

## Andrographis Paniculata (Chuan Xin Lian)

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Andrographis Paniculata, also known as Chuan Xin Lian in China, is a very common herb in [Traditional Chinese Medicine \(TCM\)](#), thanks to its extraordinary curative effects of heat-clearing, detoxifying, antiseptis, and anti-inflammation. Besides the medical applications, this herb is edible too and lately becomes one of essential delicacies, especially in Guangdong province.



### What is andrographis paniculata?

Also known as green chiretta, from the perspective of TCM it refers to the whole plant or leaf of *Andrographis paniculata* (Burm.f.) Nees. In China, this herb mainly grows in Guangdong, Fujian, and other provinces.

*Andrographis* herb is an annual plant, 50 to 100cm high. The whole herb is intensely bitter. Stems is erect, branched, rectangular, and with slightly enlarged knobs. Leaves are opposite, from ovate-oblong to oblong-lanceolate, 2 to 11cm in length, 0.5 to 2.5cm in width, with apex acuminate, cuneate base, entire or shallowly undulate leaf margins, dark green above, gray-green below, and with 3 to 4 pairs of lateral veins. Petiole is short or sessile. Panicles are terminal or axillary. Capsule is oblong, about 1.5cm long, flattened on both sides, with a central longitudinal groove. The flowering stage is from August to September, and mature fruiting phase is in October. It mainly grows in hot and humid plains and hilly areas.

### Chemical composition of andrographis

Since it is the dried aerial parts that are mainly used for medical purpose, it makes sense to analyze their chemical composition here. And the aerial parts contain diterpenoid, including 3, 14-di-deoxyandro-grapholide, 14-deoxyandrographoside (14-deoxyandrographolide-19- $\beta$ -D-glucoside, andropanoside), andrographiside (andrographolide-19- $\beta$ -D-gluco-side), andrographolide, neoandrographolide, 14-deoxy-11,12-didehydroandrographolide, and 14-dioxyandrographolide.

### Andrographis benefits

As mentioned at the start of this article, andrographis is rich in nutrition and has fabulous medical values. Here are the main health benefits it possesses.

### Pharmacology

#### Antibacterial effect

Compared to chloramphenicol and furazolidone, the neoandrographolide contained has a better clinical efficacy against the bacillary dysentery. What's more, this herb has no side effects and toxicity. The tests performed in vitro showed that both andrographis decoction and the isolated crude crystals can inhibit or kill some types of the leptospira, and inhibit pneumococcus, streptococcus, and catarrhalis to some degree.

#### Antiviral effect

The decoction of *Andrographis paniculata* has a delay effect on the degeneration of human embryonic kidney cells, which is caused by orphan virus of ECHO11.

#### Other effects

Its decoction and water extract (alcohol-added decoction with precipitates removed) have no obvious effect on rabbit hearts in vitro. And

significant vasorelaxant effect showed after the isolated rat hind legs were perfused with water extract. No significant effect on blood pressure showed after the intravenous injection on anesthetized dogs with 0.1 g crude drug / kg of the above-mentioned preparations. Both of them have no significant effect on isolated guinea pig ileum and rat uterus. In addition, the decoction but water extract inhibits the isolated rabbit duodenum.

### Andrographis related Chinese herbal formulas

TCM believes that andrographis is bitter and cold in properties. And it covers four different meridians, such as heart, lung, large intestine, and urinary bladder. Its main functions are heat-clearing and detoxifying, cooling blood, and reducing swelling. Its main indications and uses are wind-heat type cold and flu, fever in febrile disease, cough caused by lung heat, pertussis, pulmonary abscess, swollen [sore throat](#), [yeast infection](#), jaundice with damp-heat pathogen, stranguria, erysipelas, sore and ulcer, [eczema](#), [lyme disease](#), [candida](#), strep, [sinus infection](#), [shingles](#), [acne](#), snakebite, and so on. Usual dosage is from 9 to 15 grams, in decoction normally. Sometimes the dose can be up to 30 to 60 grams according the diagnosis. And 0.6 to 3 grams should be used in the form of powder, loaded into capsules preferably.

It is for a good reason to name this herb as Chuan Xin Lian in China. As you can see, bitter is always considered as one of the most sensitive tastes, which by many, if not all, regard as uncomfortable, intense, or annoying. Similarly, in the theory of Five Elements in Chinese medicine, bitter is perceived as a negative taste and associated with the heart. And as long as you chew a small piece of Andrographis leaves, you can immediately feel that kind of unforgettable bitterness, just like penetrating straight into your heart. For this reason, it is named "Chuan Xin Lian", namely "through the heart lotus" if translated word for word.

1. Treat bacillary dysentery, amoebic dysentery, and enteritis with 10 to 15 fresh Andrographis leaves, decocted and mixed with honey just before serving. By Fu Jian Zhong Cao Yao ("Fujian [Chinese Herbal Medicine](#)");
2. Treat acute dysentery and gastroenteritis with 7 to 13 grams of Andrographis, in decoction, twice a day, taken as a single dose in the morning and evening. By Jiang Xi Cao Yao Shou Ce ("Jiangxi Handbook of Commonly Used Traditional [Chinese Herbs](#)");
3. Treat cold, fever, [headache](#), and heat [diarrhea](#) with 1.5 grams of Andrographis powder, three times a day, taken with clear [soup](#). By Quan Zhou Ben Cao ("Quanzhou Materai Medica");
4. Treat influenza and pneumonia with 3 grams of Andrographis powder, three or four times a day. By Fujian Chinese Herbal Medicine;
5. Treat [bronchitis](#) and pneumonia with 15 grams of Andrographis leaves, in decoction. By Jiangxi Chinese Herbal Medicine.

In terms of Chinese patent drug, there are many options too, such as Chuan Xin Lian Wan, Chuan Xin Lian Kang Yan Pian, Chuan Xin Lian Pian, Chuan Xin Lian Jie Du Wan, Chuan Xin Lian Antiphlogistic Tablets, Chuan Xin Lian Keli, and more.

### Potential andrographis side effects and contraindications

Andrographis paniculata has very low toxicity. After taking orally crude crystals 10g/kg, mice reduced activity, often closed their eyes, and looked as if they were asleep. After the anatomy, the organs looked normal with the naked eye, including heart, kidney, liver, spleen, and others. After daily fed orally with 0.5g/kg for 10 straight days, nothing unusual found on mice's growth, appetite, bowel movement, mental status, red cell count, hemoglobin and leukocyte count, and so on.

TCM wise, care should be taken in the case of lack of vital energy and deficiency-cold in spleen and stomach. And adverse reactions do occur when taking a variety of large dose of Andrographis and its oral preparations. The common symptoms include gastrointestinal discomfort and loss of appetite. It has been reported that Chuan Xin Lian pills and Andrographis injection can cause drug eruption, upper abdominal pain, anaphylactic shock, and even death in severe cases. So, clinically dosage should be [strictly controlled](#) and prompt symptomatic treatment should be given once adverse reactions occur.

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