

Red Reishi

HOW AN ANCIENT HERBAL TREASURE CAN BENEFIT YOUR HEALTH TODAY

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Foreword

Reishi (also known as "Ling Zhi" in China) has been known to the Asian world for over 2,000 years. Its miraculous health-enhancing applications have been employed by Oriental cultures for centuries, but have only been introduced to the Western world in the last 30 years.

Reishi is the legendary wizard of all superior medicinal herbs because of its apparent medical efficacy and the absence of unfavorable side-effects and toxins resulting from consumption. Because of its rarity in nature, reishi was reserved primarily for Asian royalty and wealthy individuals until the late 20th century, when cultivation of red reishi mushrooms by the Japanese made the once rare fungi plant more widely available to the general populace around the world.

This book provides an in-depth introduction on the history and the medicinal value of the red reishi species. Reishi mushrooms have been widely used by Chinese Traditional Medicine (TCM) practitioners for ages as an alternative approach to health and treatment modalities. However, such an approach has not been widely endorsed by Western medicine due to the lack of extensive research by those practitioners. A growing number of Western medical doctors and researchers are now working to better understand herbal therapies such as red reishi consumption so that they can help you make informed health care decisions. It has been reported that many people who choose herbal therapy rely mostly on their family and friends for information. We recommend that if you do choose herbal therapy, be sure to

consult a doctor with some basic knowledge in Chinese medicine first.

As many of the medical applications described in this book are, by definition, alternative, they have not been fully researched, approved, nor endorsed by any government or regulatory agency in the Western world. Accordingly, this book should not be substituted for the advice and care of a physician or other licensed health-care professional. Pregnant women, in particular, are urged to consult a physician before commencing any therapy. Ultimately, you must take full responsibility for your own health. The authors and publisher disclaim any responsibility for how you use the information in this book and any of the claims made herein.



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An Introduction to Reishi

In China, for over 2,000 years, the mushroom known as Reishi (*Ganoderma lucidum*) has been called “God’s Herb”. Also recognized by its Chinese name, Ling Zhi, Reishi’s reputation for being effective in treating a wide range of ailments moved Chinese Emperors throughout the various Dynasties to order servants to search for wild Reishi mushrooms found atop distant mountains, believing that the consumption of Reishi would grant them eternal youth and enhanced health. Because of the mushroom’s remote habitat and the scarcity of high-quality specimens, the use of Reishi for medicinal purposes was reserved primarily for royalty and wealthy individuals. It was not until the late 20th century, that this once-rare plant, through diligent cultivation by the Japanese, was it made widely available to the general public.



The original textbook of Oriental medical science, “Herbal Pharmacopoeia”, was compiled by the founding father of Chinese medicine, Shen Nong (Han Dynasty, 206 BC ~ 8 AD). In it, the legendary herbalist-emperor documented 365 species of plants and classified them into three categories: superior, average and fair. These classifications were based on two main criteria: its benefits, based on consumption on a continual basis, and side effects. For those plants graded as “superior”, the power to harmonize the functions of the body, mind and spirit and the range of ailments they could treat were greater and broader than those of weaker specimens. In addition, they had to have little or no long-term side effects. Among the specimens in this class, Reishi was ranked the highest in this classic medical text, even superior to the well known ginseng.

In the “Compendium of Materia Medica” (Ben Cao Gang Mu), which contains hundreds of natural medicines the Chinese have used for thousands of years, celebrated physician and naturalist Li Shi Zhen (1518~1593) described the benefits of Reishi:

It benefits the life energy, or "qi" of the heart, repairing the chest area and benefiting those with a knotted and tight chest. Taken over a long period of time, agility of the body will not cease, and the years are lengthened to those of the Immortal Fairies.

Over the ages, Reishi has become ingrained in Oriental art and culture because of its prestigious status in Traditional Chinese Medicine (TCM). Since the first Chinese dynasty, paintings, embroideries, buildings, and sculptures of the gods and immortals have depicted Reishi as a symbol of divinity, longevity and good fortune. Depictions of Reishi are displayed throughout the Forbidden City and the Summer Palace in Beijing as a testimony to its value, and the mushroom's distinctive shape was a favorite ornamental design feature used by royalty and the wealthy. Even the traditional scepter of the emperors of China was a stylized Reishi, called a "Ru Yi".



Reishi was further immortalized as the ultimate healing substance and spiritual herb of China in the classic Chinese fairy tale, "The White Snake", wherein a mystical heroine stole a magical Reishi plant from the gods to save the life of her human lover. The celestial battle for the Reishi rivaled the battles portrayed in Homer's Iliad and is a story known by virtually every Chinese person.

The Key Types of Reishi

Although there are more than 2000 known species of Reishi, only six kinds have been studied in greater detail to uncover potential health benefits – red, black, blue, white, yellow and purple Reishi. Of these six types, black and red Reishi have demonstrated the most significant health-enhancing effects, and both are therefore widely used in the global health supplement market today. However, red Reishi has been proven to be the most effective in improving one's overall health by enhancing the immune system, many bodily functions, and vital organs.



