

# MINOR BUPLEURUM FORMULA XIAO CHAI HU TANG

ORIGINS: *Treatise on Cold Damage (Shang Han Lun)* by Zhang Zhong-jing, circa 220CE

**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was first described in the *Treatise on Cold Damage (Shang Han Lun)* written by Zhang Zhong-jing during the Eastern Han dynasty, circa 220CE. It is also mentioned in *Essentials from the Golden Cabinet (Jin Gui Yao Lue)* by the same author. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is believed to be the most commonly prescribed herbal formula in the world.

## GENERAL SIGNS/SYMPTOMS

Alternating chills and fever, fullness in the chest or flank pain, bitter taste in mouth, nausea/vomiting, lingering illness (viral), acute ear symptoms, dizziness, wiry pulse.

## CLASSICAL ACTIONS

1. Harmonizes *shaoyang*-stage
2. Frees the chest and descends fluids
3. Transforms phlegm and resolves the middle
4. Clears heat
5. Supports the normal qi

## INGREDIENTS

PINYIN	LATIN	ENGLISH	PERCENT OF FORMULA
<i>Chai Hu</i> (chief)	Bupleuri Radix	Bupleurum Root	22%
<i>Zhi Ban Xia</i> (assistant)	Pinelliae Rhizoma Preparata	Pinellia, ginger-cured	21%
<i>Dang Shen</i> (assistant)	Codonopsis Radix	Codonopsis	17%
<i>Huang Qin</i> (deputy)	Scutellariae Radix	Chinese Scullcap Root, Scute	12%
<i>Sheng Jiang</i> (assistant)	Zingiberis Rhizoma Recens	Ginger, fresh	12%
<i>Zhi Gan Cao</i> (assistant)	Glycyrrhizae Radix Preparata	Chinese Licorice Root, honey-fried	8%
<i>Hong Zao</i> (assistant)	Jujubae Fructus	Jujube Date, red	8%

## GENERAL INDICATIONS / MODERN APPLICATIONS

- Abdominal distension/ bloating
- Abdominal masses
- Anorexia/ loss of appetite
- Asthma
- Bitter or sour taste in the mouth
- Breast tenderness
- Bronchitis, acute or chronic
- Chest, fullness
- Chills and fever, alternating
- Cholecystitis
- Chronic Fatigue Syndrome
- Common cold, lingering
- Constipation
- Cough
- Depression
- Diabetes, Type II
- Diaphragm, fullness in
- Diarrhea
- Dizziness
- Dysmenorrhea
- Dyspepsia, functional
- Ear infection
- Epilepsy
- Esophagitis, reflux
- Eye inflammation
- Fatigue, chronic, with latent pathogen
- Fever
- Fibrosis, liver
- Flank pain
- Gallbladder inflammation or spasms
- Gastritis
- Headache
- Head cold that goes to chest
- Heartburn
- Hepatitis A, acute
- Hepatitis B, chronic
- Herpes zoster (shingles)
- Hypochondriac pain
- Insomnia
- Irritability
- Jaundice
- Kidney disease, chronic
- Liver enzymes elevated
- Lymph nodes, enlarged
- Meniere's disease
- Menses, viral infection during
- Morning sickness
- Nausea
- Nephritis
- Pancreatitis
- Pharyngitis
- Post-partum EPF
- Rhinitis, allergic
- Stomachache
- Throat, dry
- Tonsillitis
- Ulcers, peptic
- Upper respiratory tract infections
- Vertigo
- Vomiting
- Vision, blurred

**FORMULA ACTIONS**

- Harmonizes *shaoyang*-stage
- Frees the chest and descend fluids
- Transforms phlegm and resolves the middle
- Clears heat
- Supports the normal (*zhèng*) qi

**TONGUE**

Thin, with white coating, possibly a red tip.

**PULSE**

Floating and wiry, or just wiry. May be rapid.

**CONTRAINDICATIONS /****CAUTIONS**

Do not use in cases of liver yang rising with yin deficiency. Discontinue if headache, dizziness, or gum bleeding occur.

**DOSAGE**

2-4 tablets, 3 times daily.

**FORMULA DISCUSSION**

**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is the single most-prescribed formula from the single most influential book on herbal formulas—the *Shang Han Lun*—and many claim that it is today the single most prescribed formula in the world. In his book, Zhang Zhong-jing devotes a full 17 lines of his 398-line treatise to discussing this one formula and another ten lines are committed to the discussion of the *shaoyang* disease stage, over which **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) governs. In addition to simple modifications, another seven formulas in the *Shang Han Lun* are explicitly based upon **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). So versatile is this one formula that Zhang even reintroduces it in his second book, *Essentials from the Golden Cabinet* (*Jin Gui Yao Lue*), this time not for the treatment of cold damage, but for a type of heat constraint. But the first mention of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in the *Shang Han Lun* occurs relatively early on (line 96) as part of the discussion of *taiyang*-stage disease. It is later mentioned twice as part of the discussion of *yangming* disease. Adding together the role of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in *taiyang* disease, *yangming* disease, *shaoyang* disease, and heat constraint patterns it should be clear that the importance and influence of this one extremely versatile formula cannot be overstated.

The diagnostic and clinical theory that Zhang developed for the six-stages is thought to be one of the most original contributions by an individual in the history of Chinese medicine. By comparison, most other contributions are compilations of schools of thought or refinements of earlier-developed theory. Between the *Shang Han Lun* and the *Jin Gui Yao Lue*, Zhang had composed over 200 original formulas. Scholars agree that he could not have accomplished this without employing certain theoretical principles, some perhaps original, most of which would have already been circulating in the Han Dynasty. He most certainly utilized complex and subtle variations of five phase theory to formulate his medicines. He was most likely influenced by a now lost book on decoctions called the *Tang Ye Jing Fa*, as well as Tao Hong Jing's version of the *Shen Nong Ben Cao*. He definitely associated the flavors of herbs with channels and actions. Many believe (and many argue against) the proposition that Zhang somehow adapted from the *Nei Jing* the theory of the qi transformation of the "Six Universal Qi" (wind, heat, fire, damp, dryness, and cold). Those who argue that Zhang utilized this theory to formulate his own, point out the strong similarities between six qi in the universe and the 6 stages of cold damage, both of which are strongly subject to transformation into different universal qi and different stages of cold damage, respectively. Those who argue against Zhang using the theory of the six universal qi, point out that everyone over the last 1800 years who has attempted to draw one-to-one parallels between the six stages of cold damage and the six qi transformations of universal qi as presented in the *Nei Jing*, struggle to make clear correspondences. In the universe, the archetypes of the six qi function as root (*běn*) for movement and change. These six archetypal qi pair with a mediating (*zhōng*) qi in order to produce the climatic manifestation or branch (*biāo*) qi. For example, wind is associated with spring. The archetype of the wind qi is influenced by fire to bring about the changes in spring. Spring is the time when new life begins to stir. This stirring is a manifestation of wind, but could not have happened were it not for the lengthening of days and the increase of the fire qi that comes with more sun. So it is with each change of season: the ruling archetypal qi of that season interacts with a mediating qi to produce its climatic influence. But the qi transformations outlined in the *Nei Jing* to describe universal (climatic) influences do not have a one-to-one correspondence with Zhang's transformations in the stages of cold damage. In the universe, qi transformation occurs to maintain an external world that can sustain life. The mediating (*zhōng*) qi always helps to engender or to control the archetypal root (*běn*) qi to produce a mild (not extreme) form that is compatible with life in the universe. If heat were not controlled/reined in by cold, life could not be supported because the earth would become scorched. If cold were not tempered by heat, all life would cease to exist before there was a new warming. Neither can sustain life by itself. In clinic, pathological transformations that occur as a result of externally contracted cold do not follow the same rules as the qi transformation of the six universal qi because a living subject is responding to the pathogenic climatic qi. Zhang did not try to force one theory on top of the other to make it work. What he did was actually much more astonishing. He was able to perceive how different individuals could respond differently to the same pathogenic influences. One key for him seemed to be in where one's weakness lays, another in what measures, if any, one took to try and push out the pathogen. It is likely that Zhang looked to the *Nei Jing*'s discussion on the movements, transformations, and mutual dependencies of the six universal qi to inspire and guide his own groundbreaking and paradigmatic insights into the various courses external influences can take when they penetrate the defenses of a human body. Zhang was able to formulate, track and anticipate how pathogenic qi from external influences could transform under the influences of the body's antipathogenic qi or lack thereof.

