharide may inhibit HSV by competing for cell receptors as well as by unknown mechanisms after the virus has penetrated the cells. The *Prunella* polysaccharide was not cytotoxic to mammalian cells up to the highest concentration tested, 0.5 mg/ml and did not show any anti-coagulant activity.⁶ An extract obtained from *Prunella vulgaris* was found to significantly inhibit HIV-1 replication with relatively low cytotoxicity. The purified extract inhibited HIV-1 replication in the lymphoid cell line MT-4, in the monocytoid cell line U937, and in peripheral blood mononuclear cells at effective concentrations of 6, 30, and 12.5 micrograms/ml, respectively. Pretreatment of uninfected cells with the extract prior to viral exposure did not prevent HIV-1 infection. By contrast, preincubation of HIV-1 79 also able to block cell-to-cell transmission of HIV-1, prevented syncytium formation, and interfered with the ability of both HIV-1 and purified gp120 to bind to CD4. Researchers concluded that the results indicate that the purified extract antagonizes HIV-1 infection of susceptible cells by preventing viral attachment to the CD4 receptor.⁷ Laboratory studies have shown that an aqueous extract of self-heal has activity against HIV and might work synergistically with zidovudine (AZT, Retrovir) and didanosine (ddI, Videx).⁸

**Toxicity:** This botanical is considered safe within dosage range.¹⁰

**Herbal action:** vulnerary, anti-inflammatory, febrifuge, lymphatic

**Indications:** abrasions, cuts, wounds, pharyngitis, lymphadenitis, mumps, mastitis, eye-strain, conjunctivitis, blepharitis, diarrhea, dysentery, fever

**Contraindications and cautions:** None.
**Medicinal uses:** Self Heal leaves can easily be worked into a mucilage that can be placed into wounds. It is a mildly acting vulnerary ideally suited to pediatrics and otherwise mild conditions. Some of the older authors consider it the most reliable remedy for wounds. It can be masticated and applied as a poultice as a first aid remedy in abrasions and mild wounds, and can be similarly taken internally to heal mild inflammations of the gastrointestinal tract. Mills states that Self Heal has a particular affinity for swollen lymph nodes, and can be taken internally in lymphadenitis and applied topically in mastitis. As a cold infusion Self Heal may be helpful in pediatric fever, taken internally as well as sponged over the forehead. The fresh juice forms a useful gargle in pharyngitis, and can be used to wash the eyes in conjunctivitis, blepharitis, and otherwise sore eyes.\(^{11,12}\)

**Flower Essence:**

**Positive qualities:** Healthy, vital sense of Self; healing and beneficent forces arising from within oneself, deep sense of wellness and wholeness.

**Patterns of imbalance:** Inability to take inner responsibility for one’s physical or emotional healing, while lacking in spiritual motivation for wellness and overly dependent on external help.

**Pharmacy and dosage:**

- **Fresh Plant Tincture:** fresh plant, 1:2, 95% alcohol, 20-60 gtt
- **Succus:** fresh juice combined with an equal volume of 95% alcohol, reduced by low heat to half the total volume, 5-30 gtt.
- **Cold Infusion:** recently dried herb, 1:20, *ad libitum*

**Licensing:** As of Dec 02, 2010, 22 Canadian NHP licenses have been issued for products containing this botanical.

**REFERENCES**


Prunella vulgaris

LAMIACEAE

**Botanical Name:** *Symphytum officinale*, Boraginaceae

**Common names:** Comfrey, Knitbone, Knitback, Consound, Blackwort, Bruisewort, Slippery Root, Boneset, Gum Plant, Ass Ear.

**Plant description:** Comfrey is a herbaceous perennial, arising from a long fleshy mucilaginous root with a black epidermis and white cortex, appearing in spring as a basal rosette of bright green leaves. When mature the erect stem attains a height of between 90 and 120 cm, branching above, the lower leaves ovate-lanceolate, the upper leaves more lanceolate. All aerial portions except the flowers are noted for their stiff white hairs that give the plant a rough texture. The white, purple or pink flowers are borne in terminal, one-sided racemes. The calyx is comprised of five parts, with lanceolate acuminate sepals, the corolla tubular to campanulate, stamens 5 and style filiform. The flowers give way to small smooth ovate seeds.

