

HUMAN USE OF SCUTELLARIA BAICALENSIS AND BAICALIN AS AN INGREDIENT IN TRADITIONAL MEDICINES

A. History of Use

The first mention of *S. baicalensis* in classical Chinese medical literature is in the *Shen Nong Ben Cao* from the Eastern Han dynasty (circa 200 C.E.) (Wang Da Guan, 1990). Since this text was most likely compiled from previous (now non-extant) sources, the actual use of *S. baicalensis* is most likely considerably older than the *Shen Nong Ben Cao*.

Han-Sui Dynasties (25–618 C.E.)

This botanical is mentioned in all major materia medicae in the Chinese literature from 200 C.E. to the present. Throughout this time, the scope of use of *S. baicalensis* mentioned in the medical literature has remained remarkably consistent. In the *Shen Nong Ben Cao*, the properties of *S. baicalensis* are summed up as "bitter and balanced," and its primary applications have been for "heat [disorders], jaundice, diarrhea, bloody dysentery, [aiding in] expellation of [excess] water, [and treating] amenorrhea, malign sores, flat abscesses, and fire sores [a kind of conjunctivitis]."

Zhang Zhong-Jing, the most famous of the Han dynasty herb practitioners, included *S. baicalensis* in 31 formulas in his classic *On Cold Damage and Miscellaneous Disorders* (Zou Ji Long, 1994). The best known of Zhang's formulas that include *S. baicalensis* is *Xiao Chai Hu Tang* (Minor Bupleurum Decoction). This formula is still commonly used anywhere that Chinese herbal medicine is practiced. This is an example of the use of *S. baicalensis* to treat external conditions like the common cold and flu. Zhang also used *S. baicalensis* for two other main categories of disease; *internal heat* disorders (especially with bleeding) and *damp-heat* intestinal disorders characterized by abdominal cramping and diarrhea.

Tang Dynasty (618-907 C.E.)

In the Tang dynasty, Sun Si-Miao mentions the use of this botanical in soup form for the treatment of urinary tract pain and dribbling (strangury). Also in the Tang dynasty, the *Ming Yi Bie Lu* cites *S. baicalensis* as an herb to be used to "treat hot phlegm, heat in the stomach and cramping pain in the lower abdomen." This herb is also mentioned in that text for incessant lochial discharge. The Tang dynasty materia medica, *Xin Xiu Ben Cao*, sums up the above uses and adds lower abdominal pain in children to the list.

Song and Yuan Dynasties (960-1368 C.E.)

Use of *S. baicalensis* in these dynasties expanded to include variations of numerous *heat* disorders. The *Zhen Zhu Nang* gives this herb the properties of "dispelling surplus *yang*, cooling the heart and dispelling *heat*," while Li Dong Yuan, the author of

the *Pi Wei Lun*, recommends it for "fever with bitter taste" (Li Guo, 2000). Hundreds of other mentions of this herb occur in various text of this period, including the *Ben Shi Fang*, *Ben Cao Huai Yan*, *Ben Cao Jing Shu*, and the *Tang Ye Ben Cao*. During this period, the use of *S. baicalensis* in gynecology greatly increased. Its mention in texts such as *Nü Ke Bai Wen* (literally, *One Hundred Questions about Gynecology*) highlight this expanded use. Among the applications mentioned in gynecology are quieting of the fetus and preventing miscarriage, a use first mentioned by Zhang Zhong-Jing in the Han dynasty.

During the Song dynasty, the use of herbs in powder form became more common. *S. baicalensis* was no exception. An example is *Huang Qin San* (from the *Tai Ping Sheng Hui Fang*), a single herb remedy for vomiting of blood or nosebleed. Further, Zhu Dan-Xi posited the use of a pill made from *S. baicalensis* powder and honey for the treatment of *lung fire* and *hot phlegm* in the chest.

Ming Dynasty (1368-1644 C.E.)

