

# Expert Herbal Reality Resource

## Greater Celandine

### Names

**Botanical Name** *Chelidonium majus* L.

**Family:** Papaveraceae

**Common names:** Greater celandine, Swallow wort, Tetterwort, Devil's milk

### Description

This cheery-looking perennial herb has a general appearance not dissimilar to the Himalayan poppies (*Meconopsis* species) to which it is closely related, however the four-petalled flowers which appear from early summer are a smaller, sunny lemon-yellow version rather than the blue of many *Meconopsis* species.

Native to temperate Eurasia Greater celandine grows to a height of between 30 and 90 cm. It flourishes on waste ground near human habitation and can be found along hedgerows and walls. The deeply lobed leaves are a fresh green colour.

The long, slender capsules contain small black seeds with a white crest. In all parts of the plant but especially the stem and rhizome there are lactiferous channels which contain the bright orange sap.

It shares the common name Celandine with *Fica verna* – the Lesser celandine, however it is not related. Flowering plants are harvested in the summer.

### Constituents

- **Isoquinoline alkaloids**, of which the major ones include: chelidonine, chelerythrine, sanguinarine, berberine and coptisine
- **Flavonoids** - derivatives of kaempferol, quercetin and isorhamnetin
- **Proteins**, including chelidocystatin<sup>1</sup>

### Traditional use

It has a long history of topical use as a wart medicine, the stem of the plant being broken and the latex applied directly to the wart. The latex was also used for a number of other skin conditions such as ringworm, eczema and ulceration. The juice was squeezed into 'green' (infected) wounds and In Russia a watery extract was blended with lard and used as a topical application for psoriasis.<sup>2</sup>

One of the best known uses for Greater celandine was as a remedy for jaundice and liver diseases, in particular spasm in the gall bladder or bile ducts. In Poland a common practice was to give children with jaundice a celandine bath along with a drink of the infusion.<sup>3</sup> It has been used in Greece as a diuretic, as a remedy for gout in Serbia and as an antidote for snake venom in Romania.



One of the first recorded uses of greater celandine was in eye diseases, used to clear cloudiness from the eyes and for soreness. Fresh juice was used mixed with milk, vinegar or rosewater to quell the irritation that could occur with the pure juice.<sup>4</sup> It is important to state that the plant is not generally used in this way in modern times and certainly should not be tried as an alternative to seeking professional specialist help for eye problems.

Traditionally it has been used in a number of European countries for cancer and continues to be used for such in Russia and Ukraine.<sup>5,6</sup> Refer to the *Evidence section* for further information.

Uses in Traditional Chinese medicine include chronic bronchitis and whooping cough, digestive pain and stomach ulcers.



## Traditional actions

Choleretic (stimulates the production of bile by the liver), Cholagogue (stimulates the flow of bile from the liver into the duodenum), antiinflammatory, spasmolytic, aperient (mild laxative), antitumour, antimicrobial, vulnerary (healing) and antiinflammatory.

Taste: Bitter, Pungent  
Temperature: Cooling  
Quality: Drying  
Affinity: Descending, Liver

## What practitioners say

Caution is key when prescribing this alkaloid-containing plant.

**Digestive system including the liver:** Greater celandine is used in conditions of spasm, pain and inflammation in the gut. The alkaloids within the plant having a relaxing effect on the gut and duct walls. After a careful evaluation by the practitioner of the patient it is used in certain cases of jaundice, biliary colic from gall stones and other conditions arising from poor liver function, often in combination with other herbs.

**Topical use:** Greater celandine is still very much in use as a topical application for cases of warts and verrucae, however it is also used for eczema, (both externally and internally) in part due to the action it has on the liver by increasing the production and flow of bile. It is also applied to fungal growths, corns, haemorrhoids and indolent ulcers. One needs to avoid the healthy surrounding skin when applying.

**Anti-microbial effects:** In addition to the antifungal and antiviral effects when applied to the skin, there is growing interest in the internal use of Greater celandine to treat certain pathogenic microbes, including some drug-resistant bacteria and fungi.

## Evidence

The German Commission E, which is the scientific advisory board of the Federal Institute for Drugs and Medical Devices, supports the use of Greater celandine in treatment of spasm and pain in the bile ducts and gastrointestinal tract.<sup>7</sup>

Some of the isoquinoline alkaloids within Chelidonium (berberine, sanguinarine, chelerythrine), have been shown to possess anticancer activity *in vitro* including cell cycle arrest, apoptosis and autophagy, (all ways to stop a cell from duplicating and dividing - important actions in targeting cancer cells). These effects are at least in part attributed to the isoquinoline alkaloids within Greater celandine binding to DNA or proteins, inhibiting certain enzymatic activity or epigenetic modulation (something that modifies the activation of a gene but not the genetic code sequence of DNA). This suggests their use as a potential therapeutic agent for cancer. This promising work was done on the isolated isoquinolines as opposed to the whole plant and further studies are needed to explore the underlying mechanisms.<sup>8</sup>



Data from a number of randomised clinical trials suggests that a semi-synthetic compound called Ukrain derived from Greater celandine but having highly concentrated levels of isoquinoline alkaloids and often used intravenously in Ukraine and some other eastern European countries may have potential as an anticancer therapy. The research suggests that Ukrain is pharmacologically active and clinically effective, however a systematic review carried out in 2005 concluded that the quality of the methodology and interpretation of most of the studies was poor and the authors advised that more rigorous and independent studies with larger cohorts is required.<sup>9</sup>

Extracts of Greater celandine have been shown to possess antibacterial and antifungal activity across a number of microbes. Interestingly, the aerial parts of the plant which are more often used in herbal practice contain lower levels of the isoquinoline alkaloids than the root, however all tested plant extracts manifested antimicrobial activity, with the root more strongly reducing bacterial biomass.<sup>10</sup> *Staphylococcus aureus* and *Pseudomonas aeruginosa* were used in this work, two very problematic bacteria in terms of their multi-drug resistance and notoriety in causing hospital-acquired infections.