**Habitat, ecology and distribution:** Comfrey is native to Europe, and is now widespread in temperate regions of North America, occurring along roadsides, in fields, pastures and gardens, often preferring a deep, rich soil. It is typically absent from drier areas.

**Part used:** Root, leaf.

**History:** The name ‘Comfrey’ derived from the Latin term *con firma* (‘with form’), an allusion to comfrey’s ability to unite broken bones, and similarly, the genus name ‘Symphytum,’ is derived from the Greek *symphvo*, meaning ‘to unite.’ Although it is a practice somewhat in dispute now, comfrey has a long history as a food plant, the young leaves used as a substitute for spinach, and the young shoots as a pot herb after blanching. Grieve mentions that strong decoction has been used in the past for tanning leather, and that in Angora a glue is obtained from comfrey, traditionally used in spinning wool.

** Constituents:** Comfrey is notable, or perhaps notorious, for its alkaloidal content, primarily of the pyrrolizidine type, containing upwards of 3%, including symphytine, symlandine, echimidine, intermidine, lycopsamine, myoscorpine, acetyllycopsamine, acetylintermidine, lasiocarpine, heliosupine, viridiflorine, and echiumine. Rode reports that nearly all (85–97%) of the pyrrolizidine alkaloids (PA) in the common comfrey are retronecine monoesters or are readily hydrolyzed to monoesters. In contrast, the
Russian Comfrey (*Symphytum x uplandicum*) contains a high proportion of the slightly more toxic retronecine diester form of PA. In regard to its traditional use however, the more important class of constituents are the carbohydrates and mucilage, as well as allantoin, of which comfrey contains upwards of 2.55%. Other constituents include steroidal saponins and triterpenes, including sitosterol, stigmasterol and isobaurenenol, tannins, plant acids (caffic, chlorogenic, lithospermic, rosmarinic and silicic acids), carotenoids, protein (35%, including sulfur-containing amino acids), and vitamin B12.2,3,4

**Medical Research:**

*Bruises and sprains.* Clinical research has shown that applying comfrey topically might improve pain and tenderness of bruises, sprains, and painful conditions of the muscles and joints.5

Due to the recent concern over the potential hepatotoxicity of comfrey, there has been little interest in verifying its value in human clinical trials, despite a long and important history of usage. In evaluating its topical usage, one recent open, uncontrolled clinical trial examined the efficacy of a comfrey ointment in 105 patients with locomotor system symptoms. Researchers noted a clear therapeutic effect in chronic and sub acute symptoms, most effective against muscle pain, swelling, arthritis and vertebral syndrome.6 Goldman et al. report a vulnerary and analgesic effect in experimental animals when comfrey was administered orally.7 Mills reports that much of the effects of comfrey are due to the presence of allantoin, which promotes fibroblast, chondroblast and osteoblast activity, resulting in connective tissue remodeling. According to Mills, allantoin is readily absorbed into the tissues when applied topically as a fresh plant poultice, a process facilitated by the plastering effect of comfrey’s mucilages, tannins and resins as they dry. In the gut, an aqueous extract of comfrey enhances the release of prostaglandin F series that protect the gastric wall from damage.8