Another important theory that Zhang employed for his six stages of cold damage was the principle of opening, closing, and pivot. “*Taiyang* opens, *yangming* closes, and *shaoyang* pivots.” Likewise, “*taiyin* opens, *jueyin* closes, and *shaoyin* pivots.” *Taiyang* is on the outer most part of the body and exchanges qi with the exterior. Cold can get trapped in the interstices (*cou li*) causing a disruption in the qi function in the interstices. This is *taiyang* disease. The *yangming* is supposed to bring the exterior to the interior: the large intestine brings air through the nose and the stomach brings food to the interior. Both of these actions are seen as a kind of “grasping” of external nourishment (qi) to bring them to the interior. This “grasping” is associated with the action of “closing.” From *yangming*, there is a transmission or transfer to *taiyin*: the large intestine grasps heavenly qi and passes it to the lungs in order to be absorbed into the interior. The stomach qi, in charge of peristalsis (a function that is a series of grasping/squeezing actions), pushes the chyme through the intestines in order that the qi from the food can be absorbed by the spleen upward into the body. In this way *taiyin* opens to receive from *yangming*. *Taiyang* governs the distribution of yang qi, *yangming* governs the accumulation of yang qi. *Jueyin* (terminal yin) is the extreme point where yin is about to transform back into yang. The liver is the final destination for the blood. The spleen makes the “red substance” and sends it to the heart (*shaoyin*) to become blood. The termination for the blood is the storage in the liver, yet the liver is the organ most closely associated with qi regulation, a yang function. Though the liver is a yin organ, it is at the edge of where yin becomes yang. Blood carries the qi and the liver pushes both qi and blood back outward from storage. Where does this leave *shaoyang*?

Whereas *taiyang* is related to the exterior and *yangming* to the interior, *shaoyang* is “neither interior nor exterior.” If some qi is going inward and some going outward, there must be a “pivot” action situated between the two, acting like “a door hinge”, swinging either way, as required to move the qi. This is why the chest and flanks play such an important role in *shaoyang* disease. Between the exterior governed by *taiyang*, and the entrance to the interior, governed by *yangming*, there is *shaoyang*. This is to say that in order to pass from the interstices to the gut, the pathogenic qi must pass through the chest, also known as “the axis of qi”. When *shaoyang* is functioning properly and unimpeded, it governs the movement of qi up and down as well as inward and outward. But when this function is impaired by an external pathogenic factor, the qi gets stuck in the chest or epigastrium; the proper relationship of up and down falls into dysfunction, resulting in symptoms like nausea or retching, sometimes cough; and the right-relationship of inward and outward is obstructed, causing symptoms like alternating chills and fever, loss of appetite, or acute ear problems.

In terms of application, **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is the most versatile formula in the *Shang Han Lun*. It can be used to treat any of the three yang stages, as well as a constrained heat pattern—as long as certain criteria are met. These criteria have been a source of discussion and even argument over the centuries, but the general agreement is that if a patient presents with at least one symptom from at least two of three categories of signs/symptoms, this can serve as confirmation that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) will be effective in your treatment.

The first category is the broadest and involves certain signs/symptoms of excess in the chest, sides of the body, or hypochondrium.

The area of the hypochondrium can include the epigastrium; the area of “the sides of the body” can include the inguinal area (GB-27-28 zone), flanks, oblique muscles, the sternocleidomastoid muscles, and even the ears. These include fullness or discomfort in any of these three areas, sighing, breast tenderness, tenderness to palpation in the sternocleidomastoids, flank pain, masses in the chest but outside of the thoracic cavity, and muscle spasms or twitching in these three areas, including palpitations in the epigastrium or heart.

The second category is “alternating chills and fever.” This sign is usually taken literally to indicate a condition wherein the patient feels chills followed by fever, cycling around again to chills, possibly multiple times, all in the course of a 24-hour period. But there are other fever/chill patterns that are indicated for **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). Many conditions that present with both cold and heat (other than simultaneous chills and fever) fall under the pattern of *shaoyang* disorders. This is because the cold is seen to have penetrated past the initial defenses and the yang qi is generating heat to try and push the pathogen back toward the surface. In the *Jin Gui Yao Lue*, Zhang recommends **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to treat “vomiting with fever;” here, there is no mention of the fever alternating with chills. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is also used to treat lingering illness that seems to have entered a sub-acute stage and became trapped. This is another instance where there may not be chills, but there still might be a persistent low-grade fever.

A third category of signs/symptoms that indicates the use of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is the presence of certain digestive dysfunctions. These can be a bitter taste in the mouth, frequent retching, heartburn or reflux brought on by the contraction of an external pathogen, nausea and vomiting, or no desire for food or drink. Visual dizziness is a symptom that Zhang specifically mentioned as a common sign of *shaoyang* syndrome. It should be noted that dizziness could belong to any of the three categories, since heat can cause dizziness (category 3), so can ear imbalances (category 1) as can failure of the spleen to ascend the qi (category 2). If the patient has at least one sign/symptom from at least two of these three categories, **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is indicated. In acute situations, the pulse will likely be floating and wiry (while passing from *taiyang* to *shaoyang*), and quite often rapid. In the sub-acute stage, there may no longer be a floating pulse, but it may still be wiry and/or rapid. The tongue is traditionally said to present with a white coat, possibly with a red tip.