Six types of Reishi mushrooms

Black Reishi (*Ganoderma sinensis*), is fairly common and can be found in most Chinese herbal shops. This species of *Ganoderma* tends to be unevenly shaped and can measure up to ten inches in diameter, although most mature specimens are about six inches in diameter. The majority of Reishi products that claim to be using "wild" Reishi generally use black Reishi. While it still possesses some value as a moderate herbal

tonic, black Reishi is considered to be inferior to red Reishi because of its lower polysaccharide content.

Wild purple Reishi grows in the Chang Bai Mountains, north of North Korea in Jilin province of China. They are extremely rare and very similar to red Reishi in appearance, but have a significant purple coloration in the heart of the mushroom cap. There has been limited research and testing on this type of Reishi, due in large part to the scarcity of authentic purple Reishi specimens.

It is the very high content of polysaccharides (complex sugars) in red Reishi that makes it particularly potent. However, due to harsh environmental conditions, the instability of wild red Reishi in nature, and its vulnerability to pollution, disease, and insect infestations, the number of high quality red Reishi specimens that can reach full maturity in the wild is rare.

As a result, approximately 30 years ago, scientists and farmers began experimenting with different methods of domestic cultivation for mass production. Since then, Japanese producers in particular,



Dried fruit body of a kidney-shaped red Reishi

have earned the reputation of growing the highest quality red Reishi, thanks in part to strict regulations set by the Japanese government to uphold quality and trade standards. The complex cultivation process developed by Japanese scientists and farmers is detailed further in Chapter 5 of this booklet.

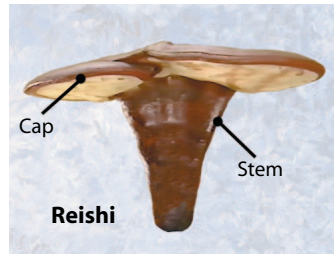
Because of the extensive research conducted to investigate the health benefits of red Reishi, and the proliferation of red Reishi products in the marketplace, this booklet focuses primarily on this specific kind of Reishi.

Physical Characteristics and Chemical Composition of Red Reishi

Since mushrooms have become staples of a healthy diet, much information has been gathered in the biological study of fungi. The object of the following section is not to duplicate the in-depth explanation of such studies, but rather to provide a general description of the physical components of red Reishi fungi and its chemical constituents.

The body of a red Reishi mushroom consists of three main parts:

- a kidney-shaped cap
- the stem or shaft of the mushroom
- spores



The stem of the plant draws the nutrients from the wood on which it is growing. In nature, the mushroom flourishes mainly on the dried trunks of dead plum, guercus serrata or pasonia trees, while red Reishi cultivated in Japan is usually cultured by grafting the Reishi fungi onto aged Japanese oak.

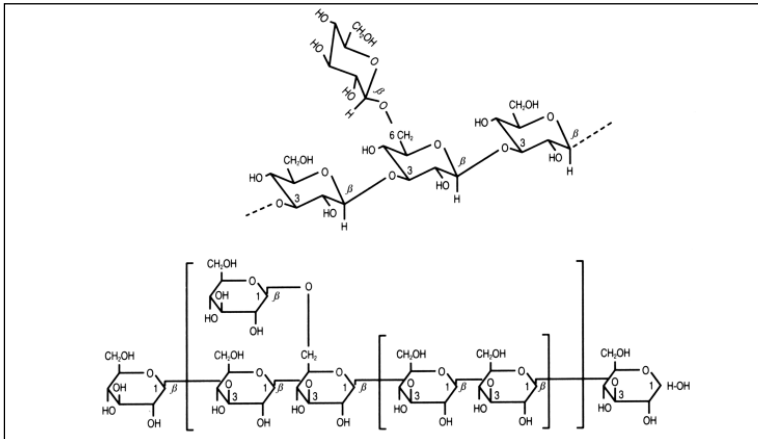
Just as "we are what we eat," the quality of a red Reishi mushroom also depends heavily on the nutrients found in its habitat. The quantity and quality of these nutrients determine the size of the mushroom's cap. As the red Reishi approaches maturity,

spores are produced and are eventually released into the air. Because of the hard outer husks of these spores, germination is next to impossible, contributing to the rarity of fully-grown red Reishi mushrooms in the wild.



Reishi crop 3 weeks before harvest

Red Reishi mushrooms are primarily composed of complex carbohydrates called polysaccharides, triterpenoids, proteins and amino acids. Studies indicate that it is these polysaccharides, the most active element found in red Reishi, that are responsible for



Structural analysis of anti-tumor polysaccharides β -(1 \rightarrow 6) and β -(1 \rightarrow 3)-D-glucan

strengthening the body's immune system. Medical practitioners in China and Japan have long used herbs like ginseng, braseniam and astragalus – which all share red Reishi's high polysaccharide content – to decrease the side effects of chemotherapy suffered by cancer patients.

In addition, ganoderic acids in red Reishi have also been shown to help alleviate common allergies by inhibiting the chemical mediators of inflammation, including histamine release.

Aside from the exceptionally high polysaccharide content, no exclusive or unique ingredient has yet been identified in red Reishi that can be credited for the mushroom's remarkable health enhancing abilities. It is more likely that the potency of the mushroom lies in the combination of its chemical constituents – a natural illustration of the idea that “the whole is more than the sum of its parts”.

