

LYSIMACHIA GB FORMULA XIAO CHAI HU JIA JIN QIAN CAO PIAN ORIGINS: Modern Formula

Lysimachia GB Formula (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is a modern formula based on two classic formulas, Minor Bupleurum Formula (*Xiao Chai Hu Tang*) and Capillaris Combination (*Yin Chen Hao Tang*).

Minor Bupleurum Formula (*Xiao Chai Hu Tang*) and **Capillaris Combination** (*Yin Chen Hao Tang*) were both originally documented in the writings of Zhang Zhong-Jing during the Eastern Han Dynasty (3rd Century, CE).

GENERAL SIGNS/SYMPTOMS

Primary symptoms include pain, often upon percussion in the right hypochondrium (Murphy's Sign), the upper right quadrant of the abdomen below the area of the lower ribs. Other symptoms may include pain that spreads to the back between your shoulder blades and right shoulder, nausea and vomiting, and fever. Pain will often occur after a meal, especially if there is overindulgence or consumption of fatty or oily foods. Additionally, other damp-heat inflammatory conditions in the liver/gallbladder can be effectively remedied with **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*), namely jaundice, acute hepatitis, and cholecystitis.

ACTIONS

- | | | | |
|----------------------------------|--------------------------------|---|---------------------|
| 1. Clears and resolves damp-heat | 3. Dissolves and expels stones | 5. Rectifies the qi and restores harmony between Wood and Earth | 6. Reduces Jaundice |
| 2. Breaks up accumulations | 4. Cools blood | | |

INGREDIENTS

PINYIN	LATIN	ENGLISH	PERCENT OF FORMULA
<i>Jin Qian Cao</i>	<i>Lysimachiae Herba</i>	Lysimachia	15.0%
<i>Yu Jin</i>	<i>Curcuma Radix</i>	Turmeric, Curcuma Tuber	10.0%
<i>Chai Hu</i>	<i>Bupleuri Radix</i>	Bupleurum Root	9.0%
<i>Huang Qin</i>	<i>Scutellariae Radix</i>	Chinese Scullcap, Scute	9.0%
<i>Dang Shen</i>	<i>Codonopsis Radix</i>	Codonopsis	8.0%
<i>Yin Chen Hao</i>	<i>Artemisiae Scopariae Herba</i>	Capillaris	8.0%
<i>Zhu Ru</i>	<i>Bambusae Caulis in Taeniam</i>	Bamboo shavings	8.0%
<i>Zhi Zi</i>	<i>Gardeniae Fructus</i>	Gardenia Fruit	8.0%
<i>Bai Shao</i>	<i>Paeoniae Radix, alba</i>	Chinese Peony, white	8.0%
<i>Chuan Lian Zi</i>	<i>Toosendan Fructus</i>	Melia Fruit	5.0%
<i>Hong Zao/ Da Zao</i>	<i>Jujubae Fructus</i>	Jujube Fruit, red	5.0%
<i>Zhi Gan Cao</i>	<i>Glycyrrhizae Uralensis Radix Preparata</i>	Chinese Licorice Root, honey-fried	4.0%
<i>Sheng Jiang</i>	<i>Zingiberis Rhizoma Recens</i>	Ginger, fresh	3.0%

GENERAL INDICATIONS / MODERN APPLICATIONS

- | | | |
|-------------------------|----------------------------|--------------------|
| • Cholecystitis | • Gallbladder inflammation | • Hepatitis, acute |
| • Eyes, swollen and red | • Gallstones | • Jaundice |
| • Flank pain | • Gallbladder spasms | • Vomiting |

FORMULA DISCUSSION

Most classical formulas are designed to treat broad patterns, but the pattern addressed by **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is rather narrow. Clumped damp-heat in the liver/gallbladder is associated with a focused action on a particular biomedically-defined condition (or family of closely-related conditions). The actions of **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) focus on the gallbladder and the common afflictions associated with that organ. Naturally, due to their close yin-yang relationship, some of these actions spill over to treat the liver. Specifically, the conditions addressed by **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) are gallstones/cholelithiasis, jaundice, acute hepatitis, and any damp-heat condition that is caused by a congested gallbladder. Milder conditions may include discomfort in the gallbladder area (right hypochondrium), nausea or vomiting, red swollen eyes with nausea, foul-smelling stools or constipation with damp-heat signs.