## SYNERGY OF INGREDIENTS

Bupleurum (*chai hu*) is the most commonly used herb for any *shaoyang* pattern, serving as chief in nearly all of them. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is no exception. Bupleurum (*chai hu*) is light and lifting, cooling, dispersing, and invigorating. What makes it essential to *shaoyang* formulas is its dual action to regulate liver qi and to lift the yang qi. So while liver qi is circulated, pathogens are moved up and out with the raising of the yang qi. Bupleurum (*chai hu*) releases constraint in the chest and directly works on alternating chills and fever.

The deputy, scutellaria (*huang qin*) combines with bupleurum (*chai hu*) to drain heat from the liver and chest. The chest is a yang area of the body and when qi is trapped there, it is prone to

develop into heat. On its own, scutellaria (*huang qin*) drains heat downward, but the action of the chief to raise yang qi is stronger and so the two combine effectively to move heat outward without allowing it to sink more deeply into the body. But the bupleurum (*chai hu*) also needs the scutellaria (*huang qin*) in order to address the heat component. When scutellaria (*huang qin*) is removed from the formula, the alternating chills and fever will persist.

Prepared pinellia (*zhi ban xia*) is usually designated as an assistant, but as it is the primary ingredient to address a major component of the pattern unaddressed by the chief, it can also be regarded as a deputy. Prepared pinellia (*zhi ban xia*) frees stagnation and reverses rebellion in the abdomen. It is also the main substance for resolving the phlegm component of the *shaoyang* pattern. When combined with the ginger (*sheng jiang*), another assistant, the two have a strong action to settle the middle burner. By freeing the chest and opening the up and out direction of qi while regulating the middle burner, proper qi function can be restored to the whole. Upward and downward, inward and outward are rectified.

Codonopsis (*dang shen*), red jujube date (*hong zao*), and honey-fried licorice root (*zhi gan cao*) are all assistants that support the normal (*zhèng*) qi. They build up the qi to prevent the passage of the pathogen to the interior and help to restore appetite.

Because **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is such an old, popular, and thoroughly studied formula, there are a number of synergistic pairings within the formula that can be identified. Bupleurum (*chai hu*) and codonopsis (*dang shen*) each prevent possible damage from the actions of the other. Without codonopsis (*dang shen*) the yang-raising and qi spreading action of bupleurum (*chai hu*) could damage yin; without dispersing action bupleurum (*chai hu*) the fluid-generation and tonic actions of codonopsis (*dang shen*) could trap the pathogen, making it more difficult to expel. Ginger (*sheng jiang*) and red jujube date (*hong zao*) are a well-known *taiyang*-stage combination for harmonizing *ying* and *wei* qi. If the *ying* and *wei* qi had been sufficiently strong and in proper relation to one another, the pathogen could not have penetrated past *taiyang*. In **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) this combination helps bupleurum (*chai hu*) to release and regulate the exterior. Prepared pinellia (*zhi ban xia*) combines with ginger (*sheng jiang*) to descend and drain pathogens from the middle burner. Ginger (*sheng jiang*) is also used to abate the toxicity of prepared pinellia (*zhi ban xia*). Prepared pinellia (*zhi ban xia*) and scutellaria (*huang qin*) are often combined to break up nodulations—one of the indications of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*)—but they also combine to treat phlegm heat in either the upper or middle burner.

## MODERN APPLICATIONS

**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is a widely researched formula, with modern applications falling into multiple categories:

### Febrile and Respiratory

**Upper Respiratory Tract Infections—Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can help prevent and reduce the incidence of recurrent upper respiratory tract infections. An upper respiratory tract infection research study was conducted on 30 children with recurrent upper respiratory tract infections, suffering from 6-18 infections a year. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was administered for six months. 7 cases were deemed

cured with no upper respiratory tract infections. 19 cases had reductions of upper respiratory tract infections by at least half. And four cases had no effect. Total effectiveness rate was 86.7%<sup>i</sup>

**Common Cold—Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can help with acute infections of the common cold, and can strengthen immunity. It can augment NK cell activity, which provides rapid response to virally infected cells.<sup>ii</sup> This formula can induce Interferon (IFNs) alpha/beta production. IFNs are proteins released by the host cells in response to the presence of pathogens like viruses, bacteria, parasites, and tumor cells. They allow for communication between cells to trigger the immune system.<sup>iii</sup> This formula can induce G-CSF production, which stimulates white blood cells (granulocytes) and increases stem cells.<sup>iv</sup> **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) also acts as a polyclonal B-cell activator (natural mode of immune response), which induces IgA production, strengthening the mucosal immune system.<sup>v</sup> These properties help with the common cold as well as other viral infections like hepatitis C.

Cold and flu signs and symptoms can linger for weeks after the initial wind invasion. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is an excellent formula to clear the lingering signs and symptoms. A double blind study was conducted on 250 subjects with persistent common cold signs and symptoms for more than 5 days after onset. Some of the main signs and symptoms were oral discomfort (defined as bitter taste or distorted taste), sticky sputum that is difficult to expectorate, throat pain, decreased appetite, fatigue/malaise, and generalized myalgia. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was administered for one week (or less); the control group was administered a placebo. General improvement, specifically relief from individual signs and symptoms, was significantly better for the subjects taking **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) over the control group.<sup>vi</sup>

**Pharyngitis and Tonsillitis —Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be effective to treat tonsillitis and pharyngitis. In one study 10 subjects with chronic tonsillitis of more than 2 years were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) plus platycodon root (*jie geng*) and gypsum (*shi gao*). The incidence of acute or recurrent tonsillitis episodes due to chronic tonsillitis decreased in all subjects and in some cases tonsillectomy was avoided.<sup>vii</sup> Chronic pharyngitis was treated with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) with acupuncture in a clinical observation study of 86 cases. Of the 86 cases, 31 were males and 55 were females, with ages ranging from 14 to 63. Symptoms included throat discomfort, pain, itching, dryness, burning, globus sensation, and irritating cough, often with expectoration. Physical exam was administered checking dendritic congestion, pharyngeal lymphoid follicular hyperplasia, pharyngeal swelling, and pharyngeal mucosa hypertrophy. All oral and topical medications were stopped for the study. The treatment course was ten days with acupuncture given daily. Treatment outcome showed 29 cases deemed cured with complete disappearance of signs and symptoms without recurrence for three months and a cleared physical exam. 54 cases showed good improvement with significantly improved signs and symptoms as well as decrease or elimination of congestion and inflammation upon physical examination. Three cases were deemed invalid with no change. There was a total effectiveness rate of 96.5% for the study.<sup>viii</sup>