Li Shi-Zhen, who traveled throughout China in the Ming dynasty in order to record herb use in his text *Ben Cao Gang Mu*, documented wide use of *S. baicalensis*. He also reports an anecdote of his personal experience with the herb, in which a soup of the single herb cured him of a persistent cough as a child after other remedies had failed (Li Shi Zhen, 1997). Use during the Ming dynasty is summarized in a materia medica of the time, the *Dian Nan Ben Cao* (Zou Ji Long, 1994). "[*S. baicalensis*] ascends to drain *fire*, descends to drain bladder *fire*. [It treats] the five stranguries (urinary pain and dribbling) and uterine bleeding. [It] adjusts the menstrual cycle [by] clearing *heat*. For fetal disquietude caused by excess *heat*, it can clear fetal *heat*. It dispels repletion *heat* and repletion *fire* from the six channels." These uses and functions are repeated in numerous other texts of the time, such as the *Yi Xue Gang Mu*, *Wan Shi Hui Chun*, *Ben Cao Zheng* and *Zheng Zhi Zhun Sheng*.

Qing Dynasty (1644-1911 C.E.)

The numerous epidemics of the Qing dynasty brought about the theories of heat pathogens known as the "warm disease school." It is not surprising that this school of thought made common use of *S. baicalensis* to clear *heat* related to epidemic *heat* disorders from various flu-like illnesses to mumps and some pox disorders. The *Wen Bing Tiao Bian*, for example, uses *S. baicalensis* in a formula (*Huang Qin Hua Shi Tang*) for the treatment of *damp-warm* disorders, which present with fever, body aches, absence of thirst, a yellow tongue fur, and a slippery, moderate pulse.

Summary

From the sources cited above, it can be seen that *S. baicalensis* has been used extensively and continually throughout the history of Chinese herbal medicine. This botanical was also used in dietary therapy. Though its bitter taste has limited its use in this regard, there are ample examples of its use in rice porridges, syrups, etc. One such

mention is in the *Tai Ping Sheng Hui Fang*. This text describes a porridge called *Dan Zhu Li Zhou* that contains *S. baicalensis* along with other botanicals (Le Yi Shi *et al.*, 1988). It is intended to treat chronic cough with phlegm that is difficult to expectorate. Other porridges, wines, and syrups containing *S. baicalensis* are recorded in various classic texts aimed at addressing other heat patterns such as jaundice, post partum *heat*, and diarrhea. The importance of *S. baicalensis* in the herbal arsenal of the Qing dynasty is demonstrated in the *Ben Cao Jiu Zhen* (Huang Gong Xiu, 1997), where it is the first herb mentioned in the section about draining *fire*. In that entry, the herb is spoken of in glowing terms:

"One can use Chinese skullcap for surging internal *fire* or for an external pathogen that turns inward... above [it treats disorders of] the chest, diaphragm, larynx or pharynx or below [it addresses] the abdomen and disorders of the stools and urine. Regardless of how the disease manifests; as abdominal pain and diarrhea, alternating fevers and chills, jaundice or urinary block, asthmatic breathing or cough or toxic swellings, menstrual block or fetal disquietude or thirst, [*S. baicalensis*] can overcome all *damp, heat and fire*."

B. Current Use

1. Products in which used

a. Beverages

S. baicalensis root is a component of some traditional Chinese tea decoctions and wines.

b. Food ingredients

Because *S. baicalensis* is a flavonoid-rich plant that has demonstrated significant antioxidant capacity, recent studies have suggested that it could serve as an antioxidant food ingredient similar to other common flavonoid-containing foods, such as green tea, fruits, vegetables, and beans (Lin *et al.*, 2002).

S. baicalensis root and/or extracts thereof are components of dietary supplement products available in the US (e.g., Honso Pharmaceutical Liver Kampo™ Tablets; Nature's Sunshine Chinese VS-C™ Immune System Support; New Chapter Zyflamend® Capsules). Wholesale distribution company Crane Herb Company, Inc. lists 343 different herbal dietary supplement products that contain *S. baicalensis* root in various forms that are available through acupuncturists in the US (<http://www.craneherb.com/products/formulas9992>). See Appendix I for a list of products.

c. Other products

S. baicalensis is a component of toothpastes and pain-relieving plasters available in Taiwan, Japan, and China, as well as toothpastes, dental powders, and oral rinse products available in the US.

