

Jiaogulan



Health, Balance and Wellbeing
with the "Herb of Immortality"

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Introduction

When health is absent, wisdom cannot reveal itself, art cannot manifest, strength cannot fight, wealth becomes useless, and intelligence cannot be applied.

Herophilus

I don't know about you, but I've never met anyone who was both sick and happy.

Your greatest wealth is good health. It is fundamental for a happy and fulfilling life.

All the money and success in the world are meaningless if you don't have your health.

You need to be healthy to fully appreciate the truly important things in life; spending quality time with your family and friends, playing ball with your children on a Sunday afternoon, or going on a vacation to a foreign country.

If you are like most people, chances are you're overwhelmed and exhausted by the stress of the ever increasing pace and demands of everyday life.

Unfortunately, sooner or later the combination of stress, poor diet, lack of exercise and sleep, and chemical toxins in the environment will affect you and your health will decline.

Maybe you're already one of the many millions of people around the world who suffer from heart problems, high cholesterol, high blood pressure, cancer, diabetes, low immune function, low libido, impotence, chronic fatigue, depression, mental decline and other neurological diseases?

If so, you're probably taking expensive medications whose side effects are sometimes worse than the disease they're supposed to control.

Maybe you're worried that you'll be one of the 30 something percent of people who are expected to get cancer in their lifetime?

Would you be interested in a natural and easy way to restore and maintain your overall health and well-being, to look and feel younger, relieve stress, have more energy, stamina, sexual vigor and mental clarity?

What if you could gain these benefits while at the same time preventing most of the diseases that plague our modern society?

An ounce of prevention is worth a pound of cure.

Benjamin Franklin

Well, I have good news! A little known herb called Jiaogulan may just be your cup of healthy and delicious tea!

It can completely change life for you and your loved ones.

Keep reading to discover why many people say that if you had to pick just one supplement that would have the greatest overall impact on your health, you should choose Jiaogulan.

What is Jiaogulan?

Jiaogulan (*Gynostemma pentaphyllum*) is a climbing vine of the cucumber/gourd family native to certain parts of south and southeast Asia.

Although it grows in a number of Asian countries, the only early historical documentation of the herb comes from China.

Jiaogulan (pronounced “gee-ow-goo-lan”) was first documented at the beginning of the Ming Dynasty by Zhu Xiao, who described and sketched the herb in 1406 CE in the book *Materia Medica for Famine*. However, he did not recognize Jiaogulan as a medicinal plant, but only as a food and dietary supplement during times of food shortage or famine.

The earliest reference of using Jiaogulan as a medicine is found almost 2 centuries later, in 1578, in the classical book *Compendium of Materia Medica* by Li Shi-Zen. The renowned herbalist was able to identify some of Jiaogulan’s medicinal properties and stated that the plant could be used to treat tumors, trauma, edema and pain of the pharynx and neck, and hematuria.

Unfortunately, at the time Li Shi-Zen had mixed up Jiaogulan with an analogous herb called Wulianmei, and it wasn’t until 1848 that the two plants were clearly separated by Wu Qi-Jun in his book *Textual Investigation of Herbal Plants*, which also included additional information on Jiaogulan’s medicinal uses.

Although Jiaogulan had been used for hundreds of years as a folk herb and health tonic in the mountainous regions of southern China where it grows wild, it had remained virtually unknown in the rest of the country until the end of the 20th century. In addition, it was not included in the standard pharmacopoeia of Traditional Chinese Medicine (TCM), because the classical system had evolved in central China – far from the herb’s native south – and that meant that TCM practitioners remained unfamiliar with the plant until relatively recent times.

The people of southern China used Jiaogulan as an energizing tonic, drinking the tea before work to increase their strength and endurance, and after work to relieve fatigue and promote relaxation and good sleep. They recognized the herb as a rejuvenating and general health elixir and took it to treat common colds and other infectious diseases. It is also said that many of the inhabitants of villages in the Fanjing Mountain (Guizhou province) were living to 100 years of age as a result of drinking Jiaogulan tea daily instead of the traditional green tea. They called the herb “xiancao”, or “The Immortality Herb”, and described it as being “Like ginseng, but better than ginseng”.

In modern times, Jiaogulan was more or less independently discovered in the early 1970’s in

both Japan and China.

Discovery in Japan

In Japan, Jiaogulan is called Amachazuru, which translates as “sweet tea vine” due to a component in the leaves that give it a mildly sweet taste. In fact, it was precisely the herb’s sweetness that initially triggered research in Japan by Dr. Masahiro Nagai, presently a professor of Pharmacognosy at Hoshi Pharmaceutical University, who was trying to find alternative sweeteners to sugar in the late 60’s and early 70’s.

Upon analyzing the chemical compounds of Amachazuru in an effort to isolate the component responsible for its sweetness, Dr. Nagai made the first discovery in the scientific world of chemicals contained in Gynostemma that are identical to some of the compounds found in Panax ginseng – even if the two plants are completely unrelated to each other – and announced his findings in 1976 at the 23rd Meeting of the Japanese Society of Pharmacognosy in Hiroshima, Japan. This event turned out to mark the end of the investigation of the herb for its sweetness, and the beginning of research into its health properties.

During that same period, Dr. Tsunematsu Takemoto, a Japanese scientist and a herbal medicine research specialist, was looking into natural treatments for cancer and other stress-induced diseases, in addition to a sugar alternative. He had been concentrating his research on Momordica grosvenori, a melon fruit of the cucumber/gourd family that was known for both its sweetness and medicinal qualities. He became interested in this fruit because of its reputation as the “precious fruit of longevity” and its popularity in Chinese medicine.

One year after Dr. Nagai’s presentation, Dr. Takemoto and his team became aware of the research being done with Amachazuru, which is in the same family as the Momordica fruit he was studying. He became very interested in further examining Gynostemma because of the similarity of the herb’s compounds to those found in Panax ginseng and the fact that it was growing wild in the fields and mountains of Japan. Dr. Takemoto realized that he had possibly found, in a seemingly insignificant perennial weed, an inexpensive and readily available health panacea right in his home country.

Dr. Takemoto became very excited about this newly discovered herb and embarked on a mission to uncover its full potential. He found that Gynostemma contained four kinds of saponins, the major beneficial chemical compounds, exactly like those in Panax ginseng (as of 2015 scientists have identified 9 identical saponins) and seventeen other kinds of saponins very similar to those in Panax ginseng. Over the next ten years he and his research group identified and named 82 saponins from Gynostemma (as of 2015 scientists have identified at least 174 different saponins), whereas Panax ginseng has been found to contain only up to 28 saponins.

In 1984 Dr. Takemoto started conducting experiments that began to demonstrate Gynostemma’s many health-supporting and medicinal benefits. He saw that the herb

increased the activity, strength, and endurance of mice in an exhaustive swimming test, demonstrated Jiaogulan's effectiveness as a neoplasm or tumor inhibitor, and showed the herb's adaptogenic ability to prevent the negative side effects of dexamethasone in hormone treatment therapy.

Although these findings were significant, they marked only the beginning of the extensive research that would later take place on Gynostemma. Unfortunately, Dr. Takemoto, who had been the driving force behind Jiaogulan research for over a decade, passed away in 1989 and the energy to continue the research slowed down considerably in Japan for the time being.

Discovery in China

Interest in Jiaogulan by the Chinese government and researchers was intensifying, however, sparked by the promising scientific studies coming out of Japan, as well as the results of the first Chinese nationwide population census in 1970.¹ The data revealed an abnormally high percentage of people living to 100 years of age and extremely low incidence of cancer, senility and other serious diseases in certain villages of the Guizhou, Guangxi and Sichuan provinces^{2,3,4}.

Curious about the reason for these intriguing results, the Chinese government assembled a scientific team from the Chinese Academy of Medical Sciences to conduct an investigation. The researchers considered genetics, climate, diet and various other potential factors.

They eventually found out that the only common thread between the many centenarians was the consumption of a tea made from a wild vine that they praised as "Xiancao", or "The Immortality Herb". The name given to the herb by the locals served as an important clue for the scientists.

As a result of this discovery, and encouraged by the Japanese research with Jiaogulan, the Chinese government appointed Dr. Jialiu Liu to lead a team of 16 scientists to investigate the properties of plants growing in the Mt. Fanjing Nature Reserve. After lengthy and extensive study of a large variety of herbs, they singled out Jiaogulan as the most promising plant for further research.

Jiaogulan [is] an herb from my native southern China that I believe possesses the most wide-ranging benefits for human health and wellness of any plant yet discovered. This may seem like a bold statement, but having studied this remarkable tonic herb for more than twenty years, I can assure you that there is strong scientific support to back up my passion for Jiaogulan

...

My own experience with Jiaogulan began in 1987, when I was asked by the Guizhou

government to lead a team of 16 scientists to investigate the properties of plants from the Mt. Fanjing rain forest in southern China. After many years studying hundreds of herbs, we ultimately came to the realization that Jiaogulan was not only the rainforest's most precious gift, but was in fact nature's greatest treasure. We began to use Jiaogulan in our medical university hospital with great success for a wide variety of conditions, and before long, it was also being used at numerous other hospitals throughout China. This attracted the excited attention of scientists around the world, and today there are more than 300 studies and research papers on Jiaogulan from China, Japan, Ireland, Germany, Italy, the Czech Republic, and even the United States.

Dr. Jialiu Liu, "Father" of Jiaogulan

Today, more and more countries and institutions have joined the research effort on this incredible plant.

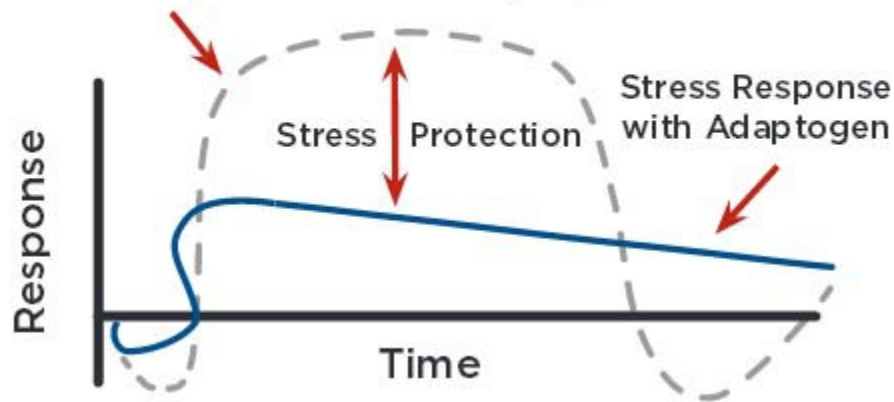
Research into Jiaogulan over the past 40+ years has uncovered so many health benefits that at first it's difficult not to react with disbelief. We provide references to a subset of the hundreds of scientific studies that support our claims, so you can examine them further if interested.