**Asthma**—Asthma, characterized by recurrent attacks of breath-

lessness and wheezing, can be treated with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in combination with **Pinellia and Magnolia Bark Formula** (*Ban Xia Hou Po Tang*). A study of 33 subjects with atopic asthma used this combination. Their findings showed significant decrease in the severity of signs and symptoms. The forced expiratory volume improved slightly. The results showed that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in combination with **Pinellia and Magnolia Bark Formula** (*Ban Xia Hou Po Tang*) was able to reduce eosinophilic inflammation of the airways, which is correlated with the severity of asthma.<sup>ix</sup> A more recent study using asthmatic rats showed that modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) could inhibit inflammation and improve asthma by increasing serum IFN- $\gamma$  and decreasing serum IL-4 levels, which improve the imbalance in the Th1 and Th2 cells. Th1 and Th2 cells are known to be involved in the pathophysiology course of asthmatic occurrences.<sup>x</sup>

**Chronic Bronchitis**—Chronic bronchitis is defined as inflammation of the bronchial tubes and is characterized by repeated attacks of cough with expectoration that lasts longer than three months, but generally no more than two years. It is often accompanied with wheezing, breathlessness, and a tight chest. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be used to treat bronchitis due to cold fluid accumulation obstructing the lungs. A study of 58 cases, 41 males and 17 females, diagnosed with bronchitis were treated with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). Subjects presented with cough with phlegm, dyspnea, and occasional wheezing for a minimum of three months. Treatment results showed 45 cases with marked improvement, showing significant reduction of signs and symptoms; 11 cases with good improvement of signs and symptoms; and two cases had no improvement. The total effectiveness rate was 96.56%.<sup>xi</sup> For “chronic bronchitis due to lung phlegm-heat” another study showed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in combination with *Ma Xing Shi Gan Tang* to be effective.<sup>xii</sup>

**Allergic Rhinitis (Seasonal Allergies)**—A double blind study was conducted on 130 subjects suffering from allergic rhinitis for 1-9 years. In the treatment group 65 subjects used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) twice a day for four weeks. This formula was modified depending on individual diagnosis with the following additions: for nasal itching and heavy sneezing, magnolia flower (*xin yi hua*) and chrysanthemum (*ju hua*); for runny nose, cimicifuga (*sheng ma*) and atractylodes (*cang zhu*); for swollen nasal conchae, angelicae dahuricae (*bai zhi*) and Chinese mint (*bo he*); for nasal cavity hyperemia, coptis (*huang lian*) and ligusticum (*chuan xiong*); for polyps in the nasal conchae, persica seed (*tao ren*) and pueraria (*ge gen*); for headache, ligusticum (*chuan xiong*) and (*gao ben*); for red itchy tearing eyes, astragalus (*huang qi*), chrysanthemum (*ju hua*), and siler (*fang feng*) were added; for bronchial asthma, mulberry root bark (*sang bai pi*) and platycodon (*jie geng*); and for ear oppression or deafness, tang kuei (*dang gui*), alisma (*ze xie*), and acorus (*chang pu*). The control group took chlorpheniramine. Of the 65 cases in the treatment group, 34 showed marked improvement in signs and symptoms; 25 showed some improvement; and 6 had no effect—a total effectiveness of 90.8%. 59 subjects were followed up with after two years with only 7 complaining of recurrence. In the control group, 29 cases showed marked improvement; 21 had some effect; and 15 had no effect; with 16 cases reporting recurrence after two

years. IgA levels were substantially low before treatment and significantly higher after the treatment with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). Additionally, the treatment group had significantly lowered IgE levels in their nasal secretions.<sup>xiii</sup>

**High Fever**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is effective in reducing high fever. A study of 25 late-stage cancer subjects with non-infectious fever took **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). Fever was reduced in 22 subjects in an average of 3.5 days with an effectiveness rate of 88%. There were beneficial side effects including improvement of gastrointestinal symptoms and mental status.<sup>xiv</sup> **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is known to have antipyretic effects mainly through the central nervous IL-1 $\alpha$ , PGE2, serotonergic, and dopaminergic mechanisms.<sup>xv</sup>

**Cough**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is commonly used for different manifestations of cough. Additionally, **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is an excellent base formula and can easily be modified with individual herbs or other formulas. (See **Formula Combinations** section.)

A clinical study was conducted using **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in the treatment of post-cold cough. 56 subjects that had the flu were treated; 32 male and 24 female. Subjects had a cough for an average duration of 35 days. The cough presented with white phlegm that was difficult to expectorate and that was worse when exposed to cold air. Treatment course was seven days. The results showed 30 cases were deemed cured with clinical signs and symptoms completely disappeared without recurrence for two weeks; 22 showed marked improvement with alleviation of cough symptoms and reduction of sputum volume; 4 cases showed no change—a total effectiveness rate of 92.9%.<sup>xvi</sup>

Modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used to treat deficient fire cough in 30 cases. The cough manifested at night or was worse at night. The tongue was reddish with thin white or thin, yellow fur and the pulse was thin and tight. Other symptoms with which some subjects presented included fever, chest tightness, nausea/vomiting, dry mouth, mouth discomfort, shortness of breath, and more. The results showed that 12 cases were deemed cured with the resolution of cough as well as other symptoms; 14 cases were deemed marked improvement with resolution of cough and other symptoms greatly reduced, two cases showed some improvement with some reduction of cough; and two cases showed no improvement of signs and symptoms—a total effectiveness rate of 93.6%.<sup>xvii</sup>

Another study used modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in the treatment of children with night coughing. 100 children were given the formula. In a before-and-after treatment comparison 68 cases were deemed cured, 18 cases were deemed markedly improved, 6 cases were deemed somewhat effective, and 8 cases were deemed invalid, with a total effectiveness rate of 92%.<sup>xviii</sup>

Cough variant asthma (CVA) is a type of asthma where the main symptom is a dry, non-productive, cough. It is uncommon to have wheezing or asthma with CVA. One study used modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) for the treatment of CVA. In the study, 80 people were randomly divided into two equal groups. The treatment group was prescribed modified

**6 MINOR BUPLEURUM FORMULA** **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the control group was prescribed theophylline. The treatment course was two months with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) prescribed three times a day. Modifications were given for yin deficiency, with scrophalaria (*xuan shen*) and ophiopogon tuber (*mai men dong*) added; for phlegm, bamboo shavings (*zhu ru*) and mulberry root bark (*sang bai pi*); for qi and blood deficiency, astragalus (*huang qi*); and for blood stagnation, peach kernel (*tao ren*) and safflower (*hong hua*). The results showed that the efficacy of the treatment group was significantly higher than that of the control group. The recurrence rate was lower in the treatment group with only 4 subjects relapsing, compared to 9 in the control group. Additionally, there were no noted adverse reactions in the treatment group.<sup>xix</sup>