Body & Mind

Using Red Reishi to Improve Your Health

Perhaps red Reishi's greatest potential medical benefit is its ability to strengthen the body's immune system. Consumption of red Reishi is therefore considered preventive and immune enhancing, rather than treatment of a specific disease.

Red Reishi is gaining credence as a potential example of what the Royal Medical Society has termed an "adaptogen" - a treatment concept that is said to help the body adapt to stresses of various kinds; these stressors may be temperature, trauma, sleep deprivation, exposure to toxins, radiation, infection, or psychological stress. Like adaptogens, red Reishi shares the properties of causing no side effects with regular consumption; it is effective in dealing with a wide variety of illnesses; and it helps an organism return to a normal and balanced state.

Furthermore, regular consumption of red Reishi can significantly improve the functioning of the immune system. Red Reishi acts as an immune modulator - a substance that regulates, and fine-tunes the immune system. The primary responsibility of the immune system is to detect pathogens such as viruses, bacteria and other microbes that invade the body. Under normal circumstances, an intact immune system is capable of deterring most of these organisms before it causes any damage. However, if the immune system is compromised, viruses, bacteria, parasites

and fungi can proliferate and cause disease. Antibiotics, anti-viral agents, and anti-fungal medications are the mainstay of current therapy. Even though they can be effective, every treatment carries a potential side effect. In addition, repeated use of these medications can cause microbes to mutate and develop resistance. Consuming red Reishi eliminates these problems.

Red Reishi is also gaining acceptance for its use as an adjunct to combating the unpleasant side effects associated with radiation and chemotherapy for cancer treatment.

Authentic red Reishi products have also demonstrated exceptional anti-stress properties that help improve memory, ease tension, and sharpen concentration. Its potency is particularly noteworthy in the treatment of degenerative diseases that affect primarily the elderly, such as Alzheimer's disease and other forms of dementia.

Health-Enhancing Applications of Red Reishi

Throughout the ages, the consumption of red Reishi has been linked to the treatment of a vast range of diseases, common ailments, and conditions. From asthma to zoster, the applications of red Reishi seem to be related to a multitude of body organs and systems.

Although some product manufacturers use this information as proof that red Reishi can be used to treat these maladies directly, there is no sufficient medical evidence to support this claim to date. However, most of the scientific research that has been conducted appears to strongly support red Reishi's role as a normalizing substance - a nutritional supplement that can yield medical benefits through its normalization and regulation of the body's organs and functions.

The previous chapter provided a general outline of the overall benefits derived from the consumption of red Reishi. The following is a list of specific conditions for which regular consumption of red Reishi and products consisting of authentic red Reishi extract has been shown to have some beneficial effects. Please note that although many of the medical applications listed below have been supported by researchers in both the medical and nutritional science fields, the information below should be treated as observations gathered over time based on individual cases, and

not a guarantee or endorsement of Reishi's effectiveness. For specific case reports or data, please consult a physician with an expertise in Chinese medicine. Research studies and additional information can be obtained through libraries or found on the internet. You may also contact your local health organizations.

Conditions Related to Blood Circulation

It has been thought that red Reishi extract can reduce the coagulation of blood by decreasing platelet aggregation (cells that form clots), similar to aspirin. In addition, it is possible that it is able to transform red blood cells, and make them more malleable to travel through blood vessels at greater ease, reducing the chances of clogging, which could lead to strokes and heart attacks. Improved circulation is extremely important in diabetics, who invariably develop small artery disease.

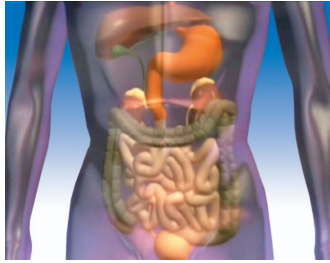
Heart Conditions

Several cardiovascular benefits have been demonstrated from the regular consumption of red Reishi. These include:

- correction of some arrhythmias due to stress
- lowering of "BAD" LDL cholesterol and Triglycerides (another type of blood fat)
- lowering of blood pressure - demonstrated in published human studies
- improved blood circulation, with all of the benefits outlined above.

Liver Disorders

The primary function of the liver is to metabolize and detoxify drugs and poisons.



In addition, it is where cholesterol and certain proteins are synthesized. Damage to the liver can cause an accumulation of toxins and by-products in the body that cause jaundice (yellowing of the skin), weight loss, fatigue, loss of appetite, and many other maladies. Research has shown that red Reishi has hepato (liver) protective properties. Regular consumption of red Reishi may indeed rejuvenate the liver cells, allowing it to perform its vital functions.

Digestive Disorders

Red Reishi consumption has also been shown to decrease gastric acid, which, in excess, can lead to the formation of peptic and gastric ulcers. It has also been shown to regulate bowel movements, relieving symptoms of constipation and diarrhea, such as that found in irritable bowel syndrome.

Lungs

Red Reishi has shown some benefits in those suffering

from asthma, chronic bronchitis, and common allergies. By blocking the mediators of inflammation, symptoms of asthma can be alleviated, and by boosting the immune system, colds and flu's are reduced, leading to less exacerbations of asthma. Red Reishi products have been used as an anti-tussive to suppress persistent coughing, and it is used as an expectorant to loosen up secretions. It is thought that red Reishi may even enhance the regeneration of tracheal and small airway epithelium - particularly important in patients who smoke and suffer from chronic bronchitis (smokers' cough).

