

# *Baikal Skullcap*

INGRID NAIMAN

Scutellaria baicalensis is one of the fifty fundamental herbs of traditional Chinese medicine and was one of the active components of the popular PC-SPES prostate formula that was withdrawn from the market in 2002 following reports of varying traces of pharmaceutical drugs in the formula. The New York University Medical Center reports "Highly preliminary evidence suggests that baicalin can enhance the activity of antibiotics against antibiotic-resistant staph bacteria. Other highly preliminary evidence suggests that baicalin, wogonin, and baicalein may have anticancer, anti-inflammatory, liver-protective, anti-anxiety, and antihypertensive effects."



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## Baikal Skullcap Root

*Scutellaria baicalensis* or Chinese skullcap

# 黃芩

As the name suggests, this herb is native to Eastern Russia and parts of China, Mongolia, and Korea but it is cultivated in many other areas, including Europe, Canada, and the United States.

It is grown from seeds sown in the Autumn and does well near the sea, up to 8000 foot elevation. It requires normal soil with good drainage and is hardy to -15°C. The roots of 3-4 year-old plants are used in medicine. The roots are bitter and contain important flavonoids, approximately 12% of constituents, and alkaloids with antihistamine-like effects, with strong enough anti-anaphylaxis effects to warrant its use during acute asthmatic attacks as well as with allergic eczema.

Besides its use for asthma, Baikal skullcap is ideal for inflammatory conditions of the digestive and eliminatory systems. It has been used in China for thousands of years, mainly to treat diarrhea and dysentery. It is also antifungal and useful in the management of *Candida albicans* as well as ulcerative colitis and Crohns disease.

Baikal skullcap is also used for infectious conditions,



including scarlet fever, viral hepatitis, and nephritis. Clinical studies establish its effectiveness with staphylococci, cholera, dysentery, pneumococci and influenza virus.

It is thought to be of value in HIV treatment. More modern research, especially at the China Pharmaceutical

University in Nanjing, have focused on the hepatitis B virus, this following important in vivo studies in which the antigens for HBV were significantly lower after 10 days use of extracts of wogonin, one of the flavonoids of scute root. Studies in which epileptic seizures were deliberately induced suggest that Baikal skullcap is protective so long as its use is continued. Other studies show that scute root inhibits permeability of capillaries and prevents atherosclerosis. It has antithrombotic actions. It seems to reduce lipids in the blood and reduce inflammation of the arteries.

With cancer, the herb is used to prevent proliferation of malignant cells, prevent angiogenesis, and induce apoptosis. With leukemia, the promise of this herb is quite significant, but it is being used with many other types of cancer, such as prostate, breast, lung, and colon cancer.

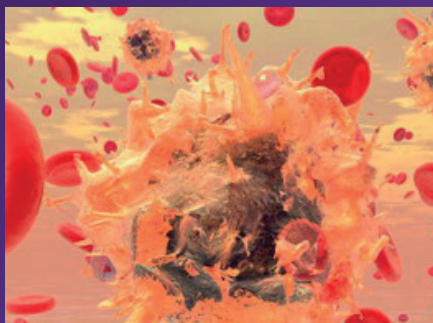


Chinese: Huang qin

# 黃芩

*Scutellaria baicalensis* root is bitter in taste and cold in action.

It drains heat and inflammation from the liver, lungs, blood and intestines. It is specific for gastrointestinal conditions such as diarrhea and dysentery. It also reduces symptoms associated with allergies.



**Wogonin causes apoptosis in leukemia cells in the culture dish, while it has virtually no damaging effect on healthy blood cells. Wogonin also led to reduced cancer growth in mice that had been transplanted human leukemia cells.**

**Dr. Min Li-Weber  
Division of Immunogenetics**

Flavonoids or bioflavonoids are plant metabolites that are recognized as having antioxidant properties. They are responsible for the yellow or reddish-blue pigmentation in flowers that protects them against attack by microbes and insects. They are found in many plants, are relatively non-toxic as compared to alkaloids, and they are becoming increasingly recognized as “modifiers” that reduce the body’s vulnerability to allergens, viruses, and carcinogens. Recent studies suggest that many of the healing properties formerly attributed to nutrients and vitamins are actually due to the flavonoids, including those of many fruits, vegetables, and even red wines.