Jiaogulan the Adaptogen

Adaptogens are rare and remarkable plants that increase the body's ability to counter and resist physical, chemical, biological, emotional, and environmental stressors by raising nonspecific resistance toward such stress. They decrease the organism's susceptibility to illness by allowing it to "adapt" to the stressful circumstances.

How Do Adaptogens Work?

Stress Response Without Adaptogen



Adaptogens support normal metabolism, help restore balance to the immune, nervous, and endocrine systems, and allow the body to maintain optimal homeostasis. They usually also benefit the liver, cardiovascular system, kidneys, and pancreas.

For a plant to be qualified as an adaptogen, it must meet the following 3 criteria as defined by Israel I. Berkman, PhD, and Dr. I. V. Dardymov in 1968:

1. It is Nontoxic

- ✓ An adaptogen is nontoxic to the recipient. It must cause minimal side effects on physical or mental health.

2. Increases Resistance to Stress

- ✓ An adaptogen produces a nonspecific response in the body - an increase in the power of resistance against multiple stressors including physical, chemical, or biological agents in multiple nonspecific ways, including the building of a reserve of "adaptive energy". This reserve is then used when an actual stressor arises, instead of depleting the cells of vital energy.

3. Has a Normalizing Effect

- ✓ An adaptogen is “intelligent” in that it has a normalizing influence on physiology, regardless of the direction of change from the normal state caused by the stressor. This normalizing influence implies the capability of adaptogens for a bidirectional effect on physiological function. They are capable of either toning down or strengthening the activity of multiple systems, including the neuro-endocrine and immune systems, depending on the need. For example, if a person with high blood pressure is given Jiaogulan, their blood pressure will drop. If on the other hand their blood pressure is below normal, it will raise.

When Dr. Berkman was studying adaptogens, he discovered that the active compounds in most of them were a particular class of chemical compounds called triterpenoid saponins, which had very low toxicity and little addictive potential.

Some of these triterpenoid saponins have been identified as having adaptogenic properties, while others were found to have anti-inflammatory, hepatoprotective (protecting the liver), adrenal gland strengthening, and immune system modulating effects.²

Jiaogulan is a premier adaptogen, and has been described as “Like Ginseng, but better than Ginseng” because of the energizing effect both plants have on the body.

However, while Ginseng is often poorly tolerated and can cause insomnia, tachycardia and nervousness, Jiaogulan has the opposite effects because it is a superior adaptogen.

This is because while Panax Ginseng contains up to 28 different saponins⁵ (called panaxosides or ginsenosides), as of 2015 scientists have isolated **174** of them from Gynostemma (called gypenosides), nine of which are identical to those of Panax Ginseng.^{6,7}

That's *over 6 times* as many of these health-promoting and balancing chemicals!

In fact, Jiaogulan has the widest spectrum of saponins of any known plant in the world by far! This makes it a potentially more powerful and intelligent adaptogen with broader health effects than any other plant, and many have proclaimed it “The King of Adaptogens”.

Over 40 years of scientific research done so far on Gynostemma seems to support this possibility.

Jiaogulan the Supreme Antioxidant

Of all the antioxidant rich foods, teas, herbs, vitamins and supplements in the world that have been studied by man, Jiaogulan unlike any other and is by far the best antioxidant supplement that you can take.

This sounds like quite an extraordinary claim, and as the saying goes, extraordinary claims require extraordinary evidence.

Here we will provide you with such evidence and explain why saying Jiaogulan is THE best antioxidant supplement ever discovered is not an exaggeration, but a scientific fact.

But first, we need to understand just what antioxidants are, their different types, and their function in the body.

What Are Antioxidants?

Antioxidants came to public attention in the 1990's, when scientists began to understand free radical damage.

Free radicals are atoms or molecules that are unstable and highly reactive with other cellular structures because they contain unpaired electrons.

Free radicals can cause damage to parts of cells such as DNA, proteins, lipids, and cell membranes by stealing their electrons through a process called oxidation. (This is why free radical damage is also called "oxidative damage".)



When free radicals oxidize important components of the cell, those components lose their ability to function normally, and this can cause the cell to die. Numerous studies indicate that increased production of free radicals causes or accelerates nerve cell injury and leads to

disease.

In fact, a prevailing theory of disease and aging states that the gradual accumulation of free radicals, and the harm they cause, is responsible for many of the adverse changes that eventually cause aging and diseases like cancer, Alzheimer's, arthritis, heart and liver disease, atherosclerosis, immune system decline, brain dysfunction, diabetes, and cataracts.

Free radicals are not all bad however. They play a role in cell signaling and other beneficial processes when they exist in benign concentrations. The trouble begins when their numbers climb, which may occur as a result of aging or when unnatural stressors like air pollution, pesticides, smoking, alcohol, stress, etc. are present.

Antioxidants are intimately involved in the prevention of cellular damage caused by free radicals. They are molecules that can safely interact with free radicals and neutralize them before vital molecules are damaged.

Antioxidants can be either exogenous (also known as external or secondary), like those found in foods and vitamins, or endogenous (also known as internal or primary), which are those produced by your own body. Endogenous antioxidants are MUCH more powerful free radical fighters than those you can get from your diet, like Vitamin C and E.

Exogenous Antioxidants

People in general are only aware of dietary antioxidants – the kind that can be found in foods like fruits and vegetables, drinks like green tea and coffee, and antioxidant supplements in the form of pills and capsules.

There are thousands of dietary antioxidants, but the most common ones are vitamins A, C, and E, lycopene, and beta-carotene.

Eating whole fruits, vegetables, and whole grains — all rich in networks of antioxidants and their helper molecules — protects against many diseases and premature aging.

And as we get older, it becomes more and more important to eat plenty of foods rich in antioxidants.

This is because our body's natural defenses against free radicals diminish as we age, and so increasingly we need outside help in our battle against oxidation – the primary cause of disease and aging.

When you factor in environmental pollution, toxins, stress, and bad habits like smoking,

proper diet becomes doubly important.

However, proper diet alone will eventually be insufficient and sooner or later we are all destined to succumb to the onslaught of free radicals.

Unless...(Hint: This is where Jiaogulan comes in!)

While antioxidants can also be produced artificially and consumed in supplement form, studies on the effectiveness of supplements have been inconclusive.

It seems like they only provide limited benefits, if any, and in some cases can even be potentially harmful! ^{8,9}

Endogenous Antioxidants

Few people are even aware of them, but endogenous antioxidants are your body's natural and primary defense against free radicals.

There are 5 types of antioxidants produced by the body: superoxide dismutase (SOD), alpha lipoic acid (ALA), coenzyme Q10 (CoQ10), catalase (CAT), and glutathione peroxidase (Gpx).

Of these, the three most important ones are SOD, Gpx, and CAT, in that order.

Endogenous antioxidants are literally hundreds and thousands of times more powerful free radical scavengers than ANY dietary antioxidant out there.

These antioxidants are the reason why when we are younger, we can be healthy even if we don't know what a fruit or vegetable tastes like.

Unfortunately, our ability to produce them gradually decreases with age.

For years, scientists have sought ways to increase our levels of SOD and Gpx, since these are the most powerful antioxidants in existence.

While Gpx levels can be temporarily raised through special diet and exercise, the same cannot be said about SOD.

Superoxide Dismutase (SOD)

The problem is that while some foods and plants contain SOD naturally, when it is ingested in the body it is quickly destroyed by stomach acids and intestinal enzymes, so virtually none enters the bloodstream.

Until the discovery of Jiaogulan, no natural and effective ways of boosting SOD levels had been found.

Superoxide dismutase is arguably the body's most crucial antioxidant, since it is responsible for disarming the most dangerous and most common free radicals of all – the highly reactive superoxide radicals (oxygen with an extra electron).

Superoxide radicals are strongly associated with the development of a number of degenerative diseases, including atherosclerosis, stroke, heart attack, neurological disorders, chronic and acute inflammatory conditions, chronic pain associated with inflammation, neurological disorders like Alzheimer's and Parkinson's, lung pathologies, and various other age-related disorders.^{10, 11, 12, 13, 14}

As an extreme example, mice that have been genetically engineered to be unable to produce SOD will die within days of being born from massive free radical damage.¹⁷

On the other hand, studies have shown a strong correlation between SOD levels in various animal species and their longevity.

Research conducted in the early 1980's by Richard Cutler at the Gerontology Research Center at the National Institute of Health showed that mammals who produced higher levels of SOD lived longer than those with lower SOD levels.^{15, 16}

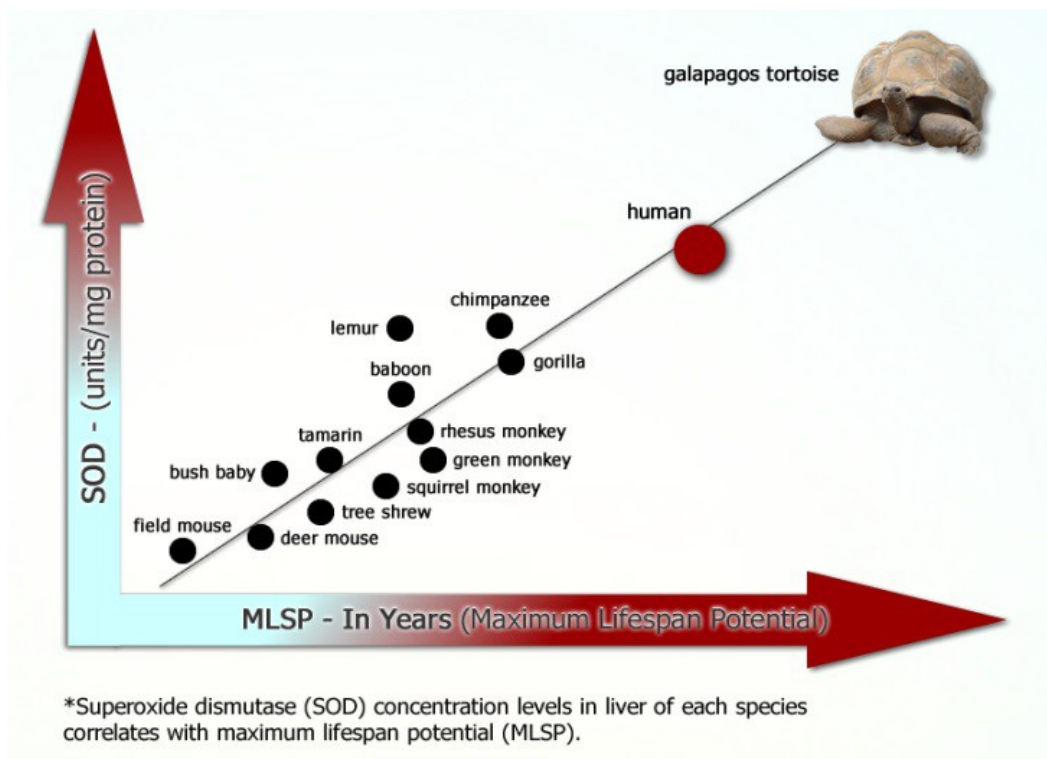
Dr. Cutler's research showed that mice and rodents have the lowest SOD levels among mammals, and that SOD levels are highest among more highly evolved mammals, with humans displaying the highest relative SOD levels.

