Lonicera (Lonicera japonica) and forsythia (Forsythia suspensa) are the most commonly-used herbs that are classified among those that clear heat and clean toxin. The two herbs are frequently combined together in formulas, especially for formulas that call for light and fluffy medicinals that are said to float to the upper warmer and treat the surface. Reasons for the extensive use of these antitoxin herbs are:

1. Their lack of toxicity. The use of lonicera and forsythia in normal doses (e.g., about 9–15 grams of each in decoction) is associated with no toxicity;

2. Their gentleness on the digestive system. Lonicera is classified as having a sweet taste and no bitterness, a quality associated with benefits to the spleen/stomach system; forsythia is a bitter tasting herb that is, nonetheless, used in formulas for improving digestion, such as the well-known Baohe Wan; it only becomes potentially problematic for digestion at the higher dosage range; and

3. Their inclusion in formulas that became famous for effectiveness in treating the early stage of heat syndromes (warm diseases; wenbing). One of the most popular anti-toxin formulas in China is Yin Qiao Jiedu Pian (literally: tablet based on lonicera and forsythia for clearing toxins; originally called Yin Qiao San; powder based on lonicera and forsythia), first recorded in a Chinese medical text more than 200 years ago. Treating a heat syndrome in the first stage, when it affects the upper body (mainly the respiratory system), can prevent a more serious disease from developing and the therapy has a good chance of effectiveness because the disease has not yet caused any damage to the internal organs.

There are yet other reasons for the popularity of these herbs, including the fact that they are easy to cultivate and inexpensive, but lack of toxicity remains the dominant one.

EARLY HISTORY OF THE HERBS

Lonicera was first recorded in the Mingyi Bielu (ca. 500 A.D.), Tao Hongjing’s revision of the Shen-nong Bencao Jing (ca. 100 A.D.), to which he added about 360 herbs, thus doubling the original number (1). He grouped the herbs into upper, middle, and lower classes. Lonicera was rated with the upper class herbs and was known as rendong (meaning, to endure winter, because the plant retains its leaves through the winter and doesn’t wither). It was later named jinyinhua (meaning: the flower that can be silver and gold; the flowers change color over the growing season and both colors coexist for a while); this name was first listed in the Bencao Gangmu (published 1596 by Li Shizhen). The flower is the part that is used.

Forsythia was first recorded in the Shennong Bencao Jing, and Tao Hongjing put it into the lower class of herbs. It was described this way (2): Bitter and balanced; it mainly treats cold and heat disorders; mouse fistulas; scrofulas; welling abscesses and swellings, malign sores, goiters, and tumors; bound heat; and gu poison (this is a disorder that appears to correspond to some cases of intestinal parasites). Inclusion with the lower class of herbs reflects the fact that it treated serious diseases (mainly various kinds of swellings) quickly, rather than indicating anything inferior about forsythia or the others in that class. Forsythia went by many different names in ancient times. The name that has persisted to the present is lianqiao, referring to the fact that the fruit (the
part used) resembles the cupule of the lotus (lian is the name of the lotus) and that the plant stands out over others (qiao means to lift up; the branches rise upward and then droop with the flowers and fruits).

**USE IN TRADITIONAL FORMULAS**

If one examines traditional herb formulas that have come to us in modern records, there are not many to be found with either lonicera or forsythia from before the latter part of the Ming Dynasty (1368–1644). Their use, starting at that relatively late period, is primarily associated with the rise of the “Warm Diseases” school (the term warm diseases refers mainly to infections), which got its start at the end of the 16th Century and became a major force in the development of Chinese medicine during the Qing Dynasty (1644–1910). Still, there are a few ancient prescriptions worthy of mention that include lonicera and/or forsythia.

The Shanghan Lun, the most commonly referenced formula book of ancient times, did not include forsythia fruit, but it did provide brief reference to forsythia root, called lianyao (3). This material was incorporated in the Ma-huang, Forsythia, and Phaseolus Combination (Mahuang Lianqiao Chixiaodou Tang) used to treat a damp-heat syndrome with jaundice. Today, the formula is still used, mainly for damp-heat skin disorders, such as eczema and allergic pruritis, but forsythia fruit is the ingredient included. The Taiping Huimin Heji-ju Fang of the Song Dynasty (1110 A.D.) included a few formulas with forsythia. The ones that are still in use are Forsythia and Rhubarb Combination (Liangge San; Diaphragm Cooling Powder), which is mainly given for treatment of oral ulcerations, sore throat, and fever, and Ginseng and Scute Formula (Renshen Xiefei San; Lung Cleansing Powder with Ginseng), prescribed for lung-heat syndromes (cough with colored phlegm).