Kidney Regulation

The kidneys are responsible for maintaining the proper balance of chemicals and elements such as sodium, potassium, and other electrolytes in the body. It also filters the blood constantly and maintains a constant acidity (pH) and molecular concentration. Red Reishi may aid in the regulatory functions of the kidney.

Cancer

Cancerous cells are marked by their abnormal proliferation of growth. While it is still unclear how normal cells become cancerous, there has been some suggestion that it may be due to a viral origin, or perhaps a change in the body's natural defense (the immune system). Recently it has been thought that certain

individuals are genetically predisposed to cancer. Therefore it is not surprising that as one ages and the immune system weakens, one becomes more susceptible to certain forms of cancer.

Regular consumption of red Reishi has been shown to stimulate the production of interferon and interleukins I and II, potent natural anti-cancer substances produced in our body. Furthermore, researchers claim that polysaccharides called Beta-1,3-D-glucan and Beta-1,6-D-glucan have been shown to possess powerful anti-tumor properties. These polysaccharides can also activate macrophages, the essential immune cells in our body's first line of defense against microbial intruders such as viruses, bacteria and yeast.

Diabetes

Diabetes is a disease of poor blood sugar regulation. There are 2 types of diabetes. Type I is due to a lack of insulin production, which is a hormone secreted by the pancreas - its function is to regulate blood sugar. Type II is usually adult onset, and is due to insulin resistance. This form is more commonly related to obesity, poor nutrition, and lack of exercise. The mainstay of treatment for diabetes is either insulin injections or oral medications, both of which have its inherent side effects. Red Reishi has blood sugar lowering properties, and can possibly help regulate glucose levels

in borderline Type II cases, without the side effects of medications.

Prostate Disease

As men age, there is a normal increase in the size of the prostate, called benign prostatic hyperplasia (BPH). This can lead to a decrease in the normal urinary outflow, frequent night-time urination, and other prostate problems. In addition, advanced age significantly increases the incidence of prostate cancer. The prostate specific antigen (PSA) blood test is increased in both conditions, and it is used to screen, detect, and monitor prostatic disease, including prostate cancer treatment. There is evidence that red Reishi, when combined with other herbs, can significantly reduce Prostate Specific Antigen (PSA) levels. The mechanism is unknown, but it can occur as early as one month after treatment.

HIV Disease

Anti-HIV substances and protease inhibitors (a major class of drugs used to treat HIV/AIDS) have been found in red Reishi mushrooms. There is anecdotal evidence that it lowers the viral load and increases the CD4 counts.

Summary

In conclusion, while medical research and individual case studies have shown red Reishi to be effective in treating numerous

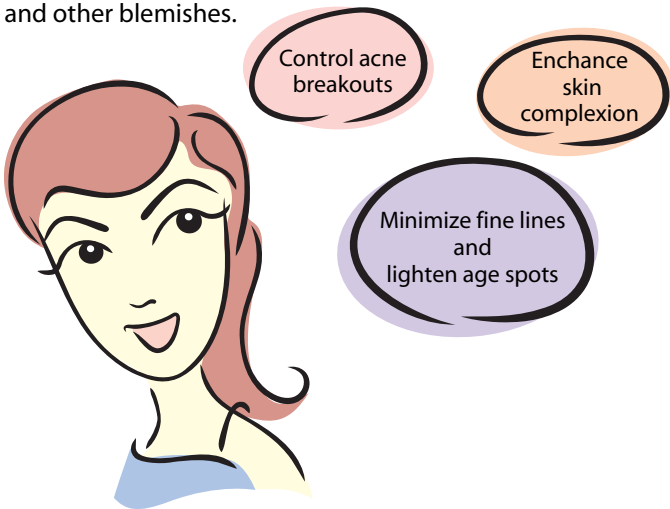
conditions and diseases, it is important to emphasize again that the greatest proven benefit of regular red Reishi consumption is the enhancement of your body's overall health.

Through purification, improved blood flow, immune modulation, detoxification, rejuvenation, and revitalization, red Reishi can enhance the body's ability to combat a myriad of diseases, particularly those that occur more frequently with advanced age.

How Red Reishi can Improve Your Physical Appearance

Obesity can affect one's self confidence and have a negative impact on one's self-image. In addition, it can lead to diabetes, and cardiovascular disease. Studies have found that regular consumption of red Reishi helps the body cleanse itself of accumulated toxins and excess lipids (fat).

In addition to regulating the body's way of handling fat, red Reishi products can also improve the condition of the skin. The anti-aging properties of red Reishi may be related to improved blood flow and increased delivery of nutrients to the skin. It may also help in the reparation process of sun-damaged skin. People who have taken Reishi regularly have noticed a decrease in pimples (acne) and other blemishes.



Regular consumption of red Reishi also has a calming and stress-reducing effect on the body, and appears to improve sleep patterns, without the sedation commonly seen with medications. It should be clear to the reader that these benefits combined, will improve one's physical appearance.

Regular red Reishi intake combined with a healthy diet and active lifestyle, can effectively facilitate your body's return to a normal, healthy state.