### Liver and Gallbladder

*Liver Disease (Hepatitis C, Liver Fibrosis, Liver Cirrhosis, Hepatocarcinoma)*—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is a commonly used formula for addressing chronic liver disease. Studies have shown that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can improve liver function in chronic hepatitis C subjects, with implications that it can restrain chronic hepatitis C from changing into liver cirrhosis or hepatocarcinoma.<sup>xx</sup>

A study involving 99 subjects who completed interferon therapy was conducted. One group was administered **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) at a dose of six grams a day for five years. The other two groups included treatment with ceph-aranthine and treatment with squalene. AST (aminotransferase), ALT (alanine aminotransferase), PIIIP (Procollagen III peptide), Ch-E (choline esterase), type IV collagen, and HCV-RNA were tested. The results showed that ALT and AST, which help determine hepatotoxicity, were significantly decreased in the **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) group. Additionally, type IV collagen, which helps to predict the fibrotic stage of hepatitis C subjects, and HCV-RNA, which provides viral load count, was also significantly decreased. Ch-E, a biomarker for liver cirrhosis, did not change.<sup>xxi</sup>

Another study used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in conjunction with interferon and ribavirin for the treatment of hepatitis C. 79 subjects were randomly divided into two groups. The treatment group of 40 subjects used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) combined with the pharmaceuticals, and the control group of 39 subjects used pharmaceuticals alone. Liver function tests, which included ALT, AST, AKP, GGT, A/G, TBIL, DBIL, HCV-RNA, were done before and after treatment. The results showed that compared to the control group, liver function improved significantly, but there was no significant difference in HCV-RNA negative rate.<sup>xxii</sup>

**INTERFERON CAUTION:** Use caution when prescribing **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) for subjects on interferon. Several cases of pneumonitis have been reported due to the combination of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and interferon in subjects with chronic active hepatitis. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) alone will not injure the lung tissue, but research suggests that combined with interferon, it may over stimulate the neutrophils which can potentially damage the lung tissue. Nearly every case of pneumonitis that developed was in a subject with already-compromised immunity, most of them elderly.<sup>xxiii</sup>

Liver fibrosis is the most concerning pathological change of chronic hepatitis C. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) has the ability to inhibit liver fibrosis by restraining Ito cells (hepatic stellate cells) from activation. This helps to improve chronic hepatitis C and prevents or delays chronic hepatitis C from changing into cirrhosis and hepatocarcinoma. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can also improve the life span of subjects with liver cirrhosis and is effective as a maintenance therapy following IFN treatment for chronic hepatitis C subjects.<sup>xxiv, xxv</sup> Some studies have noted that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) produces no improvement in more severe cases of liver fibrosis.<sup>xxvi</sup>

**NOTE:** When being presented with subjects with liver disease, pattern differentiation is important. While the majority of the cases present as liver qi stagnation with spleen qi deficiency or damp heat, for which **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is an excellent formula. Some cases can present as liver and kidney yin deficiency or blood stagnation, at which point another formula will be more suitable.

*Hepatitis B*—For chronic hepatitis B subjects, **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is effective for improving liver function, the clearance of hepatitis B viral markers (HBeAg), and the increase of Anti-HBe antibodies. 222 subjects with chronic hepatitis B were observed in a double blind clinical study. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was administered as a daily oral dose of 5.4g for two 12 week periods showing significant difference between the group taking **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the placebo group. In the subjects with chronic active hepatitis B there was a decrease of HBeAg and an increase of Anti-HBe antibodies.<sup>xxvii</sup> In another study **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was administered to fourteen children with chronic hepatitis B virus with sustained liver disease. Seven of the 14 children became HBeAg negative in an average of 5 months, and 4 of those 7 subjects developed anti-HBe antibodies.<sup>xxviii, xxix</sup>

*Hepatitis A*—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used to treat acute hepatitis A. Acute hepatitis A presents with chills and fever, distending pain in the epigastrium and hypochondriac regions, yellow sclera and skin, poor appetite, frequent nausea, abdominal discomfort, bitter taste in the mouth, dry mouth, dark urine, dry stools, yellow greasy tongue coating, and a wiry slippery pulse. 115 cases were randomly divided into two groups, a treatment group of 58 cases and a control group of 57 cases. The control group used common treatment principles to protect the liver. The treatment group used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) administered via enema in addition to conventional therapy to support the liver. The results showed ALT, AST, TBIL, and PT indicators improved significantly in the treatment group versus the control group. The total efficacy rate for the treatment group was 84.5%. In comparison, the total efficacy rate for the control group was 63.2%.<sup>xxx</sup>

*Jaundice*—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used in a clinical trial treating 68 children with jaundice. The subjects were divided into two equal groups. The treatment group was administered modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the control group was administered conventional medical treatment. Clinical effects and adverse events were monitored. The clinical efficacy, specifically the disappearance

time of the jaundice, between the two groups was significant. The total effectiveness rate for the treatment group was 94.12%. The total effectiveness rate for the control group was 76.47%.<sup>xxxii</sup>

**Cholecystitis**—Cholecystitis is defined as inflammation of the gallbladder, with or without gallstones. Symptoms often include localized pain, nausea, vomiting, fever, chills, abdominal bloating and cramping, palpitations, and sweating. A study to explore the clinical efficacy of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in the treatment of chronic cholecystitis was conducted. 104 subjects were randomly divided into two equal groups. The treatment group was administered **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the control group was administered Cefprozime. The treatment course was one month. The total effectiveness rate was significantly higher in the treatment group at 94.23% versus 78.85% for the control group, showing **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to be effective at reducing pain and improving cure rate for subjects with cholecystitis.<sup>xxxiii</sup>

### Digestive

**Functional Dyspepsia**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used in a clinical study to treat functional dyspepsia. 68 subjects with functional dyspepsia with a liver-spleen disharmony pattern were divided into a treatment group of 38 subjects who were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*), and a control group of 30 subjects who were given domperidone. Of the 38 cases in the treatment group, the results showed 20 cases were cured; 16 cases showed improvement; and two cases had no effect—a total effectiveness rate of 94.74%. Of the 30 cases in the control group, 9 cases were deemed cured; 13 cases showed improvement; and 8 cases had no effect—a total effectiveness rate of 73.33%.<sup>xxxiii</sup>

**Gastritis**—Bile reflux gastritis presents as epigastric pain with nausea, vomiting, sour regurgitation, belching, and poor appetite. It usually occurs after eating and is worse with stress. Studies have shown that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be used for treating gastritis. In one study, 80 subjects with bile reflux gastritis were divided into two groups, a treatment group using modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*), and a control group using a combination of omeprazole and mosapride. The treatment course was six weeks. The outcome showed a statistically significant difference between the two groups. The treatment group had a total effectiveness rate of 95%, while the control group had a total effectiveness rate of 80%.<sup>xxxiv</sup>