With the introduction of the warm diseases concept, forsythia and lonicera became widely recommended and frequently combined together. Gong Tingxian (1522–1619) designed several formulas by combining small ancient prescriptions with the heat cleansing herbs that were becoming the focus of modern therapies. Among his formulas with forsythia are Gardenia and Vitex Combination (Xigan Mingmu Tang) for inflammation of the eyes; Schizonepeta and Forsythia Combination (Jingjie Lianqiao Tang) for supplicative diseases of the nose, ears, and throat; and Gardenia and Mentha Combination (Qingliang Yin) for lung and throat infections and skin eruptions. His formula Gl emissions Combination (Tuoli Xiaodu Yin) for treating boils and lymph swellings, included lonicera but not forsythia.

A contemporary of Gong’s, Wang Kentang, described Arctium Combination (Qingyan Lige Tang), a formula for sore throat, which contains lonicera and forsythia in his book Zhengzhi Zhunsheng (1602). Another contemporary of Gong’s, Xu Wian, presented Cimicifuga and Peucedanum Combination (Xuandu Fabiao Tang) with forsythia, in his book on treating pox and measles, Douzhen Renduan. For the treatment of mumps, Wang An presented the Scute and Cimicifuga Combination (Puji Xiaodu Yin) in his book Yifang Jijie; that formula includes both lonicera and forsythia. Cimicifuga, classified with the surface-relieving herbs, is often used in antitoxin formulas for disorders in the throat and head; it is considered a directing herb to this part of the body.

The principal characteristic of warm diseases is described in the recent book Warm Diseases: A Clinical Guide by Liu Guohui (4):

The onset of the disease is acute. Clinically, unlike the patient who suffers from a disease caused by internal disharmony, most people attacked by a warm-heat pathogen who develop a warm disease can tell precisely when they began to feel sick. Even the onset of an illness due to externally-contracted wind-cold generally occurs over a longer period—hours versus minutes—than do most diseases caused by warm-heat pathogens.

There are often remarkable heat symptoms at the very beginning of the disease, such as high fever, thirst, irritability, restlessness, concentrated dark urine, red tongue, and rapid pulse. Fever is the principal manifestation. Here, fever does not simply mean the subjective feeling of warmth or feverishness that often accompanies an internal disharmony, and which cannot be measured by a thermometer. Rather, in addition to the subjective sensation, there is almost always a measurable increase in temperature.

A major contributor to the Warm Diseases school, and a main proponent of the use of lonicera and forsythia, was Wu Tang (1758–1836) who wrote the Wenbing Tiaobian (Detailed Analysis of Warm Diseases, 1798). This text included Yin Qiao San and another formula that
remains popular today, Sang Ju Yin (Morus and Chrysanthemum Combination), which includes forsythia. Wu Tang described treatment of warm diseases according to which burner of the triple burner system was involved. He said (4):

*Use herbs that are as light as the feathers of a bird for disease in the upper burner. Use herbs to lift the spleen qi and cause the stomach qi to descend in the middle burner, just like calibrating a scale that should always be in balance. Use heavy and cloying herbs to treat yin deficiency for the liver and kidney in the lower burner, like adding a heavy weight to a scale to tip the balance.*

...The warm-heat pathogen attacks the body through the nose and mouth. The lung opens to the nose and the stomach to the mouth. Disease in the lung can progress to the pericardium. If untreated or treated improperly in the upper burner, the disease will progress to the middle burner. If untreated or treated improperly in the middle burner, the disease will progress to the lower burner. The progression of the disease is to begin in the upper burner and end in the lower burner.

Based on this view, it is no surprise that Wu emphasized treating warm diseases while they resided in the upper burner to cut off their development. He mainly relied on light, “floating” herbs, such as lonicera and chrysanthemum flowers, the porous stem of phragmites, the leafy mentha, schizonepeta, morus leaves, and lophatherum (bamboo leaves), and the light-weight fruits and seeds like forsythia and apricot kernel. Chinese herbalists understood that these types of herbs tended to affect the upper body (liang, a term that appears in several of the aforementioned formula names). The term ge in the title of the heat clearing formulas Liangge San and Qingyan Lige Tang refers to a thin separating membrane, usually referring to the diaphragm. The diaphragm separates the upper and middle burners; these formulas treat heat syndromes that are affecting both burners (5), but Liangge San, specifically aims its treatment at the upper (liang) burner.