S. baicalensis root extract is a component of various cosmetic products including skin cleansing creams, masks, skin lotions, emulsions, and essences, as well as personal care products (e.g., various Revlon-brand makeup products).

d. Medicinal uses

S. baicalensis root is a component of numerous patent herbal medicines such as *Xiao Chai Hu Tang*, *Dang Gui San*, *Ban Xia Xie Xin Tang*, *An Tai Wan*, and *Qing Qi Hua Tan Wan*. These herbal combinations are commonly sold wherever Chinese herbal medicine is practiced, including Taiwan, China, Japan, the US, the UK, and Hong Kong.

The uses mentioned above under historical use continue to the present day. In addition, the antibacterial and anti-inflammatory properties of this plant have inspired new uses for modern disease categories, such as bronchitis, urinary tract infections, hepatitis, jaundice, inflammation of the oral cavity, and other conditions.

Products Containing *S. baicalensis* Root

Crane Herb Company, Inc. Catalog

343 products found

Product Line	Code	Product Name	Alternate Name	Size
Alembic Herbals	BFS1	<u>Bupleurum & Four Substance</u>	Chai Hu Si Wu Tang (modified)	1 oz.
Alembic Herbals	BFS2	<u>Bupleurum & Four Substance</u>	Chai Hu Si Wu Tang (modified)	2 oz.
Alembic Herbals	BFS4	<u>Bupleurum & Four Substance</u>	Chai Hu Si Wu Tang (modified)	4 oz.
Alembic Herbals	LDE1	<u>Linking Decoction</u>	Yi Guan Jian/Er Zhi Wan	1 oz.
Alembic Herbals	LDE2	<u>Linking Decoction</u>	Yi Guan Jian/Er Zhi Wan	2 oz.

Alembic Herbals	LDE4	<u>Linking Decoction</u>	Yi Guan Jian/Er Zhi Wan	4 oz.
Asian Patents	ACP	<u>Armadillo Counter Poison</u>	Chuan Shan Jia Qu Shi Qing Du Wan	48 pills
Asian Patents	CFY	<u>Ching Fei Yi Huo Pien</u>	Clear Lungs Restrain Fire Tablet	12 boxes
Asian Patents	CAT	<u>Clean Air Tea</u>	Pinellia Expectorant	
Asian Patents	CCE	<u>Compound Cortex Eucommia</u>	Du Zhong Pian	100 pills
Asian Patents	DXW	<u>Ding Xin Wan</u>	Heart Stabilizing Pill	100 pills
Asian Patents	FES	<u>Fargelin Extra Strength</u>	Hua Zhi Ling Wan	36 pills
Asian Patents	HLS	<u>Huang Lien Shang Qing Wan Pian</u>	Coptis Upper Body Clearing Tablets	12x8 tabs
Asian Patents	HRT	<u>Hypertension Repressing Tabs</u>	Jiang Ya Ping Pian	12X12 tabs
Asian Patents	LQB	<u>Lian Qiao Bai Du San</u>	Forsythia Toxin-Vanquishing Tablets	12 boxes
Asian Patents	LTX	<u>Lung Tan Xie Gan Pill</u>	Gentian Liver Draining Pill	100 pills
Blue Poppy Herbs	AFS	<u>Added Flavors Supplement the Center & Boost Qi</u>	Bu Zhong Yi Qi Tang Jia Wei (modified)	60 caps
Blue Poppy Herbs	BAF	<u>Bupleurum & Angelica Formula</u>	Xiao Chia Hu Tang Jia Jian (modified)	2 oz
Blue Poppy Herbs	ColdQ	<u>Cold Quell</u>	Xiao Chai Hu Tang He Si Wu Tang Jia Jian (modified)	60 caps
Blue Poppy Herbs	DGA	<u>Dang Gui & Anemarrhena</u>	Dang Gui Nian Tong Tang (modified)	60 caps
Blue Poppy Herbs	DBMO	<u>Dr. Bob's Medicated Oil</u>		2 ounce