Baikal skullcap root contains at least 26 different flavonoids, including a yellow flavone called baicalein with a structure very similar to quercetin, a bioflavonoid frequently used to treat allergies, especially asthma and hayfever, but also allergic eczema and rashes.



The Chinese skullcap contains two additional important flavonoids, baicalin and wogonin, that are known to reduce inflammation, the body’s natural response to irritation and/or infection. Baicalin is believed to inhibit angiogenesis and thus to restrain the growth of tumors. Unlike wogonin, baicalin stimulates the secretion of bile.

Recently, German researchers with the Deutsches Krebsforschungszentrum in Heidelberg determined that wogonin causes apoptosis in cultured leukemia cells. Dr. Min Li-Weber says that wogonin radically increases the production of hydrogen peroxide in tumor cells as compared to healthy cells, thus making it safer than other methods using hydrogen peroxide because there is less risk to healthy tissue.

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## *Research on Baikal Skullcap:*

- According to numerous in vitro and animal studies, the flavonoids have arteriosclerosis actions.
- Several animal studies have demonstrated a hypotensive (blood vessel relaxing) effect.
- Dry extracts and flavonoids can restore normal blood cell production depressed by sleep deprivation or psychological stress.
- Oxygen deprivation leads to rapid mitochondrial-related energy loss and cell destruction. In rat studies, Baikal skullcap root has been shown to prevent energy loss in the brain mitochondria and preserve mitochondrial membranes.
- Glial cells help to protect and maintain nerve cell integrity. When tested on rat glioma cells, two major flavonoids found in scute root (baicalin and baicalein) were shown to protect against histamine-related damage by inhibiting inflammatory phospholipase.
- When administered to lung cancer patients undergoing chemotherapy, Russian scientists observed that the herb helped restore depressed T-lymphocytes and other immunoglobulins.



## *Baikal Skullcap*



Extract of *Scutellaria baicalensis* root, grown in the United States, in distilled water and organic grain alcohol, 2 oz.

Dosage: 30 drops, three times per day or as directed by practitioner.

Alcohol content: 69-71%.

Suggested retail price: \$21.45

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The dried roots of *Scutellaria baicalensis* (*S. baicalensis*) Georgi (common name: Huangqin in China) have been widely employed for many centuries in traditional Chinese herbal medicine as popular antibacterial and antiviral agents. They are effective against staphylococci, cholera, dysentery, pneumococci and influenza virus. Baicalein, one of the major flavonoids contained in the dried roots, possesses a multitude of pharmacological activities. The glycoside of baicalein, baicalin is a potent anti-inflammatory and anti-tumor agent. This review describes the biological properties of baicalein (Table 1), which are associated with the prevention and treatment of cardiovascular diseases. Baicalein is a potent free radical scavenger and xanthine oxidase inhibitor, thus improving endothelial function and conferring cardiovascular protective actions against oxidative stress-induced cell injury. Baicalein lowers blood pressure in renin-independent hypertension and the *in vivo* hypotensive effect may be partly attributed to its inhibition of lipoxygenase, resulting in reduced biosynthesis and release of arachidonic acid-derived vasoconstrictor products. On the other hand, baicalein enhances vasoconstricting sensitivity to receptor-dependent agonists such as noradrenaline, phenylephrine, serotonin, U46619 and vasopressin in isolated rat arteries. The *in vitro* effect is likely caused by inhibition of an endothelial nitric oxide-dependent mechanism. The anti-thrombotic, anti-proliferative and anti-mitogenic effects of the roots of *S. baicalensis* and baicalein are also reported. Baicalein inhibits thrombin-induced production of plasminogen activator inhibitor-1, and interleukin-1 $\beta$ - and tumor necrosis factor- $\alpha$ -induced adhesion molecule expression in cultured human umbilical vein endothelial cells. The pharmacological findings have highlighted the therapeutic potentials of using plant-derived baicalein and its analogs for the treatment of arteriosclerosis and hypertension.



anti-inflammatory, anti-tumoral, anti-bacterial, anti-viral, anti-fungal, anti-pyretic, diuretic hypotensive, anti-allergic, cholagogue, hemostatic, lowers blood lipids, calming, bronchodilator, anti-abortive, immune stimulant, interferon inducent.



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[http://www.ubcbotanicalgarden.org/potd/2007/12/scutellaria\\_baicalensis\\_1.php](http://www.ubcbotanicalgarden.org/potd/2007/12/scutellaria_baicalensis_1.php)

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