On the Road to Better Health with Red Reishi

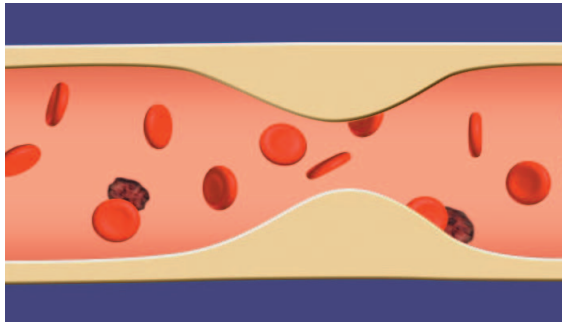
If we do not actively maintain a healthy lifestyle, our bodies will deteriorate, and we will gradually become accustomed to this state of declining health. We may lose track of weight that we have gained and not notice the decline in our natural well being until a significant problem arises. It is thought that over time, an inactive body accumulates toxins, and this contributes to the deterioration of overall wellness.

Consuming a red Reishi product on a regular basis is thought to clear some of these toxins. In the beginning, a user may experience a "resetting" period, where his or her body will exhibit signs of "cleansing". The excretion of accumulated poisons and an increase in various metabolic activities are normal signs of recovery and they indicate that the regulatory properties of red Reishi are taking effect.

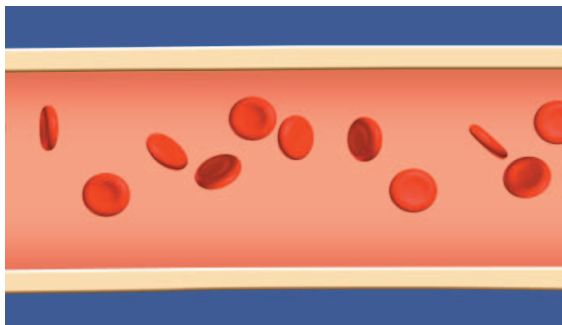
Common symptoms of "recovery" may include dizziness, sore bones, skin irritation, change in bowel movements, including diarrhea and constipation, and pimple-like blemishes appearing on various parts of the body.

The time frame for these symptoms may vary from person to person, but they generally last only a few days - until the body adjusts to a higher state of wellness and becomes accustomed to

the regular intake of red Reishi. Daily consumption of large amounts of water is recommended. It is important to point out again that these physiological reactions are only temporary, unlike side effects from medications.



Clogged blood vessels may impede blood flow



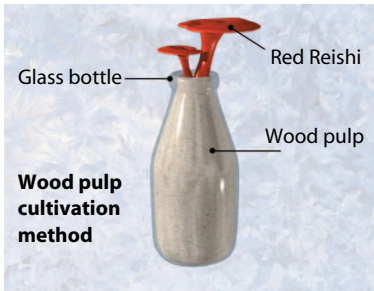
Steady blood flow of red blood cells

The Cultivation of Red Reishi

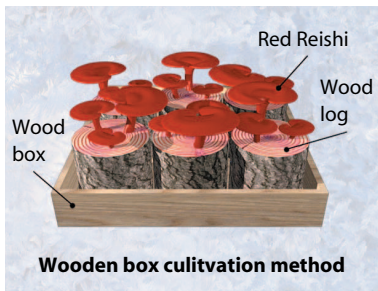
Research has shown that the health-enhancing properties of Reishi are strongest when the plant is fully mature, a state that is almost impossible to find in the wild due to the unstable environmental conditions that exist in the natural habitat of red Reishi plants.

As a result, the majority of red Reishi products on the market today use mushrooms that have been cultivated in hothouses. Cultivation of red Reishi originated in Gunma-Ken, Japan, where the Mayuzumi family mastered the technique of culturing Reishi on Japanese oak logs.

Wood pulp, wooden box, and natural wood log cultivation are three common methods of cultivating the red Reishi plant. In wood pulp cultivation, wood pulp is placed in a glass bottle and the Reishi fungi are added. After three months, this growing method



Wood pulp cultivation in glass or plastic containers

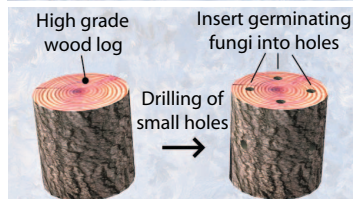
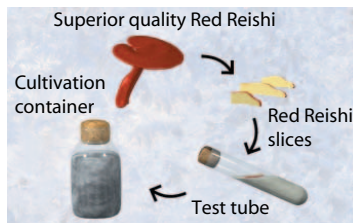


Wood log cultivation in wood boxes

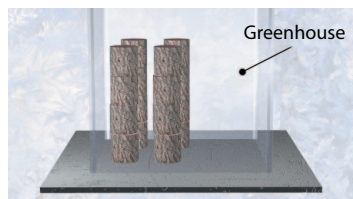
will usually yield small mushrooms of relatively poor quality. The second method, wood box cultivation, involves grafting the fungi into a wooden log that is then placed in a wooden box. Reishi of medium-size and moderate quality are generally produced through this method after six months.