Humans produce an average of 90 mcg/ml (micrograms per milliliter) of SOD and live an average of around 80 years. Our closest primate relatives, chimpanzees, produce 40 mcg/ml of SOD and live an average of only 40 years.

In another example, pigeons live about 12 times longer than rats, even though they weigh the same. The difference is that pigeons have high SOD levels and produce about half as many free radicals as rats.

Finally, fruit flies that have been genetically engineered to produce twice the normal level of SOD live twice as long as ordinary fruit flies.

Cutler's cross-species investigations strongly suggest that SOD is a primary determinant of longevity in mammals, and that increased SOD production plays a key role in the higher order of mammals' evolution from shorter to longer life spans.



Glutathione Peroxidase (Gpx)

Gpx is the other vitally important endogenous antioxidant, produced within each and every cell of your body.

It prevents cell damage by neutralizing free radicals and maintains dietary antioxidants such as vitamins C and E in their active forms so that they can keep fighting free radicals.

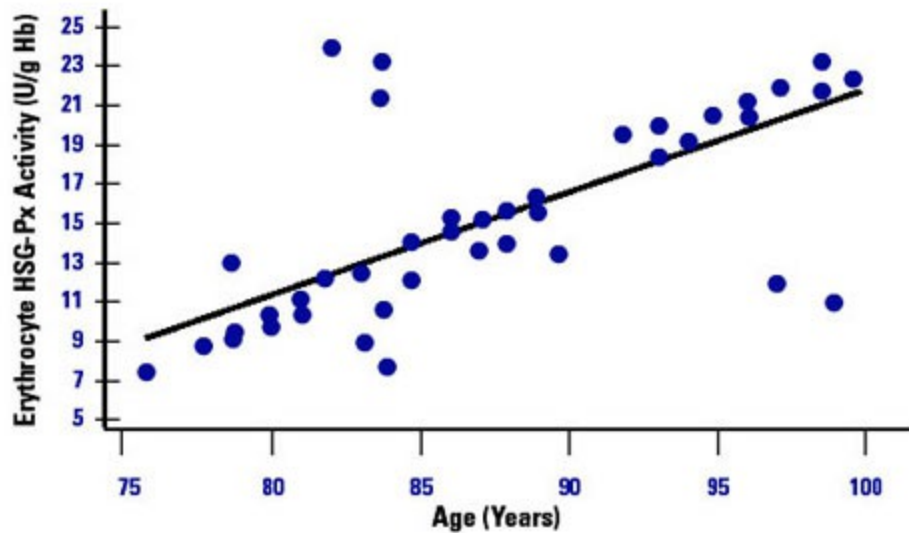
Gpx plays a critical and integral part in detoxifying the body by binding to pesticides, heavy metals and other toxins until they are excreted.

It also regulates protein and DNA synthesis and cell growth, and is critical in helping your immune system perform its role of fighting infections and preventing cancer.

Lastly, glutathione helps us reach peak mental and physical function by decreasing muscle damage, reducing recovery time, increasing strength and endurance, and shifting metabolism from fat production to muscle development.

Just like with SOD, scientists have found a strong correlation between a species or organism's ability to produce glutathione and its longevity.^{18, 19}

For example, studies have shown that high Gpx levels in the blood are typical in healthy and long-lived people, whereas low levels are almost always found in people with poor health.^{18, 20}



Correlation between age and glutathione peroxidase (GSH-Px) levels in healthy elderly subjects (Rondanelli, et al, 1997). Note that although younger adults have generally higher levels than older people, in the elderly, those with the highest levels are most likely to survive the longest in good health.

Jiaogulan Promotes Youth and Longevity by Stimulating SOD and Gpx Production

Jiaogulan's remarkable ability to stimulate the body's own production of both SOD and glutathione must be at the heart of the reason why it has been so strongly associated with anti-aging and longevity.

Science has finally found the mechanism to explain how and why so many Jiaogulan users in China lived to be 100 years old in good health, and why they called it "The Herb of Immortality".

The stimulation of SOD and glutathione production may also be greatly responsible for the preventive and therapeutic qualities the herb has.

A Guiyang Medical College human clinical trial with 610 healthy middle and advanced age patients, aged 50 to 90, showed that SOD levels returned to their youthful levels after only one month of daily intake of 20 mg of gypenosides (the main active ingredients in Jiaogulan)!

Those between 70 and 90 years of age saw an average decrease in the harmful superoxide and other radicals of 21.4% and an average increase in internally produced SOD of 282.8%, while in the 50 to 69 age group there was a 15.6% decrease in oxidant levels and a 116.1% increase in SOD concentrations! A control group not receiving gypenosides from Jiaogulan did not experience any change.²²

Two follow-up studies at Guiyang Medical College with 80 human patients aged 42-55 suffering from endemic fluorosis (condition of fluorine intoxication brought about by excessive ingestion of fluorides) found that 10mg of Jiaogulan and Danshen extracts twice a day for 5 months increased the level of SOD in their red blood cells by 34.1% from 847 ng/mgHb to 1136 ng/mgHg on average. The SOD boosting effects was found to be solely caused by Jiaogulan's gypenosides and not Danshen.

Furthermore, patients had a 19% decrease in Malondialdehyde (MDA) levels, which is used as an indicator of oxidative stress (damage to cell structures due to excess of free radicals). There were no changes in the placebo group or a group that was administered Borax instead.^{23, 24}

In another 2-month double-blind experiment at the Shanghai Institute of Geriatrics, 51 elderly patients were administered 60mg of Jiaogulan gypenosides daily for 2 months, while a control group of 40 patients were given a placebo. This study too found a significant increase in SOD levels and significant decrease in cell damage from oxidation. In addition, the researchers saw an improvement in the memory of the patients. None of these effects were observed in the placebo group.²⁵

In addition to these landmark human studies, there has been a large number of animal and in-vitro studies demonstrating Jiaogulan's ability to stimulate the production of SOD²¹⁻⁵⁶, Gpx^{31, 35, 37, 43, 44, 50, 51, 52}, and CAT (catalase)^{44, 48, 50, 51}.

This ability to boost the organism's own defenses against free radicals has been shown to have a profound protective effects on the body as a whole.

In particular, the increase in endogenous antioxidants by Jiaogulan was found to protect the cardiovascular^{21, 26, 27, 28, 29, 31}, immune^{26, 32}, nervous^{31, 33, 34, 35, 36, 37, 38, 49}, and reproductive³⁹ systems and various organs, such as the liver^{26, 40, 41, 42, 43, 44, 45}, kidneys^{29, 31}, stomach⁴⁶, and skin^{47, 48}.

The increase of endogenous antioxidants was also found to have anti-inflammatory^{29, 53}, anti-cancer^{53, 54} and anti-aging^{32, 47, 48, 55, 56} effects, and to be beneficial for athletic performance and

faster recovery from exercise⁵¹.

Jiaogulan Is The Best Antioxidant

We hope that it is now clear why we can confidently say that Jiaogulan is THE best antioxidant supplement anybody can take.

Jiaogulan is not like any other source of antioxidants, because it does not act in the same way as fruits, vegetables, vitamins, and other herbs.

Instead, its many saponins (the main active chemical compounds, also called gypenosides) have the ability to stimulate our bodies to produce the most powerful and vital antioxidants of all – the endogenous antioxidants superoxide dismutase, glutathione peroxidase, and catalase.

This is extremely important, because these endogenous antioxidants are either impossible (in the case of SOD), or difficult (in the case of Gpx and CAT) to obtain from our food.

Furthermore, since our ability to produce these endogenous antioxidants decreases dramatically with age, our bodies become increasingly defenseless against the onslaught of free radicals.

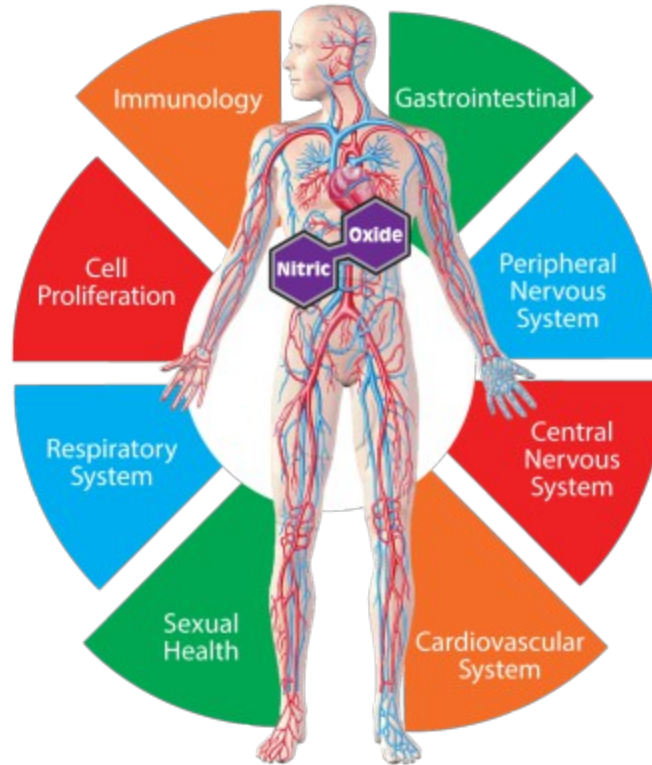
This eventually leads to age-related diseases and death.

There is no other substance in existence that will stimulate the production of SOD, let alone *ALL THREE* of the most important and powerful free radical fighters.

Not only that, but Jiaogulan has been shown to restore SOD levels in elderly people to their youthful levels!

It is therefore not a stretch to say that Jiaogulan is a far superior antioxidant supplement than all other sources combined!

Jiaogulan as a Nitric Oxide Regulator



Nitric Oxide (NO) is a gas and free radical produced in the body that is deemed so important in human physiology that it was named “Molecule of the Year” by the journal *Science* in 1992.⁵⁸

Few people realize it, but Nitric Oxide is probably the most important chemical compound for cardiovascular health.