Blue Poppy Herbs	FTF	<u>Free the Flow</u>	Ji Chuan Jian (modified)	60 caps
Blue Poppy Herbs	JC	<u>Jade Chamber</u>	Di Fu Zi Tang Jia Wei	
Blue Poppy Herbs	MPM	<u>Modified Perilla & Mentha</u>	Jia Jian Su He Tang (modified)	60 caps
Blue Poppy Topicals	BPCHO	<u>Clear Heat Ointment</u>	Si Huang Gao	.5 oz.
Chinese Classics	BDBF2	<u>Bupleurum & Dragon Bone</u>	Chai Hu Jia Long Gu Mu Li Tang	2 oz.
Chinese Classics	GUF2	<u>Gastrodia & Uncaria Formula</u>	Tian Ma Gou Teng Yin	2 oz.
Chinese Classics	GF2	<u>Gentiana Formula</u>	Long Dan Xie Gan Tang	2 oz.
Chinese Classics	MBF2	<u>Minor Bupleurum Formula</u>	Xiao Chai Hu Tang	2 oz.
Chinese Classics	OA2	<u>Ophiopogon & Asarum</u>	Qing Shang Juan Tong Tang	2 oz.
Chinese Classics	PXF2	<u>Pinellia "X" Formula</u>	Qing Qi Hua Tan Wan	2 oz.
Chinese Classics	SPF2	<u>Salvia Plus Formula</u>	Dan Shen Yin	2 oz.
Chinese Modular Solutions	CHR1	<u>Chest Relief</u>	Pediatric Formula	1 oz.
Chinese Modular Solutions	CHR2	<u>Chest Relief</u>	Pediatric Formula	2 oz.
Chinese Modular Solutions	CHR4	<u>Chest Relief</u>	Pediatric Formula	4 oz.
Chinese Modular Solutions	CHR8	<u>Chest Relief</u>	Pediatric Formula	8 oz.
Chinese Modular Solutions	HHL1	<u>Harmonize Heart & Lung</u>		1 oz.
Chinese Modular Solutions	HHL2	<u>Harmonize Heart &</u>		2 oz.

Solutions		<u>Lung</u>		
Chinese Modular Solutions	HHL4	<u>Harmonize Heart & Lung</u>		4 oz.
Chinese Modular Solutions	HHL8	<u>Harmonize Heart & Lung</u>		8 oz.
Chinese Modular Solutions	HLL2	<u>Harmonize Lung & Liver</u>		2 oz.
Chinese Modular Solutions	HLL4	<u>Harmonize Lung & Liver</u>		4 oz.
Chinese Modular Solutions	HLL8	<u>Harmonize Lung & Liver</u>		8 oz.
Chinese Modular Solutions	HLL1	<u>Harmonize Lung & Liver</u>		1 oz.
Chinese Modular Solutions	PDH1	<u>Purge Damp Heat</u>		1 oz.
Chinese Modular Solutions	PDH2	<u>Purge Damp Heat</u>		2 oz.
Chinese Modular Solutions	PDH4	<u>Purge Damp Heat</u>		4 oz.
Chinese Modular Solutions	PDH8	<u>Purge Damp Heat</u>		8 oz.
Chinese Modular Solutions	PH1	<u>Purge Heat</u>		1 oz.
Chinese Modular Solutions	PH2	<u>Purge Heat</u>		2 oz.
Chinese Modular Solutions	PH4	<u>Purge Heat</u>		4 oz.
Chinese Modular Solutions	PH8	<u>Purge Heat</u>		8 oz.
Chinese Modular Solutions	RE1	<u>Replenish Essence</u>		1 oz.

