

Expert Herbal Reality Resource

Baical Skullcap

Names

Botanical Name *Scutellaria baicalensis* Georgi.

Family: Lamiaceae

Common names: Skullcap root, scute, baikal, huang qin, fu chang, yuan qin (Chin), ogon (Jap), hwanggum (Kor)

Alternate botanical names: *S.viscidula* Bge; *S.amoena* CH Wright; *S. hypericifolia* Level.

Description

The rhizome of baical skullcap is thick and fleshy, up to 2 cm in diameter, elongated and branched. The leaves are lanceolate to linear-lanceolate, 1.5–4.5 cm in length and 0.5–1.2 cm in width. The terminal raceme borne on stems and branches often aggregated into panicles at the top of stems. The corolla is purple, purple–red and blue. The fruits are hard, ovoid, dark brown 1.5 mm in height and 1 mm in diameter.



Constituents

The most prominent constituents are

- flavones and flavone glycosides incl baicalin (quickly converted in the gut to its aglycone baicalein), and wogonoside (converted to wogonin). Over 40 other flavonoids and their flavonols, dihydroflavones and their dihydroflavonols, chalcones and biflavonoidshave also been identifiedⁱ

Also detectedⁱⁱ are

- carotenoids
- diterpenes
- volatile oils

Traditional use

The first description of Baical skullcap was recorded as early as the Zhou Dynasty over 3000 years ago. The Han Dynasty Classic of Internal Medicine ‘Shennong Ben Cao Jing’ (the earliest existing traditional Chinese medicine book), recorded its medicinal application as a cure for lung and liver diseases almost 2000 years ago.

Although the root of the plant is most often used there is also a tradition for using the aerial parts in teas for clearing heat and removing dampness, and promoting digestion, typical indications for bitters.

Traditional actions

In traditional Chinese medicine the characteristics of *huang qin* are
Cold, bitter.
Quells Fire, drains Damp Heat.

It is used for high fevers, agitation and thirst, for Lung-Heat cough, perhaps with thick yellow sputum, and for Damp Heat diarrhoea and jaundice.

It was also used for threatened miscarriage and other problems of pregnancy.

It is contraindicated in deficient Spleen-Stomach and in full Fire conditions without Damp Heat.

What practitioners say

Baical skullcap is widely used in traditional Chinese medicine for its cardiovascular, hepatic, and renal protective effects. It is commonly used by physicians in China to treat potentially serious diseases such as hepatitis, hypertension, acute respiratory infection, acute gastroenteritis, infantile diarrhoea, vomiting during pregnancy and other diseases. It is also used in some cancer treatments there.

In modern western herbal practice baical has been most widely used in immunological and hypersensitivity disorders.



- **Respiratory:** the most common application is for lung and airway symptoms of these disorders, notably asthmatic conditions (especially when associated with secondary bronchitis), hypersensitivity conditions like hayfever and allergic rhinitis, and especially fungal and bacterial infections. It has a reputation in China of being effective also in acute viral infections of the airways. Where there is no infective complication in an allergic or asthmatic condition, baical needs to be combined with licorice or other moistening herbs.
- **Circulation:** baical is applied clinically in China for hypertension and other cardiovascular problems, including those of late onset diabetes.
- **Nervous system:** there is growing interest in the potential role of baical in helping reducing neuroinflammation, the common factor increasingly implicated in dementia, long term psychiatric, neurological diseases, and conditions such as chronic fatigue syndrome and fibromyalgia.
- **Metabolism:** positive research findings on the role of baical in managing metabolic syndrome, insulin resistance and late-onset diabetes have encouraged practitioners to consider this remedy where these are co-factors in immunological conditions.
- **Liver:** baical is traditionally used for hepatitis and its role in supporting liver function is likely to be very important in some of the conditions above.

Evidence

Emerging evidence has established that baicalin improves chronic inflammation, immune imbalance, disturbances in lipid metabolism, apoptosis and oxidative stress. Thereby it offers beneficial roles against the initiation and progression of CVDs such as atherosclerosis, hypertension, myocardial infarction and reperfusion, and heart failure.ⁱⁱⁱ

The protective effects of baicalin on liver disease have received research attention. Studies have shown that baicalin protects against several types of liver diseases including viral hepatitis, fatty liver disease, xenobiotic induced liver injury, cholestatic liver injury, and hepatocellular carcinoma, with a variety of pharmacological mechanisms.^{iv} Baicalin regulates intestinal flora by promoting the production of short chain fatty acids (SCFAs). Furthermore, Baicalin is involved in the interactions of the liver-gut axis by regulating TGR5, FXR, bile acids and the microbiota.^v

Baical has been used in TCM as a frequent component in prescriptions for depression, anxiety, epilepsy. Modern reviews are supporting the neuroprotective properties of baicalin, with evidence for effects on the production of a variety of relevant inflammatory cytokines.^{vi}

There are also studies showing the ameliorating effects of baical and its two major bioactive constituents, baicalin and baicalein, on parameters of metabolic syndrome, including antidiabetic, anti-hyperlipidemic, anti-obesity, and antihypertensive activity. Activation and upregulation of AMPK and PPAR- γ as the main signals in the haemostasis of glucose and lipid metabolisms appear to be important mechanisms.^{vii} Wogonin has also shown laboratory effects in markers of diabetic circulatory complications,^{viii} and has been used as an anti-cancer drug in Chinese medicine practice. It has been found *in vitro* effectively to tackle cancers cells via several mechanisms.^{ix}

Safety

There are few reports of adverse effects reliably linked to baical skullcap. A case of liver damage has been reported in its use in a patient with arthritis.^x

Baicalin has been shown to decrease the level of statins in healthy volunteers.^{xi} It may be necessary to consider the use of baical skullcap in cases where cholesterol management is critical.

Dosage

2-6 g per day of the dried root, although lower doses are often used in combination with other herbs.



References

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