**Chronic gastritis**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be used to treat chronic gastritis. It is often used in conjunction with other formulas to treat this condition (see Formula Combinations section). A study of 32 subjects, aged from 35-70, with chronic gastritis from 1-15 years was treated with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in combination with *Ban Xia Xie Xin Tang*. The treatment course was three months, with a total of two courses. The results showed 11 cases deemed clinically cured with total disappearance of clinical signs and symptoms, improvement of mucosa inflammation, and gastric glandular cell atrophy, IM, ATP improvement; 18 cases were deemed effective with improvement in signs and symptoms, some improvement of mucosa inflammation and some improvement in glandular atrophy, IM, and ATP; three cases were deemed invalid; a total effectiveness rate of 90.7%.<sup>xxxv</sup>

**Reflux Esophagitis**—A clinical study was conducted on 114 cases

of reflux esophagitis confirmed by endoscopy. The main symptoms included acid reflux, burning sensation, and vomiting. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was prescribed and modified with hematite (*dai zhe shi*), inula (*xuan fu hua*), and cuttlefish bone (*hai piao xiao*). Additions were given for qi stagnation, green tangerine peel (*qing pi*) and sarcodactylis (*fo shou*); putrid belching with regurgitation of stomach acid, chicken gizzard lining (*ji nei jin*) and areca seed (*bing lang*); fatigue, astragalus (*huang qi*) and atractylodes (*bai zhu*); and bitter taste in mouth, chinese rhubarb (*da haung*) and coptis (*huang lian*). The results showed 78 cases (68.4%) were deemed cured, with disappearance of symptoms and a clear endoscopy; 25 cases (21.9%) were deemed effective, with clinical symptoms disappeared. 11 cases (9.7%) were deemed invalid. The total efficacy was 90.3%.<sup>xxxvi</sup>

**Peptic Ulcers**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) has been shown to protect the gastric mucosa and inhibit gastric acid secretions while stimulating peristalsis and increasing gallbladder bile secretion.<sup>xxxvii</sup> A study was conducted to determine the efficacy of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) for the treatment of peptic ulcers. 116 cases were randomly divided into two groups. The treatment group of 60 subjects were prescribed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) modified with melia fruit (*chuan lian zi*), corydalis (*yan hu suo*), cyperus (*xiang fu*), and coptis (*huang lian*). The control group of 56 subjects were prescribed lansoprazole, clarithromycin, metronidazole, and other standard drug options for this condition. The results showed that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can promote the healing of ulcers. Of the 60 cases in the treatment group, 16 were deemed cured; 19 markedly effective; 22 effective; and 3 had no effect—a total effectiveness rate of 95%. Of the 56 subjects in the control group, 12 were deemed cured; 14 markedly effective; 20 effective; and 10 had no effect; a total effectiveness rate of 82.14%.<sup>xxxviii</sup>

### Kidney

**Chronic Kidney Disease**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can improve chronic kidney disease with signs and symptoms such as edema, oliguria, backache, fatigue, anorexia, and vomiting. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can reduce urinary protein and lower BUN. Research on mice has shown that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can protect type 1 diabetic mice against diabetic nephropathy. After 4 weeks of administering **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*), renal functions and renal hypertrophy significantly improved.<sup>xxxix</sup>

**Nephritis**—In one study, 40 subjects with chronic glomerulonephritis were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) for two months. The main manifestations of chronic glomerulonephritis are: hematuria, proteinuria, edema, hypertension, severe fatigue; as well as nausea, frequent urination, and low back pain. Results showed 7 cases were deemed cured; 15 cases markedly effective; 12 cases effective; and 6 cases had no effect—a total effectiveness rate of 85%. The study showed that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can reduce urinary protein and urinary RBC count, as well as improve clinical signs and symptoms. The subjects in this study were given an OM diagnosis of damp-heat. If patients present with spleen and kidney yang deficiency or spleen and kidney yin deficiency, alternative formulas are advisable.<sup>xl</sup>

**MINOR BUPLEURUM FORMULA** *Dysmenorrhea*—A study of 68 women with dysmenorrhea took modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). The signs and symptoms of dysmenorrhea present as painful, often scanty, menstruation, with unsmooth flow that is dark in color often with clots, lower abdomen distention and pain, breast pain and/or tenderness, side of rib pain, purple tongue with static spots, and a choppy pulse. In the study, the formula was taken one week prior to menstruation, decreasing by one day each month (i.e. the first month—four days, the second month—three days, etcetera). Efficacy was determined after three months. The results showed that 58 cases (85.3%) were deemed cured; seven cases had some effect; and one case had no improvement—a total effectiveness rate of 95.6%.<sup>xii</sup>

*Menstrual-linked Asthma*—16 women complaining of asthma either prior or during menstruation were treated with modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) combined with *Si Wu Tang*. The formula was modified with ginkgo seed (*bai guo*), platycodon (*jie geng*), apricot seed (*xing ren*), fritillaria (*chuan bei mu*), trichosanthis fruit (*gua lou*), aster root (*zi wan*), and coltsfoot flower (*kuan dong hua*). Other modifications were made depending on individual signs and symptoms. They were given the formula one week prior to onset of menstruation and stopped upon the start of menstruation. All women showed marked improvement. Four women with no prior asthma showed complete recovery. 12 women with a history of asthma showed decreased signs and symptoms. All 16 cases showed improvement in blood-oxygen levels and pulmonary function.<sup>xiii</sup>

*Menstrual Headache*—60 subjects complaining of migraine headaches occurring one week prior and/or during menstruation were observed in a study. The subjects were divided into three groups: The therapy group, who were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*); comparison group 1, who were given traditional acupuncture, and comparison group 2, who were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in conjunction with acupuncture. The therapy group had three cured cases; nine cases with marked improvement; five cases with some improvement; and three cases with no effect—a total effectiveness of 85%. Comparison group 1 had 1 case cured; 3 cases with marked improvement; 7 cases with some improvement; and 6 cases with no effect—a total effectiveness of 70%. The comparison group 2 had 4 cured cases; 10 cases with marked effect; 3 cases with some effect and 3 cases with no effect—a total effectiveness of 85%. There was significant difference between the therapy group and comparison group 1. There was no significant difference between the therapy group and comparison group 2. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was shown to alleviate the severity and reduce the duration of migraine headaches.<sup>xiii</sup>

*Premenstrual Breast Tenderness*—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used to investigate the clinical efficacy for the treatment of premenstrual syndrome breast tenderness. 62 cases were divided into two equal groups. The first group was prescribed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the second group was administered ibuprofen, fluoxetine, and vitamin B6. Subjects were monitored for three menstrual cycles. The results showed significant difference between the two groups with the treatment group showing superior clinical efficacy over the control group to reduce pain.<sup>xiv</sup>