The President of the American Heart Association called it “*the most important discovery in the history of cardiovascular medicine*”, and in 1998, the Nobel Prize for Medicine was given to the three scientists who discovered the role of Nitric Oxide as a cardiovascular signaling molecule.

Simply put, adequate Nitric Oxide production is the first step in a chain reaction that promotes healthy cardiovascular function, while insufficient production triggers a cascade of destruction that eventually results in heart disease.

Nitric Oxide has been called a double-edged sword – or the Janus molecule, after the two-faced god – since it can be both vital and detrimental to your health and normal functioning.

At normal body concentrations Nitric Oxide is critically important for the proper functioning of all major body systems, including the cardiovascular, immune, nervous, and reproductive systems.

It enhances blood flow by dilating blood vessels, dissolving arterial plaques, and aiding in tissue recovery and regeneration. It helps brain nerve cells to communicate with each other and is involved in their development and regeneration. It also plays an important role in the fight against invading bacteria, viruses, and parasites.

However, Nitric Oxide concentrations that are too low or too high can result in a number of serious conditions and diseases like heart disease, stroke, cognitive decline, Alzheimer's, Parkinson's, autoimmune diseases, chronic inflammation, rheumatoid arthritis, gout, and many more.

Studies have now shown that Jiaogulan has the remarkable ability to both protect and stimulate the production of Nitric Oxide (NO) when your body produces too little of it^{6, 57, 59, 60, 61}, or to limit its production when it is out of control^{38, 62, 63, 64}.

Since diseases arise when Nitric Oxide levels are either too high or too low, the regulatory effect of Jiaogulan on its production is crucial in maintaining good health through balance, and is further testament to the herb's adaptogenic properties.

Here is a short video by one of the discoverers of Nitric Oxide explaining the benefits of this molecule for your health.

We will explore the effects of Nitric Oxide on the various body systems in more detail throughout the rest of this book.

Jiaogulan Promotes Cardiovascular Health

Heart and blood vessel disease is the #1 cause of death in the world, resulting in 17.3 million annual deaths globally. In the United States it killed almost 800,000 people in 2013 alone.

The majority of problems classified under the umbrella of heart disease are related to a process called atherosclerosis, or thickening and hardening of the arteries. Atherosclerosis is a condition that develops when plaque, mostly made up of white blood cells and blood fats like cholesterol and triglycerides, builds up in the walls of the arteries.

This process starts when damage to the lining of the arteries – or endothelium – accumulates over time. It can be caused by high blood pressure (hypertension) and/or free radicals, for example as a result of smoking.

This arterial damage has a two-fold negative effect.

First, it results in a lower production of Nitric Oxide, which in turn leads to constriction of the arteries, higher blood pressure, more plaque formation, further arterial damage, and as a consequence even less Nitric Oxide production. This self-reinforcing cycle can spin out of control and lead to heart disease unless broken in some way.

Second, when the arteries get damaged they become stiffer and stickier over time. This makes them attract more “bad” LDL cholesterol and white blood cells, which then build up in the artery walls forming plaque.

The more cholesterol and fats there are in the blood (hyperlipidemia), the easier it is for arterial plaque to form. Buildup of plaque narrows the arteries and makes it more difficult for blood to flow through.

This can eventually lead to the formation of a blood clot (a process called thrombosis), which can completely block the blood flow and lead to heart attack, stroke, or embolism.

A heart attack or an ischemic stroke (the most common type) occurs when the blood flow to a part of the heart or brain, respectively, is blocked by a blood clot. If this clot cuts off the blood flow completely, the part of the heart muscle or brain supplied by that artery will die. This can lead to death or, in the case of stroke, to loss of ability to carry out normal functions like walking or talking.

In another type of stroke – haemorrhagic stroke – a blood vessel within the brain bursts. The

most common cause is uncontrolled high blood pressure.

Other complications due to atherosclerosis include peripheral arterial disease, kidney disease, and erectile dysfunction.

What is truly remarkable about Jiaogulan is that it counteracts each of the individual causes of atherosclerosis mentioned above, and therefore at the very root it prevents and counters all the complications that come with it.

Jiaogulan Prevents Arterial Damage

As we already mentioned, damage to the arterial lining (endothelium) is THE key factor that leads to the development of atherosclerosis.

Jiaogulan prevents damage to the arterial lining in two ways.

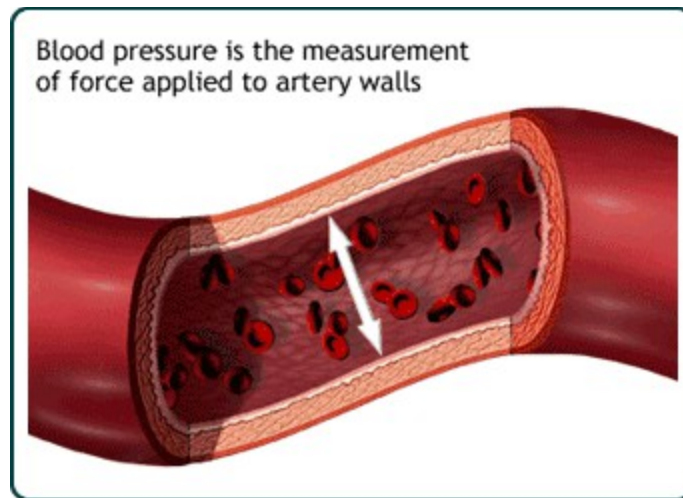
First, it neutralizes the oxidative damage to the arteries caused by free radicals and cholesterol through its powerful antioxidant effects^{26, 27, 29} (see chapter on Antioxidants).

The second way Gynostemma prevents endothelial damage is through its ability to regulate blood pressure, either lowering it^{63, 65} or elevating it⁶³ depending on the need.

The herb's ability to lower blood pressure is at least in part due to its protection and stimulation of endothelial Nitric Oxide production.^{6, 57, 59, 60}

The primary function of endothelial Nitric Oxide is to widen the blood vessels (vasodilation), which increases blood flow circulation throughout your body, providing more of the oxygen and nutrients necessary for proper function of all tissues and organs.

Widening of the arteries has the effect of lowering blood pressure, since blood has more room to flow through and therefore less pressure is put on the arterial walls.



Without Nitric Oxide arteries constrict and require a higher blood pressure to maintain adequate blood flow to the tissue.

In addition, lack of Nitric Oxide increases the number of smooth muscle cells, which can also lead to higher blood pressure.

One double blind clinical study of patients with high blood pressure showed that Jiaogulan is almost as effective as Indapamide (a high blood pressure drug), and almost twice as effective as Panax Ginseng (82%, 93%, and 46% respectively) in reducing high blood pressure.⁶⁵

Jiaogulan Prevents Plaque Buildup by Lowering Bad Cholesterol and Triglycerides

Since LDL cholesterol and blood fats are the main ingredients of arterial plaque, a reduction of their concentration in the blood will help prevent or slow down the progression of atherosclerosis.

Jiaogulan has demonstrated its ability to lower bad cholesterol (LDL) and triglyceride levels, while raising good cholesterol (HDL) levels in a number of studies.^{18, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84}

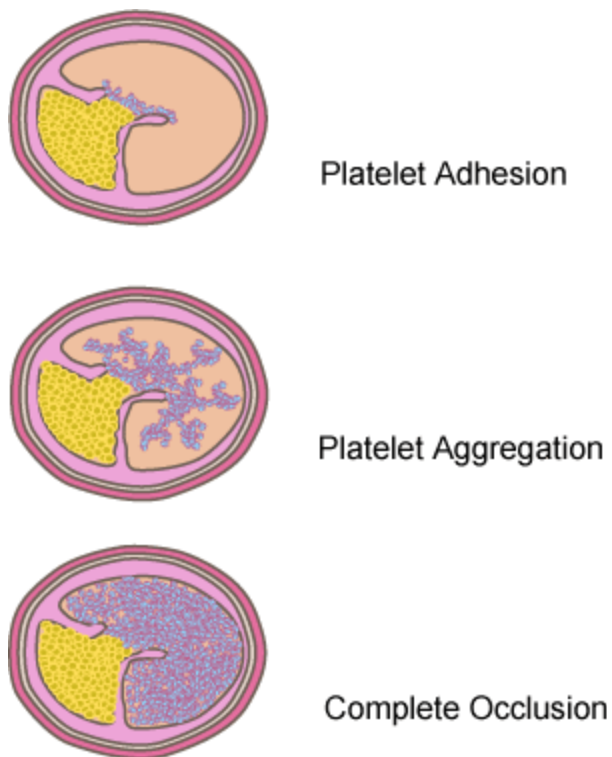
It achieves this by improving the body's ability to metabolize fat and by stimulating Nitric Oxide production, which suppresses the damage done to bad (LDL) cholesterol by free radicals.

Lowering of the cholesterol levels also has a positive side effect of prevention of the formation of cholesterol gallstones.

Jiaogulan Prevents Platelet Stickiness and Blood Clots

Plaques grow over years and slowly blocks blood flow in the arteries. What's worse, cholesterol plaque can suddenly rupture, especially where the person suffers from high blood pressure.

When a plaque inside a coronary artery ruptures, platelets (blood cells whose function is to stop the bleeding) become sticky, develop tentacles and start to roam around in gangs (platelet aggregation) and quickly make their way to the damaged area and pile on it until they either partially or completely block the artery.



The sudden blood clot that forms over the ruptured area causes the blood flow to stop, which results in a heart attack or stroke. Furthermore, blood clots can detach and travel into the blood stream until they get lodged in other blood vessels, for example in the lungs, causing an embolism.

Jiaogulan helps against the formation of blood clots by preventing the platelet aggregation process described above by increasing Nitric Oxide production – which reduces the stickiness of platelets – and by inhibiting Tissue Factor (TF) – the main protein needed for the blood clotting process to initiate.⁸⁵

The herb has been shown to prevent the platelets from sticking together and to the lining of arteries in the first place, and also to help them detach from each other, or deaggregate, in both human clinical trials⁸⁶ and animal studies^{87, 88, 89, 90, 91, 92, 93, 94}.

Other Benefits of Jiaogulan to the Cardiovascular System

Jiaogulan reduces the affected area and the severity of injury to the brain and heart suffered as a consequence of a stroke or a heart attack, and accelerates the healing and recovery process.^{95, 96, 97, 98}

The herb prevents heart muscle disease (cardiomyopathy) and protects heart muscles and their function from damage as a result of diabetes.^{99, 100}

Jiaogulan also helps protect against coronary spasms, irregular heartbeat (arrhythmia), pressor response (the increase in arterial blood pressure in response to various internal or external conditions, e.g. drugs, mental stress, etc.), and ventricular tachycardia (a life-threatening rapid heart beat that starts in the bottom pumping chambers of the heart).¹⁰¹

Jiaogulan is beneficial for people who suffer from congestive heart failure because it improves the efficiency of the pumping action of the heart. This means the heart does not work as hard to produce the same amount of blood flow, helping it deliver more oxygen and nutrients to the body as a whole without causing additional stress.^{102, 103}

Jiaogulan and Cancer

Cancer is the second leading cause of death in the United States, killing almost 600,000 people in 2013 alone.