FORMULA ACTIONS

- Clears and resolves damp-heat
- Breaks up accumulations
- Dissolves and expels stones
- Cools blood
- Rectifies the qi and restores harmony between Wood and Earth
- Reduces jaundice

TONGUE

May be red or have red spots, scalloped sides, with yellow coating.

PULSE

Wiry or wiry and rapid.

CONTRAINDICATIONS / CAUTIONS

Do not use in the absence of damp-heat. Patients suspected of having gallstones require close medical supervision.

DOSAGE

Severe or acute conditions may require large and/or frequent dosing, up to 4-5 tablets every 3 hours for a short duration. Most cases of chronic, developing, or mild gallbladder damp-heat issues will be managed with 2-3 tablets 3-4 times a day. Reduce dosage if abdominal pain or cramping seem to get worse with administration of the formula.

SYNERGY OF INGREDIENTS

As with most modern formulas designed to treat a specific biomedically-defined condition, the actions of the individual herbs or herb pairings take strategic precedence over classical pattern considerations.

Lysimachia GB Formula (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is derived from two Han Dynasty (3rd Century, CE) formulas, Minor Bupleurum Formula (*Xiao Chai Hu Tang*) and Capillaris Combination (*Yin Chen Hao Tang*), plus additional herbs to augment its ability to decongest the liver and gallbladder, dissolve stones, drain heat, and eliminate inflammation. Of these two formulas, Capillaris Combination (*Yin Chen Hao Tang*) has been a key formula for the treatment of jaundice since the Han Dynasty. Minor Bupleurum Formula (*Xiao Chai Hu Tang*) is the primary formula used in combinations where the desired action is directed to the liver/gallbladder organs or when externally-contracted pathogens have penetrated to the *shaoyang* level. **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) contains all but one ingredient from each of these two classical formulas and adds five substances to focus the formula's actions on dissolving stones and resolving jaundice.

Three of the substances can be seen as performing the role of "chief," depending on the intent of the treatment. Capillaris (*yin chen hao*) acts as chief when the primary symptom is jaundice; lysimachia (*jin qian cao*) takes the lead if gallbladder stones are the main complaint. Bupleurum (*chai hu*) functions as chief if the diagnosis is hepatitis, but it also functions as envoy—leading the entire formula to the gallbladder—and as deputy, rectifying the qi that has become stagnant in the hypochondrium and flanks. Capillaris (*yin chen hao*) is the most important substance in the *Materia Medica* for treating jaundice; it can treat any kind of jaundice. It enters the liver and gallbladder as well as the spleen and stomach. It drains damp-heat that has accumulated in the area of intersection of these organs and guides it out through the urine. In the same way that capillaris (*yin chen hao*) is the most important substance for the treatment of jaundice, lysimachia (*jin qian cao*) is held to be the most important substance for expelling stones. When combined with herbs that direct it to the bladder and kidney, lysimachia (*jin qian cao*) eliminates stones from the urinary tract; but when combined with other substances that guide it to the gallbladder, its actions dissolve and expel gallbladder stones. These three herbs are commonly combined to treat jaundice as well as cholelithiasis (gallstones) and cholecystitis (inflammation of the gallbladder).

Besides the three herbs that could be seen as chief, two other substances in **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) enter the gallbladder channel: scutellaria (*huang qin*) and bamboo shavings (*zhu ru*). Their inclusion assures that the actions of the formula as a whole will be focused on the gallbladder. Both of these serve the function of deputies by enhancing the formula's power to drain damp-heat from the liver and gallbladder. Scutellaria (*huang qin*) is renowned for its ability to clear heat in the lungs, but in combinations such as we find here, it is also highly effective at clearing damp heat from the liver and gallbladder. It is commonly used to treat hepatitis and jaundice as well as damp-heat diarrhea. Bamboo shavings (*zhu ru*) is the strongest substance in the formula for calming nausea and resolving phlegm. Minor Bupleurum Formula (*Xiao Chai Hu Tang*) contains prepared pinellia (*zhi ban xia*), the only ingredient from that base formula that has been omitted in the formula under discussion here. The bamboo shavings (*zhu ru*) replace the pinellia (*ban xia*), addressing the nausea and vomiting as well as the phlegm, to which the actions of pinellia (*ban xia*) is normally directed. Bamboo shavings (*zhu ru*) is used instead because it enters the gallbladder and can eliminate phlegm accumulation there. It is also cooling, where pinellia (*ban xia*) has a warm property.