*Postpartum Fever*—A study of 116 women with postpartum fever used modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). The fever lasted an average of 3-12 days. The formula was administered three times a day for three to four days. Of the 116 cases, 97 cases were deemed cured with complete recovery; 23 cases showed improvement with decreased body temperature and improvement of other symptoms; and 3 cases showed no improvement—a total effectiveness rate of 97.4%.<sup>xiv</sup>

*Morning Sickness*—A study was conducted treating morning sickness due to liver qi stagnation overacting on the middle burner. 85 cases used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to regulate liver qi and relieve vomiting. Subjects' ages ranged from 18-37 years old. 72 cases were first pregnancy and 13 cases were second pregnancy or more. Onset of vomiting was a minimum of seven days and the longest duration of morning sickness was 103 days. The treatment course was seven days with a standard of two courses given. The results showed that 78 cases, 91.7%, were deemed cured with no more vomiting, no nausea after eating, and no recurrence of symptoms. 5 cases, 5.9%, showed marked improvement with vomiting frequency significantly reduced. Two cases, 2.4%, showed some improvement in symptoms.<sup>xvi</sup>

*Endometriosis*—Endometriosis occurs when ectopic endometrium cells grow outside of the uterus. This is a common cause of dysmenorrhea and infertility in women. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be beneficial in the treatment of endometriosis. Research performed on rats suggest that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) may increase apoptosis in endometriotic tissue.<sup>xvii</sup> Modern research has demonstrated that the overexpression of COX-2 (cyclooxygenase-2) and P450arom (aromatase) have been detected in endometriotic tissue. One study indicates that **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) has the ability to decrease the expression of COX-2 and P450arom. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) also reduces the formation of excessive estrogen, another mechanism of endometriosis.<sup>xviii</sup>

### Other Clinical Conditions

*Depression*—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be used to treat depression, a commonly seen mood disorder. In a double blind study, 60 people were divided into two groups, with the treatment group prescribed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) and the control group prescribed phenelzine, a MAOI antidepressant. The formula was modified depending on individual diagnosis: for phlegm accumulation, trichosanthis peel (*gua lou pi*), arisaema rhizome (*dan nan xing*) and acorus (*shi chang pu*); heart and spleen deficiency, biota seed (*bai zi ren*) and poria spirit (*fu shen*); liver qi stagnation, white peony root (*bai shao*) and cyperus (*xiang fu*); and yin deficiency with deficient heat, tree peony root bark (*mu dan pi*), rehmannia root (*sheng di huang*) and white peony root (*bai shao*). The treatment course was 60 days. The results showed 15 people in the treatment group had significant or complete reductions of signs and symptoms versus 12 people in the control group. 12 people from the treatment group had some reduction of signs and symptoms versus eight people in the control. Three people in the treatment group had no effect versus 10 in the control. There was a 90% effectiveness rate for the treatment group versus a 67% effectiveness rate for the control group.<sup>xix</sup>

*Epilepsy*—Epilepsy is a chronic neurological disorder characterized by recurrent seizures. A study of 45 subjects with juvenile

epilepsy were treated with modified **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). Modifications included white peony root (*bai shao*), alai anemone rhizome (*jie chang pu*), pseudostellaria root (*tai zi shen*), Chinese salvia root (*dan shen*), and bombyx mori (*jiang can*). 35 cases showed significant improvement; 7 cases showed some improvement; 2 cases showed minor improvement; and 1 case had no effect—a total effectiveness rate of 93.6%.<sup>i</sup>

**Insomnia**—A clinical study was conducted on 100 subjects with insomnia. All subjects had an OM diagnosis of liver qi stagnation transforming into fire. In the treatment group, 50 subjects were given **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) while in the control group 50 subjects were given the sedative, estazolam. The treatment course was four weeks with subjects stopping all previous treatments one week prior to trial. The demographics included 59 males and 41 females. The average age was 54.5. Results showed the treatment group had 18 cases deemed cured; 15 cases with marked improvement; 14 cases with some improvement; and 3 cases with no effect—a total effectiveness rate of 94%. In comparison, the control group had a total effectiveness rate of 74%, with 7 cases deemed cured; 14 cases with marked improvement; 15 cases with some improvement; and 14 cases with no effect.<sup>ii</sup>

**Chronic Fatigue Syndrome**—**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be used to treat chronic fatigue syndrome, manifesting as extreme fatigue, whole-body muscle aches and pains, depression, fever, chills, poor appetite, with symptoms often worse upon exertion. A study of 36 subjects with chronic fatigue syndrome took **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*), plus isatis root (*ban lan gen*) and cinnamon twig (*gui zhi*), for 10 days per course for 1-4 courses. The study reported 26 subjects had a complete recovery and 10 subjects showed some improvement of signs and symptoms.<sup>iii</sup>

**Type II Diabetes**—To determine efficacy, a study used **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to treat type II diabetic mice. The results showed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to be effective at reducing blood glucose, improving oral glucose tolerance, and decreasing serum insulin levels. Total cholesterol and triglyceride levels were not impacted, but showed reduced LDL levels and increased HDL levels. The results showed the formula's ability to increase the regulating mechanisms of PPAR-gamma agonists (PPAR- $\gamma$ ) and glucose transporter 4 (Glut-4) levels, which help to lower blood glucose levels.<sup>iiii</sup>

**Vernal conjunctivitis**—60 cases of vernal conjunctivitis were treated with **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*). This type of conjunctivitis is generally chronic. It is often due to an allergic reaction and is commonly seen in the spring and summer. For comparison, a control group of 56 cases was administered indomethacin. The results showed that the treatment group had reduced swelling, pain, and itching, with a total efficacy rate of 91.4%. The control group had a total efficacy rate of 78.1%. Additionally, the treatment group had a lower recurrence rate (10.9%). The control group had a recurrence rate of 29.5%.<sup>lv</sup>

**Cancer**—The use of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) in clinical trials has demonstrated anti-tumor mechanisms, namely, direct inhibitory effect by inducing apoptosis and regulating immune function. An in-vitro study was conducted using peripheral blood mononuclear cells adding **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to the cultures. Dose-dependent increases in the levels of tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) were

observed in the cultures. TNF- $\alpha$  is believed to have anti-tumor effects, induce cell apoptosis, and have an important role in the regulation of immune and inflammatory responses, specifically interleukin-1 (IL-1), in the defense mechanism of the body.<sup>lv</sup>

Another in-vitro study showed that the addition of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) to cell cultures increased tumor necrosis factor (TNF- $\alpha$ ) and granulocyte colony stimulating factor (G-CSF) in hepatocellular carcinoma accompanied by liver cirrhosis. G-CSF is regarded as an immune-stimulant due to its role in granulocyte and myeloid hematopoiesis (the process of creating new blood cells).<sup>lvi</sup>

An in-vitro study showed significant growth inhibition of ovarian cancer cell lines. The mechanisms of the inhibitory effects can be attributed, in part, to apoptosis induced by **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*).<sup>lvii</sup>