If you are an American, there is a one in three chance that you will get cancer during your lifetime. If you are a man, the odds are closer to one in two. Almost everyone in America either knows someone who currently has cancer or who has already died from cancer.

Arguably worse than the actual disease is the conventional treatment. Chemotherapy and radiotherapy are based on the principle that by poisoning and destroying the body as a whole, including its natural defenses against the disease (the immune system), the cancer will also be removed.

This is akin to deciding to carpet-bomb New York City, including its anti-terrorism and police departments, because there were “terrorist cells” discovered.

There are several obvious problems with such a strategy:

1. Chemotherapy and radiotherapy are so devastating to our body that the majority of people die as a result of the treatment and not the cancer itself.
2. The root cause of the problem is not being addressed, so even if conventional treatments do succeed in removing the cancer, it will usually reappear in due time.
3. It is extremely expensive financially, costing up to hundreds of thousands of dollars.

Because only the symptoms and not the root cause are addressed, multiple treatments will usually be necessary over the years, provided they work to begin with. How many of these “treatments” can your body survive?

To use another metaphor, imagine your body is an iron rod and the cancer is rust on that iron. If you don't address the root cause of the rusting process, which is the presence of oxygen reacting with the iron, and only focus on removing the rust with a heavy-duty industrial grinder, how many times can you repeat this process before snapping the rod in two?

The answer of course depends on how thick the rod is, or how strong your body's constitution is. Regardless, I'd bet the house you don't want to find out.

Wouldn't it be more sensible to apply a coating on the rod so that rust wouldn't develop in the first place?

Wouldn't it be better to instead strengthen the body and its defenses so that it can naturally prevent or fight the disease? After all, cancer cells are always present in our bodies and our immune system is usually perfectly capable of neutralizing them.

We believe this is a more sensible approach, and it seems mainstream science is starting to agree. So much so, in fact, that the journal *Science* has designated "Immunotherapy of Cancer" as its [Breakthrough of the Year](#) in 2013.

Research has shown that Jiaogulan has many cancer fighting and prevention effects on a wide variety of cancers.

It works on several levels to prevent and heal cancer:

- It enhances the body's own defenses by protecting and boosting the immune system. A strong immune system is important for preventing the formation of tumors.
- With its exceptional antioxidant effects, Jiaogulan scavenges free radicals within the body, minimizing DNA mutations that lead to tumors. (See the Antioxidant section for more information)
- Its chemical components like saponins (gypenosides), flavonoids and polysaccharides have direct anticancer action.
-

Jiaogulan has been shown in studies to reduce tumor size, inhibit tumor growth and metastasis (spreading), cause apoptosis (tumor cell death) by increasing free-radical damage to cancer cells, and inhibit energy production in cancer cells.

These effects have been demonstrated in several types of cancer, including:

- Liver (hepatoma)^{104, 105, 106, 107, 108, 109, 110, 111, 112, 113}
- Lung^{114, 115, 116, 117, 118, 119, 120}
- Prostate¹²¹
- Colorectal^{122, 123, 124, 125}
- Esophageal^{122, 126}
- Oral^{127, 128, 129, 130, 131, 132, 133, 134, 135}
- Brain¹³⁶
- Stomach^{137, 138}
- Skin (melanoma)^{139, 140}
- Uterus/cervix^{141, 142, 143}
- Leukaemia^{144, 145, 146, 147}
- Sarcoma^{147, 148}

For those who choose to use the traditional methods of cancer treatment – chemotherapy and radiation therapy – Jiaogulan has shown to be an invaluable ally.

This is because it provides a very strong protection against the damaging effects these treatments have on the immune system.^{149, 150, 151, 152, 153, 154}

Jiaogulan was also found to diminish the overall damaging effects of drug toxicity from chemotherapy^{137, 148}, while at the same time boosting its effectiveness^{125, 148}.

A Word of Caution:

While Jiaogulan's cancer-fighting properties are indisputable, we do not recommend using it as a stand-alone cancer treatment.

However, we wholeheartedly recommend that you use it for cancer prevention and as an add-on therapy to any treatment, conventional or otherwise.

Jiaogulan Slows Down Aging and Increases Longevity

Longevity isn't just about reaching a ripe old age – it's also about feeling and looking good as you get there!

While most people today choose anti-aging creams, surgery, and Botox, we believe in a more holistic approach to health and aging because youth, like beauty, is more than skin deep.

Jiaogulan was first discovered in China because of the unusually long life spans and good health of so many of its users in the mountainous regions where it grows.

When you drink Jiaogulan tea daily you will not only look younger, you will *be* younger and healthier.

The herb slows down aging from the inside out. It has a rejuvenating and healing effect on all organs and major systems due to its unrivaled ability to neutralize the free-radicals that damage and age your body by boosting production of the two most important endogenous antioxidants – superoxide dismutase (SOD) and glutathione.

These two antioxidants are crucial in preventing aging and promoting longevity. Please see the section on the [Antioxidant](#) properties of Jiaogulan for details and more scientific evidence.

In human clinical studies, administration of Jiaogulan three times daily for two months was beneficial for all 106 patients (in the study) in reducing general signs and symptoms of aging, such as fatigue, lack of energy, aversion to cold, diarrhoea, poor memory, decreased balance, insomnia, and excessive dreams.¹⁵⁵

Studies with aging animals have shown that Jiaogulan improves their memory and learning ability¹⁵⁶, and rejuvenates their skin^{47, 48, 157}. It was also found that the herb increases the thickness of the skin, boosts synthesis of collagen, and protects elasticity¹⁵⁸. For extra skin benefit, you can also apply Jiaogulan tea topically, for example as a face rinse.

In addition, there have now been several studies that support claims the herb increases longevity.

In one study, a group of old mice were divided into two groups. After four months, all mice in the control group died, while only 50% of the mice in the Jiaogulan group died.¹⁵⁹

In another study, the lifespan of fruit flies was increased by as much as 50% when given Jiaogulan.¹⁶⁰ Other animal studies have also demonstrated increase in lifespan.^{161, 162}

Jiaogulan Prevents and Fights Diabetes Mellitus

Although diabetes is listed as the 6th leading cause of death for 2013 in the US with close to 76,000 deaths, this is probably a significant underestimation since diabetics are much likelier to suffer from cardiovascular disease and other complications such as kidney failure, blindness, and amputation.

According to the CDC, over 29 million people in the US, or 9.3% of the population, have diabetes, and another 86 million (1 in 3 adults) have prediabetes, a large percentage of which are undiagnosed. Of those, 15-30% will develop type 2 diabetes within 5 years.

These numbers are of truly epidemic proportions and should be taken very seriously considering that risk of death for adults with diabetes is 50% higher and medical costs are twice as high.

Diabetes Mellitus is a problem with the body that causes blood glucose (sugar) levels to rise higher than normal (hyperglycemia).

It is related to a hormone made in the pancreas called insulin, which helps cells throughout the body to absorb the glucose they use as energy fuel.

When the pancreas does not produce enough insulin for proper body function, and/or when the cells in the body do not use insulin properly (insulin resistance), there is an increase in glucose levels in the blood that leads to pre-diabetes and diabetes.

Insulin resistance is a condition in which the body produces insulin but the muscle, fat, and liver cells do not respond properly to it and thus cannot easily absorb glucose from the bloodstream. As a result, the body needs higher levels of insulin to help glucose enter the cells.

The pancreas will initially try to keep up with this increased demand, but as time goes by it will eventually fail to produce enough insulin. Without enough insulin, excess glucose builds up in the bloodstream.

Over time, high blood glucose damages nerves and blood vessels, leading to complications such as heart disease, stroke, blindness, kidney failure, and lower-limb amputations.

Now that we understand the underlying causes, let's look at how Jiaogulan fights diabetes, as demonstrated in multiple clinical and animal studies.

Anti-Diabetic Effects of Jiaogulan

A number of studies show that Jiaogulan is able to significantly lower blood sugar levels in a relatively short period of time, both as a standalone therapy and in combination with an anti-diabetic drug.

The human studies concluded that Jiaogulan is mainly able to lower blood sugar by significantly improving the insulin sensitivity of the cells.

However, as we will see later, there is much evidence from animal studies to suggest that it is also able to increase blood insulin levels and to stimulate the pancreas to produce more insulin.

In addition to directly attacking the underlying causes of diabetes, Jiaogulan has been shown to have strong protective effects on the cardiovascular system, the nervous system, the liver and kidneys from both diabetic and non-diabetic damage.

These are important additional benefits for anyone suffering from diabetes.

So let's take a look at the studies.

Study 1

In one human clinical study, patients with type 2 diabetes who had never previously taken anti-diabetic drugs were divided into 2 groups: a placebo and a Jiaogulan treatment group.

The two groups did not differ in baseline characteristics and diabetic parameters, and all participants received the same diet and exercise therapies.

The study took place over a 10-week period. For the first 4 weeks, one group was given Jiaogulan tea, while the other was given green tea as a placebo.

This was followed by a 2-week break period.

For the last 4 weeks of the study, the treatments were reversed so that the initial Jiaogulan group was now given green tea, and the original green tea group was given Jiaogulan.

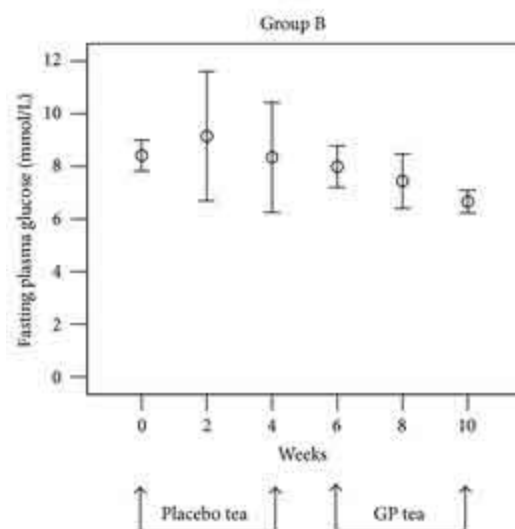
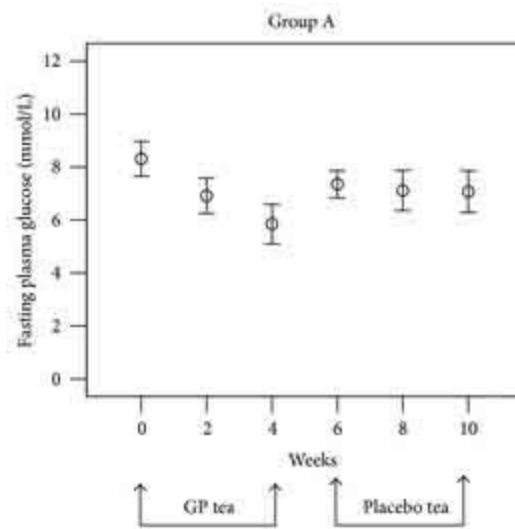
During the first 4 weeks, the Jiaogulan group saw a decrease in their fasting plasma glucose (FPG) levels from an average 8.2 mmol/L to 5.8 mmol/L, or an average drop of 2.4 mmol/L. Meanwhile, the green tea group saw a drop of only 0.2 mmol/L on average.