Another deputy, gardenia fruit (*zhi zi*), is part of the smaller of the two base formulas from which **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is derived—Capillaris Combination (*Yin Chen Hao Tang*) consisting of three ingredients. The chief is the eponymous herb, capillaris (*yin chen hao*). Gardenia fruit (*zhi zi*) is the deputy in that classical formula. It serves the same function in the present modern formula by clearing heat and draining damp-heat from all three burners. It is frequently included in formulas that address heat or damp-heat that easily spreads between burners. One more deputy remains, curcuma tuber (*yu jin*), which is often combined with capillaris (*yin chen hao*) and gardenia fruit (*zhi zi*) to treat jaundice. It is cold and bitter and so can drain heat; but it is also acrid, which gives it the ability to invigorate and cool blood. Heat can easily cause blood stasis to develop. When the pain in the gallbladder area is stabbing, this is said to be due to the stasis of blood. Curcuma tuber (*yu jin*) can clear heat and invigorate blood to stop this pain.

Melia fruit (*chuan lian zi*) also alleviates pain in the hypochondrium and flanks, but instead of regulating blood, it regulates qi. It is one of the few substances that invigorate the flow of liver qi that is cooling rather than warming. It is also a stand-out substance among those which regulate qi because, by virtue of its cold nature and downward draining direction, it has a marked effect at draining damp heat through the bladder. In this respect, melia fruit (*chuan lian zi*) would qualify as another deputy, but its

inclusion here, as it is in most formulas wherein it appears, is as a qi regulator. Thus, melia fruit (*chuan lian zi*) serves as an assistant by directly treating a tangential component of the main pattern.

All of the remaining ingredients serve as assistants, most of them providing a protecting or harmonizing function. Of the five left undiscussed, four of them are from the larger base formula Minor Bupleurum Formula (*Xiao Chai Hu Tang*). The exception is white peony (*bai shao*). This herb is classified as a blood tonic, but is just as well known for its ability to soothe the liver and assist qi-regulating herbs in spreading liver qi. It assists the curcuma tuber (*yu jin*) in cooling the blood, and combines with bupleurum (*chai hu*) and with melia fruit (*chuan lian zi*) to relax the flanks and ease pain. It combines with scutellaria (*huang qi*) to eliminate damp-heat that is discharged through the bowel.

Two assisting substances in **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) augment the qi to help protect the middle burner not only from the ravages of the damp-heat, but also from the harshness of the cold herbs in the formula. In jaundice conditions, the middle burner function is always compromised. The failure to transform the dampness causes stagnation that backs up into the gallbladder and forces bile into the flesh. Codonopsis (*dang shen*) tonifies the middle burner and supports the normal (*zheng*) qi to help the spleen to transform the dampness. Red jujube fruit (*hong zao*) also tonifies the middle burner qi and helps to rescue the middle burner. It strongly supports the spleen's ability to make blood from qi and helps the spleen to absorb more nutrients that become the building blocks of blood. These two assistants, along with white peony (*bai shao*) anticipate the necessity of rebuilding qi and blood that will inevitably become damaged as a result of the conditions treated by this formula.

One could make the argument that honey-fried licorice root (*zhi gan cao*) serves the same role in this formula as it does in the reference formula, Minor Bupleurum Formula (*Xiao Chai Hu Tang*), which is a third substance for tonifying qi. In the classical formula, though, the percentage is much higher than it is here. Therefore, its role is really more about harmonizing the middle burner and harmonizing the formula as a whole. This same role of harmonizing is served also by the fresh ginger root (*sheng jiang*) in the formula. Fresh ginger root (*sheng jiang*) is specific for harmonizing the middle burner and has the additional action to direct the qi downward and help ease the nausea and vomiting.

MODERN APPLICATIONS

As discussed, **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is based on key single herbs as well as classical formulas that have the function to counteract the formation of gallstones and aid in the regulation of bile—addressing gallbladder inflammation, liver/gallbladder congestion, and conditions like cholelithiasis. Below is modern research on these individual herbs and base formulas.