A clinical study showed **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) combined with a modern chemotherapy protocol was more effective than chemotherapy alone for breast cancer. The average remission time was longer for the combined treatment group versus the chemotherapy (control) group. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) also reduced the side effects from chemotherapy, such as nausea and vomiting. The incidence of neutropenia was lower in the treatment group versus the control group.<sup>lviii</sup>

In another study **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) was used as an adjuvant to chemotherapy for advanced breast cancer. Subjects were divided into two groups: the treatment group, administering chemotherapy plus **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*), and the control group administering chemotherapy alone. The results showed that CEA, CA125, CA153 tumor markers and VEGFA, VEGFB angiogenesis levels were significantly lower in the treatment group than the control group. The sFlt-1 (inhibitory marker used to determine tumor growth in blood vessels) levels were significantly higher in the treatment group compared to the control group. Additionally, the number of cases of adverse reactions was significantly lower in the treatment group.<sup>lix</sup>

A study using **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) on H22 liver cancer cells in mice was conducted to observe the formula's ability to inhibit cell proliferation and improve immune function. Five groups of 5 mice each were created. The first three groups were treated with low, moderate, and high doses of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) respectively; the fourth group was treated with Fluoroucil (5-FU), an anti-cancer drug, and the fifth group was not treated. The results are as follows: Weight analysis showed the **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) groups maintained normal weight while 5-FU decreased weight significantly. 5-FU anti-tumor inhibition rate was higher than that of the other groups, while moderate and high dose of **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) had a higher inhibition rate than that of the low dose. The high dose **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) had lower serum tumor markers than that of the 5-FU group and low dose group. The moderate and high dose **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) groups had significantly higher levels of NK cell activity, IL-2, and INF- $\gamma$ , in comparison to 5-FU and low dose groups, showing **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) has a better ability to modulate immune function.<sup>lx</sup>

## FORMULA COMPARISONS

### Major Bupleurum Formula and Minor Bupleurum Formula

Both formulas harmonize and release *shaoyang*, and can be used for similar signs and symptoms, like alternating chills and fever, fullness in the chest and hypochondria, bitter taste in the mouth, irritability. Major Bupleurum Formula (*Da Chai Hu Tang*) also drains internal clumping due to heat and will have the additional signs and symptoms of hard focal distention, fullness and pain in the epigastrium, burning diarrhea or no bowel movements, and continual vomiting. The pulse will be more forceful than for **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*).

### Minor Bupleurum Formula, Bupleurum and Tang Kuei Formula and Free and Easy Wanderer Plus Formula

These formulas can be used to address similar signs and symptoms, tongue, and pulse. Choosing between them can be defined as follows: **Bupleurum and Tang Kuei Formula** (*Xiao Yao San*) or **Free and Easy Wanderer Plus Formula** (*Jia Wei Xiao Yao San*) are best used when addressing complaints with psycho-emotional symptoms. The emotional symptoms should be primary; however they can be accompanied with less pronounced physical symptoms. For instance, if the main reason for treatment

is depression or emotional instability, with hypochondriac pain and chest tightness, either of these formulas will be suitable.

Conversely, **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) is most appropriate if the presentation of symptoms appear as more physical in nature, with emotional symptoms secondary. An example of this would be if hypochondriac pain is the primary reason for treatment while being accompanied by other symptoms like depression and mood swings secondarily.

### Capillaris Formula and Minor Bupleurum Formula

**Capillaris Formula** (*Yin Chen Hao Fang*) was designed to address Hepatitis C, specifically elevated liver enzymes. **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) has had extensive modern research for the treatment of Hepatitis C. Differentiation is key when deciding between these two formulas. If the patient is presenting with liver qi stagnation with spleen qi deficiency, then **Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) will be more effective. If the patient is presenting with damp-heat or heat-toxin symptoms in addition to qi stagnation, **Capillaris Formula** (*Yin Chen Hao Fang*) is the more suitable formula. **Capillaris Formula** (*Yin Chen Hao Fang*) can also be beneficial to address a blood stagnation pattern as a component to the previous pattern presentations.

## USEFUL COMBINATIONS

**Minor Bupleurum Formula** (*Xiao Chai Hu Tang*) can be easily modified depending on the presentation and conditions being treated.

For asthma	Combine with <b>Pinellia &amp; Magnolia Bark Formula</b>
For chronic gastritis	Combine with <b>Poria &amp; Bamboo Formula</b> , <i>Zou Jin Wan</i> , <i>Xuan Fu Dai Zhe Tang</i> or <i>Ban Xia Xie Xin Tang</i>
For cholecystitis	Combine with <i>San Ren Tang</i>
For chronic fatigue syndrome	Combine with <b>Jade Windscreen Formula</b> or <b>Ginseng &amp; Astragalus Formula</b>
For chronic sinusitis	Combine with <b>Xanthium Nasal Formula</b>
For constipation	Combine with <b>Persica &amp; Cistanches Formula</b> or <i>Ma Zi Ren Wan</i>
For cough	Combine with <i>Zhi Sou San</i> or <b>Pinellia &amp; Magnolia Bark Formula</b>
For cystitis	Combine with <i>Ba Zheng Tang</i>
For deafness, sudden	Combine with <i>Bu Yang Huan Wu Tang</i>
For depression	Combine with <b>Poria &amp; Bamboo Formula</b>
For emotional disorders	Combine with <b>Poria &amp; Bamboo Formula</b> or <b>Citrus &amp; Pinellia Formula</b>
For epilepsy	Combine with <b>Poria &amp; Bamboo Formula</b> or <i>Gui Zhi Jia Shao Yao Tang</i>
For fatty liver	Combine with <b>Peony &amp; Atractylodes Formula</b>
For food stagnation	Combine with <b>Resolve the Middle Formula</b>
For gallbladder stones	Combine with <i>Xiao Cheng Qi Tang</i> or <b>Lysimachia GB Formula</b>
For GERD	Combine with <b>Resolve the Middle Formula</b>
For globus	Combine with <b>Pinellia and Magnolia Bark Formula</b>
For supporting hematopoiesis	Combine with <b>Tang Kuei &amp; Salvia Formula</b>
For hepatitis A	Combine with <b>Capillaris Formula</b>
For hyperthyroidism	Combine with <b>Zizyphus Formula</b>
For migraine	Combine with <b>Chong Release Formula</b>
For morning sickness	Combine with <b>Pinellia &amp; Magnolia Bark Formula</b>
For upper respiratory tract infections	Combine with <b>Coptis Relieve Toxicity Formula</b> , <b>Viola Clear Fire Formula</b> , or <b>Yin Chiao Formula</b>
For urinary tract infections	Combine with <b>Polyporus &amp; Dianthus Formula</b>
For yang jaundice	Combine with <i>Yin Chen Hao Tang</i>

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