When the treatments were reversed between the groups, the Jiaogulan group saw a decrease in FPG from an average of 8.0 mmol/L to 6.6 mmol/L, or an average drop of 1.4 mmol/L, with all subjects below 7 mmol/L, while the green tea group again saw a drop of only 0.2 mmol/L.

Over the entire experiment, people taking Jiaogulan saw an average FPG drop of 1.9 mmol/L as a result of only 4 weeks of treatment, while those on green tea only dropped 0.2 mmol/L.

It is also important to note that the FPG of the group initially on Jiaogulan remained lower by close to 1 mmol/L than their original values (prior to the start of the study) during the entire 10 weeks, even though they had only taken Jiaogulan during the first 4 weeks.

This may suggest there was a lasting improvement in their condition.¹⁶³



(b)

Study 2

A 12 week long study with diabetes type 2 patients who had never previously taken anti-diabetic drugs were divided in 2 groups: a placebo and a Jiaogulan treatment group. The study measured fasting plasma glucose (FPG) levels and glycosylated hemoglobin HbA1C.

The study showed that the FPG of patients on the Jiaogulan treatment decreased an average of 3 mmol/L compared to a decrease of only 0.6 mmol/L in the placebo group.

In addition, HbA_{1c} dropped by 2% in the Jiaogulan group compared to 0.2% in the placebo group.

Finally, the insulin resistance of the Jiaogulan group as measured by Homeostasis Model Assessment-Insulin Resistance (HOMA-IR) decreased by 2.1 points, while it increased by 1.1 point in the placebo group.¹⁶⁴

Study 3

In a 12 week long randomized, double-blind, placebo-controlled clinical trial, type 2 diabetes patients were divided into two groups: one treated with the anti-diabetic drug Gliclazide (sulfonylurea) and Jiaogulan, and another with Gliclazide and green tea as a placebo.

During the first 4 weeks all patients were treated daily with a single dose of 30 mg Gliclazide only.

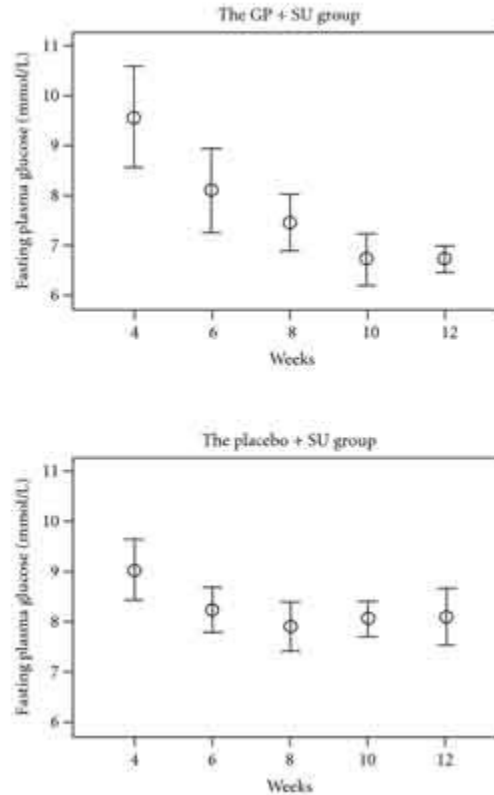
They saw an average decrease in fasting plasma glucose (FPG) levels from 11.4 mmol/L to 9.3 mmol/L, while their glycosylated hemoglobin HbA_{1c} dropped 1% from 9.9% average to 8.9%. An increase in insulin levels was also observed.

For the remaining 8 weeks of the study, the two groups continued on the same dosage of Gliclazide, with the addition of Jiaogulan in one group and green tea in the other.

By the end of the study, the FPG of the Jiaogulan + Gliclazide group had decreased further by an average of 2.9 mmol/L compared to 0.9 mmol/L in the green tea + Gliclazide group. In addition, HbA_{1c} in the Jiaogulan group dropped by an additional 2% compared to 0.7% in the green tea group.

Therapy with Jiaogulan also reduced the 30 and 120-minute oral glucose tolerance test postload values by 1.8 mmol/L and 3.6 mmol/L respectively, while in the green tea group these values INCREASED by 1.2 mmol/L and 1.3 mmol/L respectively. Other improvements were also observed, but were not statistically significant.

The researchers noted that using Gliclazide (sulfonylurea) with Jiaogulan gave similar results to a combination therapy of Gliclazide and Metformin, but without any of the side-effects reported in those studies, which included diarrhea, nausea, epigastric discomfort, and anorexia.¹⁷⁷



These results indicate that Jiaogulan is very beneficial to all diabetic patients, regardless of whether they choose a standard drug treatment or an all-natural one.

All 3 studies examined above concluded that the lower FPG levels were due to an improvement in insulin sensitivity, which was at least partially due to the suppression of protein-tyrosine phosphatase non-receptor type 1 (PTP-1B) – an enzyme which plays a key role in insulin resistance.^{168, 169, 170}

Animal Studies

Animal studies have shown that Jiaogulan reduces blood glucose levels and inhibits increases in blood glucose after a glucose challenge test^{173, 174, 176} due to its ability to improve glucose tolerance in the body.^{68, 165, 166, 167}

Jiaogulan has been found to increase insulin concentrations in the blood by improving the liver's capacity to metabolize glucose,^{165, 173, 174, 175} and to stimulate pancreatic beta-cells (islets) to secrete more insulin.^{171, 172, 173, 312, 313}

Increased insulin secretion was found to be proportionally stronger with increases in both blood glucose levels and Jiaogulan concentrations.¹⁷⁵ However, these results have not yet been confirmed in human studies.

Jiaogulan has also been found to protect the heart and cardiovascular system of diabetic rats from diabetic damage, which is an important additional benefit.^{99, 100} Moreover, it was found to protect the liver, to inhibit weight gain, and reduce blood fat levels of type 2 diabetic rats with

non-alcoholic fatty liver disease.³¹³

Finally, Jiaogulan has demonstrated strong protective effects on the nervous system, which is a welcome layer of defense against neuropathy.

These protective effects are an important additional benefit of Jiaogulan when you consider that diabetics are more likely to suffer damage to other organs and nerves because of the disease.

Jiaogulan Protects and Boosts the Immune System

Numerous human and animal studies have shown Jiaogulan to protect and strengthen the immune system function.

The immune system is a network of cells, tissues, and organs that work together to protect the body from infection and disease.

It is your body's only natural defense against viruses, bacteria, parasites, and diseases like cancer.

It is hardly surprising that a strong and properly functioning immune system is crucial to lasting good health.

Jiaogulan's beneficial effects on the immune system are mostly due to its antioxidant properties and ability to balance Nitric Oxide production.

Nitric oxide regulates the functional activity, growth and death of many immune and inflammatory cell types. Certain immune cells produce it in high enough concentrations for it to become toxic and use it as a weapon against invading bacteria, viruses, parasites, as well as to defend against tumors.

However, under certain conditions this process can backfire, resulting in the production of too much Nitric Oxide by the immune system. This can cause a variety of problems, including inflammation, sepsis, and autoimmune diseases.

Jiaogulan's ability to reduce Nitric Oxide when the immune system is overactive is therefore vital in the prevention of inflammatory and autoimmune diseases, including some cancers, rheumatoid arthritis, gout, heart disease, periodontitis, and hay fever.

The herb also fights inflammation by decreasing free radical damage and inhibiting Nuclear Factor-kappaB (NF-kB) – a protein involved in cell survival and signaling – both important factors in the generation of inflammation.^{30, 32, 62, 93, 94, 178, 179, 180, 181}

As an antioxidant, the herb protects the integrity of the immune system from free radicals and environmental toxins^{26, 30, 32}

Gynostemma also protects the immune system from the effects of stress⁶, rigorous or exhaustive physical exercise^{182, 183, 184}, and cancer chemotherapy and radiation therapy^{149, 150}.

151, 152, 153, 154 .

Finally, Jiaogulan increases the potency of the immune response to foreign invaders, toxins,^{6,}
30, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196 and cancer^{118, 119, 138, 139, 186} .

Jiaogulan Protects and Strengthens the Nervous System

Jiaogulan protects and enhances the function of the central and peripheral nervous systems, mainly through its antioxidant properties and its ability to regulate Nitric Oxide production.

Nitric Oxide plays an important role in learning and memory by helping nerve cells in the brain to communicate with each other.^{197, 198} It is involved in neurotransmitter release, neural development and regeneration, synaptic plasticity and regulation of gene expression.¹⁹⁹

At normal concentrations, Nitric Oxide protects the nerve cells from damage and cell death. However, at high concentrations it becomes toxic to the nerve cells and can cause cell injury and cell death.²⁰⁰

Overproduction of Nitric Oxide in the nervous system has been linked to Alzheimer's disease, Parkinson's disease, multiple sclerosis (MS), amyotrophic lateral sclerosis (ALS), Huntington's disease, and depression.²⁰¹

In addition, free radical damage has been shown to play a major role in the development of neuro-degenerative diseases such as Alzheimer's and Parkinson's.^{202, 203}

In light of this, it's not surprising that Jiaogulan has been shown to help prevent both Alzheimer's^{204, 205, 206, 207} and Parkinson's^{37, 208, 209, 210, 211, 212}, which are the 6th and 14th leading causes of death in the United States respectively. It may also be effective against optic neuritis, although further studies are needed.²¹³

In both human and animal studies, Gynostemma was shown to improve brain functions like memory, concentration, and learning, especially with the elderly.^{156, 214, 215, 216}

The herb also helps protect against and recover from brain and memory damage induced by alcohol^{217, 218} and free radicals^{31, 34, 35, 36, 37, 38, 49}, as well as damage and cognitive impairment from ischemia-reperfusion and hypoxia due to stroke and other causes.^{34, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227}

A study with elderly cerebral infarction patients (a type of ischemic stroke) showed that administering Jiaogulan for a 12-week period improved their cognitive functions to a level close to that of normal elderly subjects who had not suffered a stroke. In addition, the improvements were better than that of a control group that was given Piracetam, a popular nootropic and brain-enhancing drug.²²⁸

A second clinical study using different evaluation methods showed identical results, and further improvement when treatment was continued for 12 more weeks (24 weeks in total).²²⁹

Jiaogulan can also prevent brain and nervous system damage caused by consumption of the popular flavor enhancing food additive Monosodium Glutamate (MSG).^{230, 231, 232, 233}

Lastly, the herb was found to increase the excitability and stability of the brain during athletic competition. A Guiyang Medical College research group carried out testing on more than 300 professional athletes, including athletes of the China National Skating Team. All of the tested athletes reported that a Jiaogulan/Danshen recipe taken before the competition made them vigorous and alert, with quick reflexes and less nervousness. A control group taking Danshen alone did not feel increased stability and excitability of the nervous system during competition, although they also felt increased energy and endurance.^{234, 235}

Jiaogulan Improves Athletic Performance

Many top athletes and bodybuilders use Jiaogulan because it enhances their performance by energizing the body and increasing physical strength, stamina, endurance and muscle tone.