Aside from describing warm diseases in terms of the three burners, a system of four levels of penetration of the heat pathogen had already been developed by Ye Tianshi (ca. 1650–1745). These four levels, from the most superficial to the deepest, are: wei, qi, ying, and blood. In the wei stage, the disease can be treated by the sweating method, incorporating herbs that clear heat and cool the surface (similar to formulas for wind-heat syndrome); in the qi stage, it becomes necessary to use fire purging herbs (e.g., gypsum, gardenia). Entering the ying phase, the yin and blood become dried (and the person experiences thirst), so it becomes necessary to support these fluids (using yin nourishing and moisturizing herbs such as raw rehmannia, ophiopogon, and trichosanthes root). In the blood phase, the blood becomes hot and agitated, the spirit is disturbed (as may also occur in the ying phase) and the blood may escape the vessels; herbs that cool the blood, such as rhino horn (or ox horn, the modern substitute), raw rehmannia, and moutan, are used. Lonicera and forsythia are combined together with surface-relieving herbs to treat the wei stage; lonicera has a small fragrant component that supports the surface relieving action of other herbs (e.g., mentha) and both herbs usually contribute the main part of the heat-clearing function in the surface relieving formulas. Lonicera is considered valuable also for treating the blood stage of disease, helping to clear heat from the blood. Along these lines, a contemporary of Ye’s, Gu Shizheng, presented Rehmannia and Lonicera Formula (Baidu San) in his book on skin disorders, Yangyi Daquan. The formula includes lonicera as a key herb along with the blood cooling
trio of raw rehmannia, scrophularia, and moutan. Skin swelling is treated by herbs that resolve swellings, such as forsythia, platycodon, arctium, and trichosanthes root. Like the diaphragm-cleansing formulas, this prescription also treats heat in the upper burner and middle burners.

Forsythia is said to alleviate heat in the heart and is considered valuable in treating the ying phase of a febrile disease. It is included, along with lonicera, in a formula designated for cleansing heat from the ying. Qingying Tang (Rhino horn and Scrophularia Combination), by Wu Tang. The formula includes the fluid replenishing and heat clearing herbs raw rehmannia, scrophularia, and ophiopogon.

Smith and Stuart, writing at the turn of the 20th Century (6), noted that lonicera is “used in the treatment of all sorts of infections and poisons;” forsythia was reported to be “antiphlogistic, antiscrofulous, laxative, diuretic, and emenagogue. During the 20th Century, in addition to the reliance on several ancient formulas with lonicera, forsythia, or both, doctors continued to develop formulas with these herbs for treatment of infections (see next section), dozens of which appear in the modern medical journals.

In their modern book, A Clinical Guide to Chinese Herbs and Formulas (11), Chien and Li note that both lonicera and forsythia “clear heat and poison and are thus indicated for all fire poison patterns, including febrile diseases, boils, carbuncles, and ulcers.” As to their differences: “Lonicera also clears summer heat and treats dysentery with bleeding due to fire poison; forsythia clears heart fire and disperses masses; it is thus indicated for febrile diseases at the ying level and heat in the heart...it is especially useful for skin diseases.”

Chien and Li mention the use of both the herbs for all fire poison patterns. The concept of fire poison, from both traditional and modern perspective, is addressed by Yang Yifang in his book Chinese Herbal Medicines: Comparisons and Characteristics (12), with specific reference to lonicera and forsythia: Fire-poison syndrome is characterized by localized redness, swelling, sensations of warmth, or burning and pain. High fever and general pain may also be present. This syndrome appears in acute inflammations, such as carbuncles, furuncles, and abscesses. In the Yellow Emperor’s Classic of Internal Medicine [Neijing Suwen] it is written: ‘Most of the sores that are painful, itchy, and swollen are due to fire. In general practice, this syndrome is related to fire of the heart, liver, and stomach. The heart is a fire organ and also easily receives fire from the liver, its mother organ. This fire can be so strong that it may generate fire-poison. The stomach is a bright yang [yangming] organ and is responsible for receiving, ripening, and transporting food. All these activities increase or produce heat and can easily cause fire-poison syndrome in pathogenic conditions. Lonicera enters the heart, liver, and stomach meridians and is sweet and cold. It is a strong herb for clearing heat in these organs and meridians. Its sweet and cold properties may generate body fluids to prevent the consumption of yin from internal heat. As lonicera is collected at the time that the flowers are still in bud in the early summer, this herb has a light fragrant smell and dispersing and ascending actions. It may slightly disperse and lift fire, especially constrained fire, so this facilitates the main action of clearing fire and directing it to descend.