**Toxicity:** Comfrey is generally regarded as being toxic due to the presence of pyrrolizidine alkaloids. In the 1990’s there were a series of reported cases of veno-occlusive disease (VOD) associated with comfrey ingestion, usually in association with other factors such as illness, poor nutritional status and the concurrent use of hepatotoxic drugs (e.g. acetaminophen). To determine the safety of comfrey a series of studies have been conducted to examine the potential toxicity of comfrey and other PA-containing plants such as *Senecio jacobaea* in experimental animal models. Rode reports that the inherent toxicity of PA varies to a large degree depending on the animal model used, providing data that pigs, chickens and rats are highly sensitive to PA poisoning, whereas mice and sheep are resistant. In some of these studies, administrative routes other than oral determined the toxic potential of PA, such as by injection, and this too has been shown to have an enormous impact on the potential toxicity of PA-containing herbs. Rats in particular appear to be very sensitive to PA, developing liver tumors and hepatic lesions with both the oral and injected administration of comfrey. However rats may not be an appropriate model to base potential human toxicity upon because humans appear to metabolize PAs differently. In many cases, toxicity studies have been conducted on...
the isolated PA, which cannot be equated with the whole plant extract. Rode reports that the formation of PA toxic metabolites is attenuated by the concurrent administration of sulfur-containing amino acids such as methionine or cysteine, and that toxicity is enhanced by a low protein diet. In regard to the potential toxic effects of comfrey in humans, one small study of 29 long-term users found that the typical markers for liver disease, including elevated aspartate aminotransferase (AST) G-glutamyl transferase (GGT), bilirubin and a-fetoprotein (AFP), were normal even after prolonged consumption of the leaf (Anderson and McLean 1989). Currently, the distribution of comfrey is restricted in Canada, its use in Germany is limited to external application, and in the USA, the Food and Drug Administration has requested voluntary compliance for the removal of products containing comfrey. In the UK, the Medicine Control Agency has recently included comfrey in a list of herbs under consideration for restriction to medical prescription only.\footnote{9}

**Herbal action:** vulnerary, anti-hemorrhagic, demulcent, relaxing expectorant, astringent

**Indications:** cuts, abrasions, wounds, broken bones, torn cartilage, ligaments and tendons, gastric and duodenal ulcers, bronchitis, tuberculosis

**Contraindications and cautions:** In view of the concerns regarding comfrey, it should not be used continuously for more than a two week period. The internal use of Comfrey should be avoided in vegetarians, in those who are chronically ill, have liver disease or are taking potentially hepatotoxic drugs, and during pregnancy and lactation. For infected wounds, comfrey should not be used until one is certain that the infection has been dealt with, to avoid causing an abscess.

**Medicinal uses:** Comfrey is the most valued and powerful vulnerary in the materia medica, used both internally and topically for a variety of injuries, inflammations or ulcerations. Wherever comfrey has grown, the native tongue has almost always named comfrey as some kind of ‘knit-bone,’ so important and universal its reputation as a vulnerary. Although some may attribute comfrey’s healing power to allantoin alone, the other mucilaginous and astringent constituents greatly facilitate this vulnerary effect, helping to draw the edges of the wound together. To treat external injuries, comfrey is best applied as fresh plant poultice. This can be done chopping the root in small chunks, and then further pulverizing it in a food processor. The sloppy
mucilaginous mixture can then applied to the wound and covered with bandage. Similarly, a strong decoction can be made and then used as a fomentation. Felter and Lloyd report that comfrey root is useful in “…diarrhoea, dysentery, bronchial irritation, coughs, hemoptysis, other pulmonary affections, leucorrhoea, and female debility” In the treatment of gastrointestinal ulceration comfrey is of great benefit to inhibit further damage and heal the inflamed lesions, drunk as an infusion of the dried leaf for a few days up to a week.10

**Pharmacy and dosage:**  
• *Fresh Plant Tincture*: fresh root and leaf, 1:2, 95% alcohol, 20-60 gtt, 1-4 ml  
• *Dry Plant Tincture*: recently dried root and leaf, 40% alcohol, 20-60 gtt, 1-4 ml  
• *Hot Infusion*: recently dried leaf, 1:20, 60-120 ml  
• *Powder*: recently dried leaf, 500-2000 mg

**Licensing:** As of Dec 02, 2010, 32 Canadian NHP licenses have been issued for products containing comfrey.

**REFERENCES**

7 Goldman RS et al. 1985. Wound healing and analgesic effect of crude extracts of *Symphytum officinale*. *Fitoterapia*. 6, 323-329  