This is also why Jiaogulan is given to race-horses.

If you're involved in sports or workout at the gym, you will find that you can go through your usual training routine with less effort, or that you can endure a harder workout by only expending the same amount of effort as you did before.

Jiaogulan is able to increase athletic performance in several ways:

1. By regulating the production of Nitric Oxide.
2. By improving heart function efficiency.
3. By stimulating the production of the endogenous antioxidants glutathione and superoxide dismutase.

Since one of the main functions of Nitric Oxide is to widen the arteries (vasodilation), it has the effect of increasing blood circulation throughout the body. This provides more of the oxygen and glucose the muscles need to be able to work at peak levels longer, improving stamina and energy levels.

Nitric Oxide also stimulates growth hormone production²³⁶, which encourages fat reduction and muscle building.

Jiaogulan also improves the efficiency of the pumping action of the heart, so that it doesn't work as hard to produce the same amount of blood flow. Again, more oxygen and nutrients reach the muscles and performance is improved.

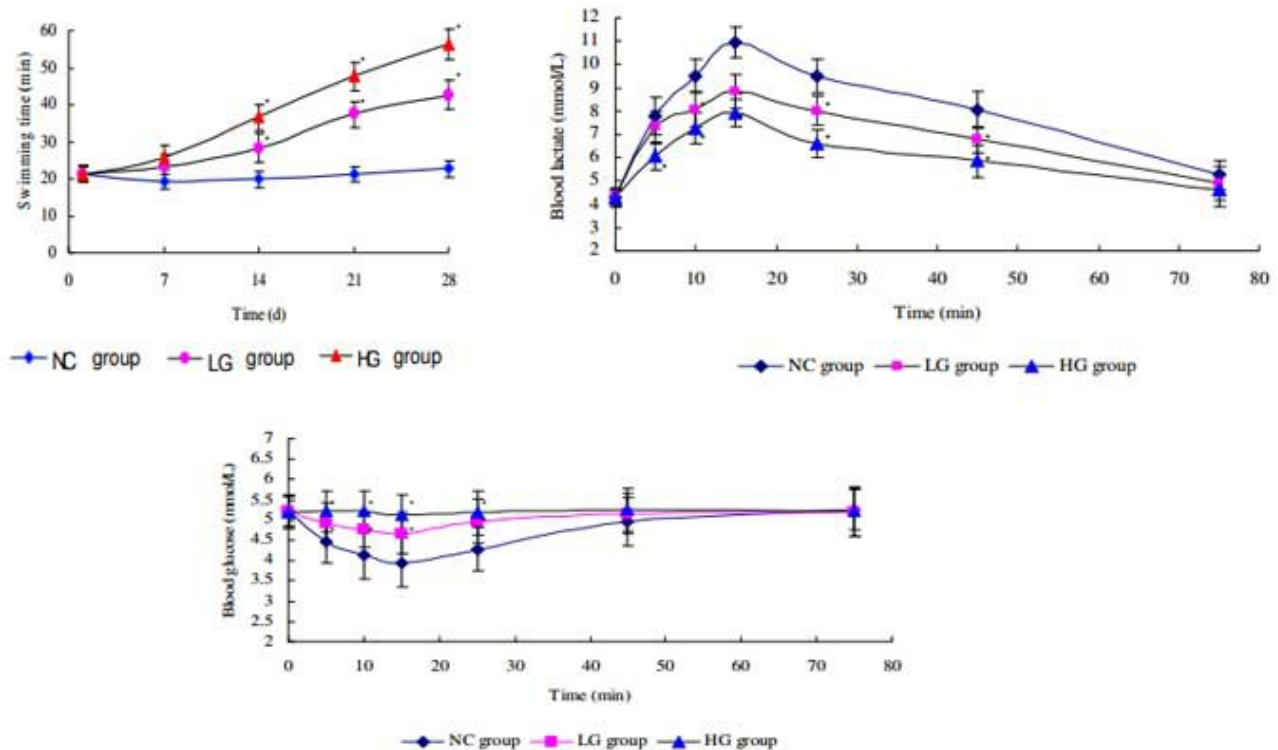
A clinical study at the Guiyang Medical College with 30 normal healthy persons and 220 athletes showed that within 30 minutes after oral administration of a single dose of Jiaogulan combined with other Chinese medicinal herbs, all subjects responded with increased cardiac output and stroke volume, while heart rate and blood pressure did not change.²³⁷

Animal studies have confirmed this positive effect on heart function and have concluded that Jiaogulan's effect is more potent than that of ginseng.^{103, 238}

A number of studies involving forced swimming tests with animals have proven that Jiaogulan has a significant anti-fatigue effect and increases the endurance capacity in animals, enabling them to swim significantly longer before they get exhausted. In addition, these effects become stronger as the dose is increased.^{239, 240, 241, 242, 243, 244, 245, 246}

Jiaogulan significantly increases glucose levels in the blood, liver and muscles, which is the fuel the muscles use and is therefore very important for the prolongation of endurance exercise.

Furthermore, Gynostemma decreases the amount of lactic acid (the build-up of which causes sore muscles the day after rigorous exercise) in the blood significantly and this is an important indicator for judging the degree of fatigue and means that Jiaogulan is able to postpone the appearance of fatigue and accelerate the recovery from fatigue.^{239, 240, 241, 242, 243, 244}



NC Group - Control Group (No Jiaogulan)

LG Group - Low Concentration Jiaogulan (50 mg/kg)

HG Group - High Concentration Jiaogulan (100 mg/kg)

In parallel, the levels of uric nitrogen in the blood are decreased^{241, 242, 243, 244, 245, 246}, which means that not as much protein needs to be digested in order to produce energy.

Jiaogulan also helps us reach peak mental and physical function by boosting the levels of the

endogenous antioxidants superoxide dismutase(SOD) and glutathione, and lowering Malondialdehyde

(MDA).^{241, 243, 244, 245, 246, 247, 248, 249, 250} This means less muscle damage resulting from exercise, quicker recovery time, increased strength, endurance and a shift in the metabolism from fat production to muscle development.

Finally, Gynostemma is able to regulate immune function during exercise, recovering immune indices to normal values from either originally lower or higher than the normal.^{182, 183, 184}

This is important because it has been demonstrated that the immune system is suppressed after rigorous exercise. Marathon runners and the high frequency of respiratory tract infections immediately after a run are one example.

If you are involved in physical exercise, act like the pros and have some Jiaogulan before a workout for extra energy and stamina, and after workout to help your body repair more quickly from the damage physical exercise inevitably causes.

Other Health Benefits of Jiaogulan

Anti-Anxiety and Anti-Stress

Being an adaptogen, Jiaogulan reduces mental and physical stress. It has also been shown to have a significant anxiolytic (anti-anxiety) effect and to help recover dopamine and serotonin levels back to normal.^{6, 211, 251, 252, 253, 254}

One double-blind placebo-controlled human clinical trial demonstrated the herb's ability to significantly reduce anxiety and stress in groups of high anxiety and normal individuals by over 20% and 10% respectively, as evaluated by standard anxiety and stress tests.²⁵⁵

Jiaogulan has also shown promise in the treatment of depression.²⁵⁶

Promotes Weight Loss

Jiaogulan helps reduce weight in overweight people, at least in part by activating AMP-activated protein kinase (AMPK).^{257, 258} In addition, the herb's ability to increase insulin sensitivity in the body also has beneficial weight-stabilizing or weight-loss effects.²⁵⁹

A 12-week, randomized, double blind, placebo-controlled clinical trial was done with 80 participants who were considered obese according to Asia-Pacific guidelines. 40 subjects were given an extract of one of Jiaogulan's active ingredients and 40 were given placebo. The subjects made no changes to their lifestyle. Body weight in the Jiaogulan group dropped by 1.35kg, fat mass dropped by 1.25kg, and waist circumference dropped by 2.62 centimeters on average. None of these changes were observed in the placebo group.²⁶⁰

A second randomized, single-blind, placebo-controlled clinical trial involving 56 subjects who were diagnosed with non-alcoholic fatty liver also found statistically significant effect of Jiaogulan extract on Body Mass Index (BMI), as well as improvements in other parameters over the placebo group.²⁶¹

Jiaogulan has also been reported to help those who are underweight to gain mass by improving metabolism and nutrient absorption. However, no studies have yet been done to test this claim.

Cleanses the Body From Toxins

Jiaogulan has been widely reported to protect and cleanse the body from toxins.^{294, 295, 296} The herb is able to do that by stimulating the production of the antioxidant glutathione, which plays a vital role in detoxifying the body by binding to pesticides, heavy metals and other toxins until they are excreted.