Large red Reishi of superior quality are most commonly grown using the natural wood log method, which is the most complex form of cultivation. The process begins with the culturing of a high quality Reishi fungus strain in test tubes for about 85 days. The germinating fungi are then inserted into holes drilled into selected high grade logs between 26 to 30 years old. These logs are

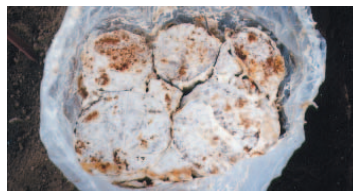
The flow of natural wood log cultivation



Japanese woodlogs are drilled with holes before mycelium are placed into it



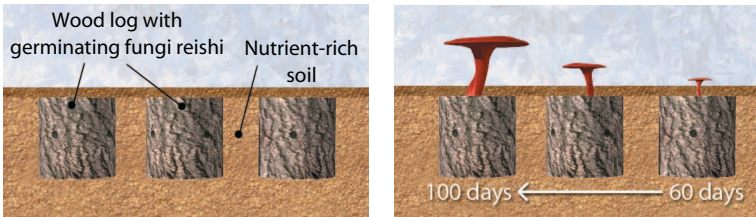
Woodlogs are placed in greenhouses for inoculation



Inoculation period

then placed in a greenhouse and buried under nutrient-rich soil for 5 months. During this growth period, the Reishi fungi absorb almost all of the nutrients from the soil. After five years of use, the soil must lay dormant for 2 to 3 years to allow replenishment of nutrients into the soil before it can be used again.

Growing conditions require continued monitoring to ensure a high quality Reishi harvest. Temperature, humidity, carbon dioxide, light intensity and nutrients are all closely monitored to maintain optimum growth conditions. The greenhouse is sprayed with moisture daily to stimulate growth and



Reishi crops during growing period in greenhouses

maintain a humidity of 90 to 95%. This sprayed moisture is sanitized to prevent the Reishi from being eroded by bacteria. Most Japanese companies are required to follow strict agricultural safety guidelines and abstain from the use of exotic pesticides.

The plants are grown for another 100 days until they mature to their full size. Eventually, the mushrooms produce a thick coating of spores and spraying is stopped when the mushrooms release their spores into the air. Finally, the Reishi grow for an additional two weeks before being harvested.

A healthy and mature red Reishi plant is distinguished by its large size, thick cap and overall weight. Although Reishi mushrooms grow larger with age, they are best harvested at the height of maturity when they are fresh and moist inside; older plants may be larger in size, but they are also usually too dry and brittle to be effective.

To prepare Reishi for use in health products, the mushrooms are cut into small pieces and boiled for two hours. This process is repeated three times to completely extract the medicinal properties of the red Reishi. The medicinal extract is prepared using a low-temperature vacuum condenser and an air-sprayed drier to transform it from a concentrated liquid form to a powder

state for transfer into capsules. Ambient temperature and moisture are strictly controlled during the drying process to maximize product effectiveness.

In summary, the effectiveness of a red Reishi plant in enhancing one's health depends on four main criteria:

- 1) the quality of the plant's mother fungi;
- 2) the method of cultivation;
- 3) the growing conditions;
- 4) the harvest time.

Thus, it is clear that companies who use a more complex method of Reishi cultivation like the natural wood log method are more likely to satisfy these four criteria, and produce superior red Reishi crops.

Selecting the Right Reishi Product for You

As with other natural supplements that serve as preventative measures against degenerative diseases and conditions, red Reishi products are most effective the sooner they are included as part of your regular diet/vitamin program.

Although the impact of poor habits and diet on your health can accumulate substantially over time, the positive benefits of red Reishi are also cumulative. Thus, if you begin using Reishi in your mid-thirties, you may strengthen your body and immune system to better withstand the trials of time as you age.

There are a growing number of product choices every year available to red Reishi consumers, and the variety of brands and product forms can easily be overwhelming. Due to the growing recognition that companies in Japan are producing exceptionally high quality red Reishi products, there is a disturbing trend among some manufacturers who misrepresent their products as being produced in Japan, when they are actually produced in China or North America, where there is little regulation of the red Reishi industry.

A recent study in Choice magazine, published by the Hong Kong Consumer Council*, aimed to help consumers choose the best Reishi product by comparing the effectiveness of active

ingredients in 32 Reishi products available in the marketplace. The study determined that polysaccharides were the most important health-enhancing ingredients in Reishi products. It then compared the potency of the 32 products based on their polysaccharide content level. According to the test results, a

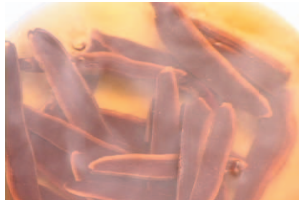


Choice magazine issue#286, published by the Hong Kong Consumer Council*

certain red Reishi product made in Japan had the highest amount of polysaccharides amongst all the test products at 29.7%, while other Reishi products had as little as a 0.06% polysaccharide content level.

* The Consumer Council was established in April 1974 in Hong Kong. The function of the Council is to protect and promote the interests of consumers of goods and services and purchasers of immovable property. Some objectives of the Council are to conduct tests, surveys and research for the evaluation of goods and services to users; promote public awareness of consumer rights and responsibilities through publicity and media campaigns; and publish a monthly magazine "Choice" for the provision of independent and objective consumer information.