A significant antifungal effect against *Candida albicans* was observed when the isolated alkaloids or whole extracts of the aerial parts of the plant were used.<sup>10</sup>

Greater celandine extracts were found to be active against biofilm forms of a multi-drug-resistant clinical strain of *Helicobacter pylori* (*H.pylori*), however in the concentrations used there was evidence of cytotoxicity against human hepatocytes (liver cells) so the strength of the extract was lowered by using it synergistically with a synthetic antimicrobial and applying a bacterial cellulose drug carrier, (a pure form of cellulose used to modify the release of a drug). The work demonstrated synergistic interactions with amoxicillin amongst other agents. There was a several-fold decrease in the level of *H. pylori* biofilm indicating that the application of extracts from Greater celandine combined with certain synthetic antimicrobials absorbed into a cellulose carrier may be a promising method for treating this stealth pathogen.<sup>11</sup>

These works afford us a deeper insight into the medicinal activities of this fascinating plant and show it has significant potential beyond many of its current uses.

## Safety

In the UK Greater celandine falls under the legislation for Human Use Regulations 2012 within the schedule 20 part 2 herbs. This means that it is a practitioner-only medicine and has maximum weekly and single doses.<sup>12</sup> Contraindicated in pregnancy and breastfeeding and in those with pre-existing liver disease. Greater celandine is not recommended to be taken alongside the heavy use of alcohol.<sup>13</sup>

It is a poison, albeit of lower toxicity compared to many other Schedule 20 practitioner-only medicinal herbs, so extreme caution is required when prescribing.

Long term use of this herb is not recommended due to the high levels of alkaloids. It is purgative in high doses. If the latex is used externally on a wart or verruca it is important to avoid getting it on the surrounding healthy skin. There have been a number of reported cases of hepatotoxicity with ingestion of Greater celandine, which underlines the requirement to seek the advice of an experience practitioner.

## Dosage

Maximum 2 g per single dose. Maximum 6 g per day dried or as infusion.<sup>7</sup>

6-12 g per day dried aerial parts or by infusion

6-12 mL per day of a 1:10 strength tincture.<sup>13</sup>

Note: The higher doses in the range are only recommended short-term for acute presentations.

## References

1. European Medicines agency 2010 Committee on herbal medicinal products: Draft assessment report: *Chelidonium majus* L. [https://www.ema.europa.eu/en/documents/herbal-report/draft-ssessment-report-chelidonium-majus-l-herba\\_en.pdf](https://www.ema.europa.eu/en/documents/herbal-report/draft-ssessment-report-chelidonium-majus-l-herba_en.pdf). Accessed 3.10.21.
2. H.H Zeylstra, Circa '95 *Chelidonium majus* monograph for the College of Phytotherapy.
3. Kujawska M., Łuczaj Ł., Sosnowska J., Klepacki P. (2016). Plants in folk beliefs and customs: Adam Fischer's dictionary. Tom XXXVII, Wrocław, 367–368.
4. Barton B. H., Castle T. (1845). *The British Flora Medica, or History of the Medicinal Plants of Great Britain*. London: E. Cox.
5. Zeilinska, S et al (2018): Greater Celandine's Ups and Downs–21 Centuries of Medicinal Uses of *Chelidonium majus* From the Viewpoint of Today's Pharmacology. *Frontiers in Pharmacology*: 9,299.
6. Grieve, M (1931): *A Modern Herbal*. *Tiger press*. Ed 1992. ISBN 1-83-5501-249-9
7. Blumenthal M et al eds: *The complete German E monographs: Therapeutic guide to herbal medicines*, Audtin 1998. American Botanical Council.
8. Dahye, Y et al (2021): The anticancer effect of natural plant alkaloid isoquinolines. *Int. Journal of Molecular Sciences*: 22, 1653
9. Ernst, E, Schmidt, K (2005): Ukrain – a new cancer cure? A systematic review of randomised clinical trials. *BMC Cancer* 5, 69.
10. Zielinska, S et al (2019): The activity of isoquinoline alkaloids and extracts from *Chelidonium majus* against pathogenic bacteria and candida sp. *Toxins* 11(7): 406
11. Krzyzek, P et al (2021): Antibiofilm and antimicrobial-enhancing activity of *Chelidonium majus* and *Corydalis cheilanthifolia* extracts against multidrug-resistant *Helicobacter pylori*. 10 (8): 1033
12. <https://www.gov.uk/government/publications/list-of-banned-or-restricted-herbal-ingredients-for-medicinal-use/banned-and-restricted-herbal-ingredients>. Accessed 5.9.21
13. Mills, K and Bone, S (2005): *The Essential guide to Herbal Safety*. Elsevier. 0-443-07171-3
14. <https://northernwoodlands.org/articles/article/doctrine-signatures>. Accessed 30.8.21