Protects the Liver

- Jiaogulan was found to completely cure Hepatitis B in a 5.5 years long clinical trial with an effective rate of 77.5%.²⁶² In short-term clinical studies (3 months or less), Jiaogulan was also found to have positive effect on patients with a chronic hepatitis B infection.^{263, 264}
- It also helps prevent liver fibrosis - a scarring process that represents the liver's response to injury - which can lead to cirrhosis of the liver, liver failure and liver cancer.^{45, 265, 266, 267, 268, 269, 270}
- Effective both as a stand-alone treatment for non-alcoholic fatty liver disease caused by high fat and cholesterol diet²⁷¹, and as an add-on treatment in a 6 month long human clinical study²⁶¹.
- Jiaogulan prevents liver fatty degeneration in fatty liver disease by modulating fat metabolism, ameliorating liver dysfunction, reducing oxidative stress²⁷², and protecting liver cells from injury and death⁶¹.
- Protects against liver damage and cell death caused by ischemia/reperfusion via its antioxidant activity.²⁷³

Protects and Improves Kidney Function

- Three separate clinical studies with hundreds of patients suffering from chronic renal failure showed that Jiaogulan can decrease blood fats and improve kidney function, anaemia, and the nutritional situation in these patients.^{274, 275, 276}
- Protects the kidneys from damage due to toxins.²⁷⁷
- Suppresses the development of renal fibrosis.^{278, 279}
- Protects against kidney failure and gout by lowering blood uric acid in cases of hyperuricemia (abnormally high level of uric acid in the blood), which can cause both of these conditions.²⁸⁰

Fights Respiratory Issues and Supports the Lungs

Jiaogulan is effective against respiratory issues, such as cough, asthma, chronic bronchitis, and chronic tracheitis (inflammation of the trachea).^{191, 196, 281, 282, 283, 284}

In a clinical study of 86 patients with chronic bronchitis, Jiaogulan was found to effectively treat 93% of the cases.²⁸⁵

In another clinical study of 96 cases, Jiaogulan was effective 92% in treating chronic bronchitis.²⁸⁶

The herb is used traditionally as an expectorant and decongestant since it helps clear mucus from the airways, lungs, bronchia and trachea.¹⁹⁶

Protects the Gastro-Intestinal System

- Jiaogulan protects the GIT from damage due to toxins²⁷⁷ and improves digestion and metabolism.
- It protects against and heals gastric ulcers^{46, 287}, as well as chronic atrophic gastritis²⁸⁸.
- It improves bowel movement function and alleviates constipation.
- Helps regulate the gut microbiome ecosystem by increasing the number of symbiotic bacteria. This may in part contribute to the anticancer effect of Gynostemma, since the gut ecosystem can play an important role in diseases such as cancer, autism, rheumatoid arthritis, and allergies.²⁸⁹

Balances Hormonal Function

Jiaogulan normalizes and regulates the endocrine/hormonal system, especially adrenal function.^{2, 300}

Protects and Benefits the Reproductive System

Jiaogulan improves sexual function and helps with Erectile Dysfunction because it regulates Nitric Oxide production. Nitric Oxide plays a key role in developing and maintaining penile erection due to its ability to dilate the arteries and increase blood flow to the whole body, including the penis.^{209, 290, 291}

Increasing Nitric Oxide production is the biological basis of how the popular drug Viagra works.

Nitric Oxide is also important in sperm production and motility, ovarian function and ovulation, oviduct (the tube that links the ovary to the uterus) function, formation of the placenta, pregnancy, labour, sexual behavior, and generation of steroid hormones.²⁹²

Jiaogulan has been shown to protect the sperm from damage due to toxins³⁹ and high blood fat content²⁹³.

Treats Insomnia

Gynostemma has been used as an effective treatment for insomnia in folk medicine, especially when it occurs because of excessive stress or anxiety. This is because it soothes the nerves and has anti-stress and anxiety effects on the body. A Guiyang Medical College study with 112 patients showed that Jiaogulan could improve sleep with an effective rate of 89 – 95%.²⁹⁷

Protects the Skin From Sun Damage

Jiaogulan has been shown to protect from UV radiation when applied directly to the skin.^{157, 298, 299} Even if consumed only as a tea, the herb will still have a protective effect

against sunburn because it's a powerful antioxidant. This is important in the prevention of melanoma (skin cancer) and premature aging of the skin.

Helps Against Psoriasis

Jiaogulan has shown promise in the treatment of Psoriasis, a chronic inflammatory skin disorder.³⁰¹

Anti-Viral, Anti-Fungal and Anti-Bacterial

Jiaogulan has been used for hundreds of years in folk medicine for the prevention of colds and the flu. It has demonstrated strong anti-viral potential against Yellow Fever³⁰² and Polio³⁰³ - diseases that have no known treatment drugs. It was also shown to have potent and selective anti-retroviral potential against the HIV-1 retrovirus, which is reported to cause AIDS.³⁰⁴

Jiaogulan inhibits growth in several types of fungi and bacteria.³⁰⁵

Headaches and Migraines

Jiaogulan has been shown to alleviate headaches and migraines.³⁰⁶

Hangover

If you ever find you've had a few too many drinks the night before, have a couple of cups of Jiaogulan tea in the morning – you'll be pleasantly surprised!

Jiaogulan is Completely Safe and Non-Toxic

The fact that people have safely been using Jiaogulan daily for hundreds of years in China without reporting any negative side effects should be convincing enough that the herb has no toxicity.

In addition, however, there is also a great deal of scientific research that demonstrates its safety.

Of the many hundreds of scientific studies on Jiaogulan, a significant number of which have checked for toxicity or adverse side-effects, there has never been a report of any toxic effects whatsoever to any organ in the body.

Furthermore, there have been several studies whose specific purpose was to find any signs of toxicity from Gynostemma, as well as determine the LD50 (the dose necessary to cause death to 50% of test animals).

In one study Wistar rats were given up to 750mg per kilogram of Jiaogulan extract orally every day for 6 months. No toxic effects were observed.³⁰⁷ The results of another 4-month study with 1000mg/kg daily oral dose were identical.³⁰⁸

One study could not determine a LD50³⁰⁹, while another determined it to be at 49 grams of extract per kilogram of body weight, with no organ toxicity at 4 g/kg daily intake for 90 days.³¹⁰

Considering that the daily recommended dose is usually somewhere between 50-300 milligrams of gypenosides per day, it would be literally impossible for a human to consume enough Jiaogulan to get anywhere near these concentrations even if they tried extremely hard.

Contrast this to prescription drugs people use every day, which cause 106,000 deaths per year in the United States alone! And that does not take into consideration the serious side effects of these drugs even if they don't kill you.³¹¹

Side Effects and Contraindications

Jiaogulan is very well tolerated by the vast majority of people. In fact, none of the scientific studies so far have uncovered any toxicity or significant side-effects.

However, certain individuals should exercise caution when using Jiaogulan.

Side Effects

There have been rare reports of nausea when Jiaogulan is initially taken. Although the cause is unknown, it's common for people who go through a detox process to experience nausea, since many toxins in the body get dislodged from their usual "home" and flood the bloodstream before being expelled. This process can potentially cause nausea and other side-effects.

Any such effects are temporary and should not be a cause for concern, unless they last for more than a week or two. If you find yourself with a persistent nausea, we recommend you discontinue Jiaogulan use and consult your doctor.

Contraindications

Pregnancy and Breastfeeding

Not enough is known about the safety of Jiaogulan during pregnancy and breast-feeding, or in very young children. It is recommended that you stay on the safe side and avoid use.

Anticoagulant Drugs and Supplements

Because Jiaogulan acts as an anticoagulant, using it in combination with drugs or supplements that inhibit platelet aggregation may lead to increase in potential bruising and bleeding risk in some individuals. If you're on any such medications, please consult your doctor first.

In addition, people who are scheduled to undergo a surgery should stop using Jiaogulan at least two weeks prior to the procedure in order to avoid any risk of over-bleeding.

Drugs with antiplatelet or anticoagulant effects include aspirin, naproxen (Anaprox, Naprosyn, others), enoxaparin (Lovenox), dalteparin (Fragmin), warfarin (Coumadin), ticlopidine (Ticlid), heparin, indomethacin (Indocin), clopidogrel (Plavix), diclofenac (Voltaren, Cataflam, others), ibuprofen (Advil, Motrin, others), and others.

Immunosuppressants

Jiaogulan strengthens the immune system and should therefore not be taken along with

medications that attempt to suppress immunity, since it will counteract their effects. Please consult your doctor before taking Jiaogulan if you're on any such medications.

Drugs having immunosuppressant properties include basiliximab (Simulect), azathioprine (Imuran), daclizumab (Zenapax), prednisone (Deltasone, Orasone), cyclosporine (Sandimmune, Neoral), sirolimus (Rapamune), mycophenolate (CellCept), muromonab-CD3 (Orthoclone OKT3, OKT3), tacrolimus (FK506, Prograf), corticosteroids (glucocorticoids), and others.

How to Prepare Jiaogulan Tea

The many health benefits of Jiaogulan are mainly due to the saponins (called gypenosides) and antioxidants contained in the plant.

Therefore, preparing your tea in a way that extracts the maximum amount of saponins and antioxidants is important to gain the most out of the herb.

Luckily, scientific research has already been done to find the best way to prepare Jiaogulan tea:

1. Start by getting the best quality water you can find. This can be either bottled water or tap water that has been passed through a high-quality water filter. Using clean drinking water is important not just for preparing your Jiaogulan tea, but in general for your daily water consumption.
2. Heat the water to a temperature of around 90 Degrees Celsius. The easiest way to do this without using a thermometer is to first bring the water to a boil, then remove from heat and allow it to cool for 2-3 minutes.
3. Add about 1 to 2 teaspoons (1 – 2 grams) of dry Jiaogulan leaf for each 8oz/250ml cup of water. If brewing in a pot, add an extra teaspoon of tea for the pot.
4. Cover and allow the tea to steep for **at least** 10 minutes. You can leave the tea leaves in for up to 2 hours, extracting the maximum concentration of beneficial saponins.
5. Enjoy :)

You can reuse the tea leaves up to 2-3 times, increasing the steeping time with each brew. However, the leaves should be used the same day; **do NOT** reuse leaves overnight.

You will notice some soap-like bubbles forming in your cup when you pour your tea from the pot. That's a good sign! It means that you've extracted a lot of saponins from your Jiaogulan tea, because one of the properties of saponins is to become soapy when in contact with water. The more bubbles you see in your cup, the stronger the tea's healing qualities.

Recommended Daily Intake

If you've never tried Jiaogulan tea before, start by drinking 2-4 cups per day. Alternatively, you can take 2 capsules, 2 to 3 times per day with a glass of water (two capsules are roughly equivalent to a cup of tea).

If you don't notice any discomfort during the first week, you can slowly increase your daily intake.

For various reasons, it may be difficult for some to drink the recommended amount of tea (or more) every day. If this is your case, you can either supplement with capsules, or increase your dose by increasing the amount of tea leaves you brew. For example, you could add several grams of Jiaogulan per cup instead of the usual 1-2 grams.

Like many other herbs, it is best to take Jiaogulan on an empty stomach, either half an hour before or a couple of hours after a meal. However, if taken directly after a meal, it will help digest it.

It is best to spread your Jiaogulan intake throughout the day instead of taking it all at once.

Jiaogulan is completely safe and non-toxic and can be taken in relatively large quantities for an extended period of time without any ill effects. In fact, throughout the centuries many people have been taking the herb daily for life without any negative consequences.

Please visit us at <http://MajesticHerbs.com> for the latest information and articles on Jiaogulan.

References

For a list of the studies referenced in this book and links to those available online, please click [here](#).