Lysimachia (*jin qian cao*) – This herb was used in a murine study to determine its efficacy in eliminating cholesterol gallstones. Results showed that cholesterol gallstones were almost entirely eliminated after administration of lysimachia (*jin qian cao*) for two weeks at a high dosage or four weeks at a lower dosage. Lysimachia (*jin qian cao*) promoted bile secretion and lowered cholesterol levels. The herb also significantly decreased serum cholesterol content, specifically LDL-C, HDL-C, and phospholipids.ⁱ

In another animal study lysimachia (*jin qian cao*) was used to determine its cholagogic effects (stimulating bile flow) and its effectiveness for treating cholecystitis. The results showed that lysimachia (*jin qian cao*) produced excellent anticholecystitis effects while also reducing gallbladder lesion severity induced by lithocholic acid, the agent used along with *escherichia coli* to create a facsimile of cholecystitis in the study. High dosing of lysimachia (*jin qian cao*) produced an antibacterial effect in acute cholecystitis. Treatment with mid-range to high dosing of the herb resulted in an antipyretic effect. Furthermore, treatment with mid-range and high range dosing promoted bile secretion and high-range dosing promoted bile emptying.ⁱⁱ

While cholesterol stones are the most common gallbladder stones, lysimachia (*jin qian cao*) can also treat pigment stones. These types of stones are formed when there is too much bilirubin. One animal study used lysimachia (*jin qian cao*)—specifically, an ethyl acetate extract from the herb—to treat pigment gallbladder stones. The results showed that lysimachia (*jin qian cao*) can significantly promote bile excretion and reduce the stone formation rate of gallbladder pigment stones. Additionally, it can adjust and maintain bile composition proportions.ⁱⁱⁱ

Turmeric (*yu jin*) – Turmeric (*yu jin*) is considered a cholagogue, meaning it's an agent that has the ability to increase secretion and excretion of bile into the intestines and is commonly used in the treatment of gallstones. To study the effects of curcumin, a chemical component of turmeric (*yu jin*), on the formation of cholesterol gallstones an animal study was conducted. The study had two groups identified: the lithogenic group and the curcumin group. The lithogenic group was fed a diet that induced stone formation. The curcumin group was fed the same diet with the addition of curcumin (turmeric). The results showed that relative to the lithogenic group, cholesterol concentration was significantly decreased in bile in the curcumin group and the number of cholesterol microcrystals was significantly more in the bile of the lithogenic group. In the curcumin group the formation of cholesterol crystals and aggregation of microcrystals were not visible.^{iv}

Minor Bupleurum Formula (*Xiao Chai Hu Tang*) – This is one of the two base formulas of Lysimachia GB Formula (*Xiao Chai Hu Jia Jin Qian Cao Pian*), and is commonly used to address gallbladder disorders. In a recent research study, 52 cases of chronic cholecystitis were treated with Minor Bupleurum Formula (*Xiao Chai Hu Tang*). In the study a total of 104 participants were included. As mentioned, the treatment group was prescribed Minor Bupleurum Formula (*Xiao Chai Hu Tang*), while the control group was given Ceftizoxime, a cephalosporin antibiotic. The results showed a total efficiency of 94.23% in the treatment group and a 78.85% total efficiency in the control group, indicating that Minor Bupleurum Formula (*Xiao Chai Hu Tang*) can effectively relieve pain in patients with chronic cholecystitis.^v [Please see the **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) monograph for more modern research on this formula.]

Capillaris Combination (*Yin Chen Hao Tang*) – A study was conducted to investigate the use of modified *Yin Chen Hao Tang* in the clinical treatment of cholelithiasis. 46 patients, 21 males and 25 females, were divided into two equal groups of 23 patients each. The treatment group was given Capillaris Combination (*Yin Chen Hao Tang*)—capillaris (*yin chen hao*), rhubarb

LYSIMACHIA GB FORMULA ⁴ (*da huang*), and gardenia (*zhi zi*). The formula was modified with turmeric (*yu jin*), gallus (*ji nei jin*), lysimachia (*jin qian cao*), bupleurum (*chai hu*), corydalis (*yan hu suo*), pinellia (*ban xia*), and Chinese licorice root (*gan cao*). The control group was treated with conventional therapy. The results showed that in the treatment group, seven cases were deemed cured, eight cases had marked improvement, five cases showed some improvement, and three cases had no effect; a total effective rate of 86.96%. In the control group, three cases were deemed cured, twelve cases had marked effect, two cases had some effect, and six cases had no effect; a total effective rate of 73.91%.^{vi}

FORMULA COMPARISONS

Major Bupleurum Combination (*Da Chai Hu Tang*) & Lysimachia GB Formula (*Xiao Chai Hu Jia Jin Qian Cao Pian*)