Fresh lonicera can be used topically, smashed and placed on the painful and swollen places. It can directly reduce swelling and pain, and accelerate the recovery process. Because lonicera has such characteristics, it is an appropriate herb for treating fire-poison syndrome, and is thus praised as the ‘sublime herb to treat fire-poison.’

Forsythia is less cold than lonicera but it has a bitter taste. It enters the heart and small intestine meridians. Bitterness may bring down fire from the heart and cold may clear heat. It possesses strong dispersing and ascending properties and is especially effective in dispersing heat in the heart and relieving restlessness and sensations of warmth in the chest. Meanwhile, it is able to dissipate clumps and nodules caused by constraint of heat, accumulation of food and phlegm, and stagnation of blood. Its dispersing and dissipating actions are stronger than those of lonicera. In addition, as it enters the small intestine meridian, it can also clear heat there to treat painful urinary dysfunction [i.e., because heat of the small intestine is transferred to the bladder by virtue of their meridian association].

As lonicera and forsythia have similar properties and actions, they are often used together in the treatment of fire-poison syndrome in order to strengthen the effect. In describing the herbs in relation to treating fire-poison, Yang mentions “constrained fire.” This is a
condition attributed to the liver and associated with its ability to retain fire within the organ rather than dispersing it; this pattern is part of the syndrome of liver qi stagnation. Liver qi stagnation also leads to formations of clumps and nodules. Lonicera is said to “slightly disperse” fire, and forsythia is said to have “dispersing and dissipating actions stronger than those of lonicera.” One of the commonly used methods for dispersing fire stagnated in the liver is to administer bupleurum (chaihu), an herb that is cold, bitter, and acrid, and which dredges stagnated liver qi and resolves heat stagnation at the surface.

Philippe Sionneau, in his book Dui Yao (7), summarized the 20th Century traditional Chinese medical view of lonicera and forsythia: both are “light, clearing, floating, diffusing, and dissipating; when they are combined together, they strongly and effectively clear heat and resolve toxins.” Their indications when combined together are:

1. wind-heat ailments including: colds and influenza, headache, eye pain, toothache, sinusitis, and painful, swollen throat, and skin eruptions;
2. warm diseases with internal heat; and
3. skin inflammation due to heat toxins.

Sionneau notes that forsythia may be subdivided into three types: immature fruit that is superior at clearing heat and cleansing toxins, to be used for fever and erysipelas; mature fruit that is superior for dispersing abscesses and swellings, and for scattering nodulations; and the seed inside the fruit, referred to has lianqiaoxin, which clears heat toxins that have invaded the pericardium, causing vexation and agitation, irritability, insomnia, and mental confusion. The material supplied in the market place is the mature fruit. Thus, forsythia is especially known for its ability to resolve swellings.

MODERN ANALYSIS

Lonicera is often derived from Lonicera japonicum (i.e., the Japanese honeysuckle), but also from several other species of Lonicera including L. hypoglauca, L. confusa, and L. dasycarpa.

The active constituents of lonicera have been analyzed and are found to include: iridoid glycosides; organic acids (quinic acid and caffeic acid and their derivatives); triterpene glycosides (saponins); flavonoids; and essential oil comprised mainly of monoterpenes and sesquiterpenes (the major essential oil constituents have been found to be linalool, geraniol, aromadendrene and eugenol). Laboratory investigations of lonicera have mainly focused on demonstrating anti-inflammatory actions. In vitro and animal studies indicate antibacterial and antiviral (mainly anti-influenza) activities of the herb. Forsythia is mainly derived from Forsythia suspensa. The active constituents include: triterpene glycosides (saponins); phenolic glycosides; quinoid glycosides; and lignans (mainly pinoresinol). In common with the situation for lonicera, laboratory studies have focused on anti-inflammatory, antibacterial, and antiviral (mainly anti-influenza) activities of the herb.
The lignans in forsythia include several shared by arctium, which has similar uses in treating swellings (8).

Since the herbs are used today mainly for infectious disorders, any antibacterial and antiviral effects that occur in sufficient strength when applied clinically can contribute to cure of the disease, and any anti-inflammatory action might reduce some of the disease symptoms. Anti-inflammatory effects of other herbs containing the terpenes similar to those found in lonicera and forsythia have been widely reported.