Chinese Modular Solutions	RE120	<u>Replenish Essence</u>		120 tabs
Chinese Modular Solutions	RE2	<u>Replenish Essence</u>		2 oz.
Chinese Modular Solutions	RE4	<u>Replenish Essence</u>		4 oz.
Chinese Modular Solutions	RE60	<u>Replenish Essence</u>		60 tabs
Chinese Modular Solutions	RE8	<u>Replenish Essence</u>		8 oz.
Golden Flower Chinese Herbs	BC240	<u>Bupleurum & Cinnamon Formula</u>	Chai Hu Gui Zhi Tang	240 tabs
Golden Flower Chinese Herbs	BC60	<u>Bupleurum & Cinnamon Formula - Extra Concentrate</u>	Chai Hu Gui Zhi Tang	60 tabs
Golden Flower Chinese Herbs	BD240	<u>Bupleurum D - Extra Concentrate</u>	Chai Hu Jia Long Gu Mu Li Tang (modified)	240 tabs
Golden Flower Chinese Herbs	BD60	<u>Bupleurum D - Extra Concentrate</u>	Chai Hu Jia Long Gu Mu Li Tang (modified)	60 tabs
Golden Flower Chinese Herbs	CRT240	<u>Coptis Relieve Toxicity Formula</u>	Huang Lian Jie Du Pian	240 tabs
Golden Flower Chinese Herbs	CRT60	<u>Coptis Relieve Toxicity Formula - Extra Concentrat</u>	Huang Lian Jie Du Pian	60 tabs
Golden Flower Chinese Herbs	DC300	<u>Ding Chuan Formula</u>	Ding Chuan Tang (modified)	300 tabs
Golden Flower Chinese Herbs	DC60	<u>Ding Chuan Formula</u>	Ding Chuan Tang (modified)	60 tabs
Golden Flower Chinese Herbs	FP16	<u>Fritillaria & Pinellia Syrup</u>	Qing Chi Hua Tan Tang (modified)	16 oz.
Golden Flower Chinese Herbs	FP4	<u>Fritillaria & Pinellia Syrup</u>	Qing Chi Hua Tan Tang (modified)	4 oz.

Golden Flower Chinese Herbs	GU240	<u>Gastrodia & Uncaria Formula - Extra Concentrate</u>	Tian Ma Gou Teng Yin (modified)	240 tabs
Golden Flower Chinese Herbs	GU60	<u>Gastrodia & Uncaria Formula - Extra Concentrate</u>	Tian Ma Gou Teng Yin (modified)	60 tabs
Golden Flower Chinese Herbs	GDF240	<u>Gentiana Drain Fire Formula</u>	Long Dan Xie Gan Tang (modified)	240 tabs
Golden Flower Chinese Herbs	GDF60	<u>Gentiana Drain Fire Formula - Extra Concentrate</u>	Long Dan Xie Gan Tang (modified)	60 tabs
Golden Flower Chinese Herbs	HR240	<u>Head Relief - Extra Concentrate</u>	Tou Tong Pian	240 tabs
Golden Flower Chinese Herbs	HR60	<u>Head Relief - Extra Concentrate</u>	Tou Tong Pian	60 tabs
Golden Flower Chinese Herbs	MBF240	<u>Minor Bupleurum Formula - Extra Concentrate</u>	Xiao Chai Hu Tang	240 tabs
Golden Flower Chinese Herbs	MBF60	<u>Minor Bupleurum Formula - Extra Concentrate</u>	Xiao Chai Hu Tang	60 tabs
Golden Flower Chinese Herbs	RPF240	<u>Rabdosia Prostate - Extra Concentrate</u>	Dong Ling Cao Fang	240 tabs
Golden Flower Chinese Herbs	TR1240	<u>Trauma 1 Formula - Extra Concentrate</u>		240 tabs
Golden Flower Chinese Herbs	TR160	<u>Trauma 1 Formula - Extra Concentrate</u>		60 tabs
Health Concerns	ASDF	<u>Astra 18 Diet Fuel</u>	Fang Feng Tong Sheng San (modified)	90 tab
Health Concerns	CAI	<u>Clear Air</u>	Ding Chuan Tang (modified)	90 tab
Health Concerns	C	<u>Clearing</u>	Qing Xin Lian Zi Yin (modified)	90 tab