The magazine also mentioned a study that compared boiling the red Reishi slices themselves to prepare tonics for consumption versus the commercially-made product. The study team used 15 grams of red Reishi slices and boiled them in 300 cc (about one bowl) of water for an hour. The analysis showed that the amount of polysaccharide extracted was about 0.068 grams, and the study concluded that this boiling method by the consumer is labour intensive and actually more expensive than consuming ready-made industrially processed Reishi products.



What to Look for in Reishi Products

Here are some important factors to consider in your search for the most effective and safest red Reishi product:

The amount of polysaccharides contained in the product

Since the polysaccharides has been identified by researchers as being the most active health-enhancing ingredient in red Reishi, you should choose a product with the highest polysaccharide content for greater potency.

The reputation of the brand name and product history

The art of Reishi cultivation has been developed and refined over the course of thirty years, and many of the leading Reishi product manufacturers were at the forefront of the research and development involved in creating the best cultivation method to yield the highest quality Reishi. You should therefore invest some time in researching a company's website or background carefully before purchasing its products.

The manufacturer's country of origin

While red Reishi cultivation is now possible around the world, companies in Japan are still regarded as producers of premium red Reishi because of strict government regulation of the

industry. Some unscrupulous companies have tried to capitalize on this by designing their product packaging to appear to be of Japanese origin - one should be wary of a product that does not list the name and address of its manufacturer.

Tips for Improving Your Diet While Using Red Reishi

In addition to using red Reishi products on a regular basis, you can also greatly improve your overall health by altering your diet. Nutritionists recommend the following:

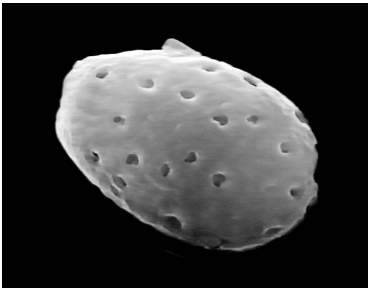
- Refrain from using refined sugar. Substitute with pure honey, or fruit sugar instead.
- Avoid processed foods (e.g. canned foods, instant noodles, soda pop, etc.)
- Eat a healthy mix of natural foods from each food group to maintain your nutritional balance. Include all types of vegetables in your diet, especially those with stalks and roots.
- Drink more water. Try to drink 8 glasses of water a day. This will prevent cellular dehydration and enhance your metabolic functions to rid your body of poisonous waste.

Reishi Spores & Mycelium

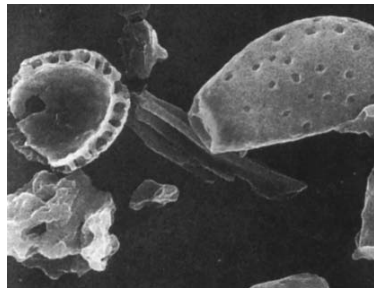
The effectiveness of using the fruiting body of red Reishi mushrooms in health supplements has made many companies eager to exploit other aspects of the Reishi mushroom for use in health products.

Recently, there has been much debate about the issue of whether supplements prepared by extracting oil from Reishi spores have more medicinal value than traditional red Reishi products. In the past, the oxidation of Reishi oil was shown to create an unpleasant odor and become harmful to human cells. However, current marketers of these Reishi spore oil products claim to have perfected the technology of cracking the spores and preventing the lipid oil collected from being spoiled by oxidation.

The Hong Kong Consumer Council's Choice magazine has thus far declined to comment on the medical efficacy of Reishi



Reishi spore

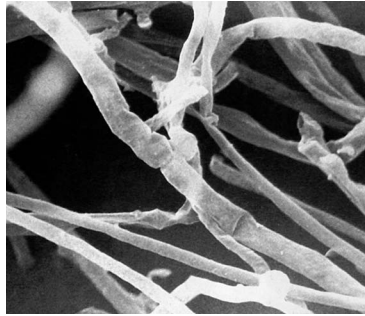


Cracked spore

spore byproducts, stating that consumers should wait for more scientific research and clinical studies on these products before making a decision.

Mycelium

Another recent trend in the Reishi industry is the use of mycelium in place of mature Reishi mushroom extract in certain products. Mycelium is the stage between the spore and the mature mushroom in the Reishi life cycle. Reishi mycelium products are typically produced



Reishi mycelia

by mixing a small amount of mycelium with sterilized soybeans, rice, or other grains in a water slurry. The resulting mixture is then dried and ground into a powder for use in tablets or capsules.

While mycelium may possess some health-enhancing properties, specialists point out that all the research conducted thus far has centered on the various health benefits provided by the Reishi mushroom itself, and not the mycelium. Therefore, similar to the situation concerning spore oil products, there is

currently insufficient evidence to support the claim that mycelium-based products can yield the same benefits as products made with the red Reishi's fruiting body.

While mycelium use has become prevalent in North America, the lack of time-tested cultivation techniques for the substance has resulted in most mycelium cultivation to take place in greenhouses, using nutrients of less-than-optimum quality. Growing Reishi mycelium in vats of grain slurry is considerably faster and cheaper than taking the Reishi mycelium through the next stage of growth to produce natural mature mushrooms. In contrast, growing mature Reishi mushrooms from mycelium requires 6 to 8 additional months in large, shaded greenhouses equipped with sophisticated sterility, temperature, and humidity controls. Many producers find the additional cost and time necessary to organically cultivate the Reishi to maturity by this method too costly, and opt for the cheaper vat method, which may dilute the mycelium's potency, if any.