Both formulas are commonly used to address gallbladder disorders. Major Bupleurum Combination (*Da Chai Hu Tang*) is a classical formula used to treat excess heat in the gallbladder with indications for cholecystitis and cholelithiasis. The formula has choleric properties, reducing the concentration of cholesterol in the bile, and has been shown to be effective in the treatment of gallstones. This formula classically treats *shaoyang* pattern disorders with heat stagnation in the *yangming*. It is best for conditions of cholecystitis and cholelithiasis where there is excess heat presenting along with the symptomology that has been discussed in this paper for cholecystitis and cholelithiasis. Primary *yangming* heat signs and symptoms that may be present will include constipation, fever that is more common in the afternoon, distended abdomen that is often worse with pressure, a pulse that is excess and forceful, and a dry tongue with a yellow coat. Other symptoms that may be present can also include restlessness, irritability, excess sweating, and thirst. In general, **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is going to be the best choice to dissolve and expel the stones, reduce jaundice, and reduce pain; Major Bupleurum Combination (*Da Chai Hu Tang*) is going to be the best choice to reduce fever caused by gallbladder inflammation.

Gentiana Drain Fire Formula (*Long Dan Xie Gan Tang*) & Lysimachia GB Formula (*Xiao Chai Hu Jia Jin Qian Cao Pian*)

Gentiana Drain Fire Formula (*Long Dan Xie Gan Tang*) and **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) both address liver/gallbladder diseases. A key difference between these two formulas is that **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) has the specific function to address stones and is better suited for treating cholelithiasis. Both formulas can be used to treat gallbladder inflammation, but **Gentiana Drain Fire Formula** (*Long Dan Xie Gan Tang*) has a specific action on the liver/gallbladder's effect on the lower burner, while **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*) is more appropriate for the liver/gallbladder's effect on the middle burner. **Gentiana Drain Fire Formula** (*Long Dan Xie Gan Tang*) has only a mild action to dissolve and expel stones compared to the powerful action provided by the **Lysimachia GB Formula** (*Xiao Chai Hu Jia Jin Qian Cao Pian*). **Gentiana Drain Fire Formula** (*Long Dan Xie Gan Tang*) has a stronger action to drain severe fire and clear damp-heat from the lower burner. It can also be used to treat ear infections.

ENDNOTES

- ⁱDeng J, et al., "Lysimachia Christinae Hance Regresses Preestablished Cholesterol Gallstone in Mice," *Journal of Ethnopharmacology*, 2015, Vol 166.
- ⁱⁱXian Yang, et al., "Evaluation of Lysimachia Christinae Hance Extracts as Anticholelithiasis and Cholelithiasis Agents in Animals," *Journal of Ethnopharmacology*, 2011, Vol 137, No 1.
- ⁱⁱⁱZhang Yuan, et al., "The Effect of Lysimachia on the Prevention and Treatment of Gallbladder Pigment Stones," *Pharmacology and Clinics of Chinese Materia Medica*, 2004, No 2.
- ^{iv}Panjehshahin, M.R., et al., "Effect of Curcumin on Cholesterol Gall-Stone Induction in Rats," *Journal of Applied Animal Research*, 2003, Vol 23.
- ^vChen Li, "Treating 104 Cases of Chronic Cholecystitis with Xiao Chai Hu Tang," *Clinical Journal of Chinese Medicine*, 2015, Vol 7, No 31.
- ^{vi}Zhi Piang, "Effects of Modified Yin Chen Hao Tang on Cholelithiasis," *Contemporary Medicine*, 2016, Vol 14, No 2.
- ^{vii}Wang Yan Ping, et al., "Analysis of the Clinical Efficacy of Da Chai Hu Tang in the Treatment of Cholecystitis and Cholelithiasis," *China Continuing Medical Education*, 2018, Vol 20.

USEFUL COMBINATIONS

For acute cholecystitis with excess heat and constipation	Combine with Major Rhubarb Combination (<i>Da Cheng Qi Tang</i>)
For acute cholecystitis with severe heat	Combine with Gentiana Drain Fire Formula (<i>Long Dan Xie Gan Tang</i>)
For chronic cholecystitis with spleen deficiency	Combine with Six Gentlemen Formula (<i>Si Jun Zi Tang</i>)
For chronic cholecystitis with binding depression of liver qi	Combine with Chai Hu Shu Gan Formula (<i>Chai Hu Shu Gan Tang</i>)
To prevent gallstone formation once stones have been eliminated	Combine with Hawthorn and Fennel Formula (<i>Shan Zha Xiao Hui Xiang Fang</i>)