MODERN APPLICATIONS OF ANTITOXIN HERBS

As described by Liu Guohui (4), warm diseases have a rapid onset with several symptoms including fever. Such diseases are understood today to be due to infections. In the book Traditional Chinese Treatment for Infectious Diseases (9), several formulas are presented. In those formulas lonicera and forsythia are consistently combined with some other herbs.

ISATIS

The most common is Isatis, either the leaf (daqingye) or root (banlangen) or the combination of the leaf and root are used. Isatis is thought to have very broad anti-infection properties, which partly explains its repeated use in these formulas. It contains the dye indigo (a crude form is used as the Chinese medicinal substance qingdai), which has been used worldwide as an antimicrobial medicine.

The other herb appearing in most of the formulas is scute. In modern Materia Medica guides, this herb is classified with those that clear heat and dry dampness. However, its inclusion here may be the result of its valuable anti-inflammatory actions, now known to be the effect of its flavonoids, particularly baicalin. In a study of herbs that counteract bacterial endotoxin (the bacterial metabolite that is responsible for many of the serious symptoms of bacterial infections), it was shown that three herbs were particularly effective: forsythia, scute, and lonicera (in that order of effectiveness). Other herbs reported to be effective against bacterial endotoxin include isatis root and leaf, rhubarb, taraxicum (dandelion), patrinia, viola, and andrographis (10). In laboratory animal testing for the effects of the herbs on endotoxin, it was shown that lonicera—and complex prescriptions that include it—were protective in cases of Pseudomonas aeruginosa, an organism responsible for serious disease in immune-compromised patients.

Most of the other herbs combined with lonicera and forsythia in the formulas described in the previous section are aimed at treating specific symptoms. Thus, for example, gypsum is used whenever there is high fever; platycodon is used when there is phlegm accumulation affecting the respiratory system or for skin eruptions. Mentha, morus leaf, chrysanthemum, pueraria, cicada, and other surface clearing herbs are used for treating common surface syndromes, such as headache, skin rash or eruption, and sore throat.

SCUTE
SAMPLES OF MODERN FORMULAS WITH LONICERA AND FORSYTHIA

Ilex 15 is a Seven Forests formula which is based on two famous Chinese patent medicines. One of them is Yin Qiao San, with lonicera, forsythia and phragmites as main ingredients, well known for its effectiveness in treating influenza. The other is Gan Mao Ling, with il-ex, isatis, and chrysanthemum, and proven popular for the treatment of common cold and influenza.

**ILEX 15**

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**GENERAL ACTIVITIES**

clear heat and toxin, dispel wind

**SAMPLE INDICATIONS**
influenza, common cold, skin eruptions, sore throat

Yin Qiao San and Gan Mao Ling are different prescriptions which have similar applications. Selecting from these two formulas, the Seven Forests formula Ilex 15 has been produced. Its features are:

1) A strong wind-dispelling section, composed of mentha, chrysanthemum, schizonepeta, siler, and chi-ang-huo which is helpful in treating early stage of acute ailments, for relieving headache and aching muscles, and for preventing skin eruptions and eye irritations.

2) A strong antiviral and anti-inflammatory section, composed of il-ex, lonicera, forsythia, isatis, ardisia root, and phragmites to inhibit the virus as well as to prevent secondary bacterial infections or sore throat.

3) Herbs to settle the stomach, benefit digestion, and counter the weakening effects of strong wind-dispelling and fire purging therapies; ginger, evodia, and licorice.

The formula can be taken in large dosage (e.g. 5 tablets each time), three or four times per day for up to three days (additional use should not be necessary after that). By combining with other prescriptions, one can address specific manifestations of influenza or other wind-heat ailments.

**LONICERA 13**

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**GENERAL ACTIVITIES**
clear heat, remove toxin, dispel wind

**SAMPLE INDICATIONS**
eczema, contact dermatitis, urinarytractinfection,herpeszoster

Lonicera 13 and Forsythia 18 are two Seven Forests formulas which are used for the treatment of skin problems.

Lonicera 13 relies on the use of lonicera, forsythia and scute, and treats accumulation of fire toxin causing damp heat to become lodged in the surface. Sample indications for use are eczema, contact dermatitis and herpes zoster.

Forsythia 18 is more suited for acute eczema (e.g., contact dermatitis, or early stage of eczema flare-up) or skin eruptions. The formula has also a strong approach to bacterial infections.

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