Although this cost-cutting practice is widely accepted in America, it is looked upon with disdain in China and Japan; to this day, companies in both countries where Reishi use has the longest history refuse to use mycelium in health products.

Consumers who are interested in using products derived from either Reishi spore oil or mycelium are advised to carefully research these topics, and consult a qualified health care professional before consuming any such products.

Resources You Can Use for More Information about Reishi

Japan Reishi Association

The Japan Reishi Association (JRA) is an international non-profit organization supported by industry leaders dedicated to helping growers and manufacturers maintain the highest standards of product quality and business practices in the Reishi industry worldwide.

The Japan Reishi Association's primary goal is to inform the general public about Reishi, Reishi-related health food products, and product manufacturers. In addition, the JRA is also committed to holding manufacturers and marketers of Reishi products accountable for claims of Japanese origin. To this end, the JRA strives to set and aid in the enforcement of industry standards for product quality and ethical business practices by working together with authentic Reishi product manufacturers in Japan and international government organizations to alert the public about products and manufacturers that fail to meet these standards.

If you have any questions about a Reishi product or manufacturer (such as the authenticity of a specific product you have purchased), you can contact the Japan Reishi Association at info@japan-Reishi.org or by calling their toll-free number at 1-866-J-REISHI (1-866-573-4744).

Resources

For a list of resources with more information about Reishi products, clinical trials, and the latest industry news, visit the JRA website at www.japan-reishi.org or www.reishi.com

Bibliography

1. Tao J, Feng K.Y. Experimental and clinical studies on inhibitory effect of ganoderma lucidum on platelet aggregation. *J Tongji Med Univ* 1990; 10(4):240-243
2. Wasser SP, Weis AL. Therapeutic effects of substances occurring in higher Basidiomycetes mushrooms: a modern perspective. *Crit Rev Immunol* 1999; 19(1):65-96
3. el-Mekkawy S, Meselhy MR, Nakamura N, et al. Anti-HIV-1 and anti-HIV-1 protease substances from *Ganoderma lucidum*. *Phytochemistry* 1998;49(6):1661-1657
4. Kim RS, Kim HW, Kim BK. Suppressive effects of *Ganoderma lucidum* on proliferation of peripheral blood mononuclear cells. *Mol Cells* 1997;7(1):52-57
5. Wang SY, Hsu ML, Hsu HC, et al. The anti-tumor effect of *Ganoderma lucidum* is mediated by cytokines released from activated macrophages and T lymphocytes. *Int J Cancer* 1997;70(6):699-705
6. Hijikata Y, Yamada S. Effect of *Ganoderma lucidum* on postherpetic neuralgia. *Am J Chin Med* 1998;26(3-4):375-381
7. Kim HS, Kacew S, Lee BM. In vitro chemopreventive effects of plant polysaccharides (*Aloe barbadensis miller*, *Lentinus edodes*, *Ganoderma lucidum* and *Coriolus versicolor*). *Carcinogenesis* 1999;20(8):1637-1640

8. Komoda Y, Shimizu M, Sonoda Y, et al. Ganoderic acid and its derivatives as cholesterol synthesis inhibitors; Chem Pharm Bull (Tokyo)1989;37(2):531-533.
9. Hikino H, Ishiyama M, Suzuki Y, et al. Mechanisms of hypoglycemic activity of ganoderan B: a glycan of Ganoderma lucidum fruit bodies. Planta Med 1989;55(5):423-428
10. Lee SY, Rhee HM. Cardiovascular effects of mycelium extract of Ganoderma lucidum: inhibition of sympathetic outflow as a mechanism of its hypotensive action. Chem Pharm Bull (Tokyo) 1990;38(5):1359-1364
11. Kim DH, Shim SB, Kim NJ, et al. Beta-glucuronidase-inhibitory activity and hepatoprotective effect of Ganoderma lucidum. Biol Pharm Bull 1999;22(2):162-164
12. Yoon SY, Eo SK, Kim YS, et al. Antimicrobial activity of Ganoderma lucidum extract alone and in combination with some antibiotics. Arch Pharm Res 1994;17(6):438-442.
13. Chen K, Li C. Recent advances in studies on traditional Chinese anti-aging material medica. J Tradit Chin Med 1993;13(3):223-226.
14. van der Hem LG, van der Vliet JA, Bocken CF, et al. Ling Zhi-8; studies of a new immunomodulating agent. Transplantation 1995;60(5):438-443

15. Thomas Bartram Fellow of the National Institute of Medical Herbalists, Bartram's Encyclopedia of Herbal Medicine, the Definite Guide to the Herbal Treatment of Diseases: 368
16. Linda B. White M.D., Steven Foster. The Herbal Drugstore: 570
17. John E. Smith, Neil J. Rowan, Richard Sullivan. Medicinal Mushrooms and Cancer; (2):15; (3):26; (3):27-32; (7); (8)
18. Terry Willard, PhD. Reishi Mushroom Herb of Spiritual Potency and Medical Wonder; (3); (4); (5)

