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The Sacred Mushroom "Reishi"-A Review

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Abstract: For over 2000 years Reishi mushrooms have been recognized by Chinese medical professionals as a valuable remedy. Its Chinese name Lingzhi, means "spiritual potency". Reishi mushrooms are regarded by the Chinese as the "Medicine of Kings also called as "mushroom of immortality" and has been used as a tonic and strengthening medicine for thousands of years. Uses in traditional healing include increasing intellectual capacity and memory; promoting agility and lengthening the life span. These active extracts and fractions are useful for inhibiting tumor growth, modulating immune response and increasing hematopoietic activity and so on. This paper reviews the significance of Reishi mushroom and its medicinal properties.

Key words: Tumour inhibitors, Immortality, Hematopoietic activity

INTRODUCTION

Reishi is a basidiomycete, lamellaless fungus belonging to the family of polyporaceae. In nature, it grows in densely wooded mountains of high humidity and dim lighting. It is rarely found since it flourishes mainly on the dried trunks of dead plum, guercus serrata or pasonia trees. Out of 10,000 such aged trees, perhaps 2 or 3 will have Reishi growth, therefore it is very scarce indeed [1]. The status of Reishi in the health food industry is unparalleled. It is the culmination of the knowledge and wisdom of the East and West for 5,000 years. Its effectiveness as a health food and as a highly potent medicine have been demonstrated by over 30 years of modern scientific research in all over the, Reishi can safely claim to be totally free from side-effects[2].

Types of Reishi Mushrooms: 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.

Black Reishi (*Ganoderma sinensis*), is 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 is extremely rare and very similar to red Reishi in appearance, but has 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 [3].

Table 1: Types of Reishi

Color	Taste	Use
Blue	Sour	Improves eye sight and liver function.
Red	Bitter	Aids internal organs and improves memory.
Yellow	Sweet	Strengthen spleen function.
White	Hot	Protects kidney.
Black	Salty	Improves lung function.
Purple	Sweet	Enhances function of eyes joints, helps complexion.

High content of polysaccharides in red Reishi that makes it particularly potent [4]

Production: Currently, the methods most widely adopted for commercial production are the wood log, short wood segment, tree stump, sawdust bag and bottle procedures [5].

General Nutritional Components of *Ganoderma lucidum:* *G. lucidum* contains mainly protein, fat, carbohydrate and fiber. Artificially cultivated variety has

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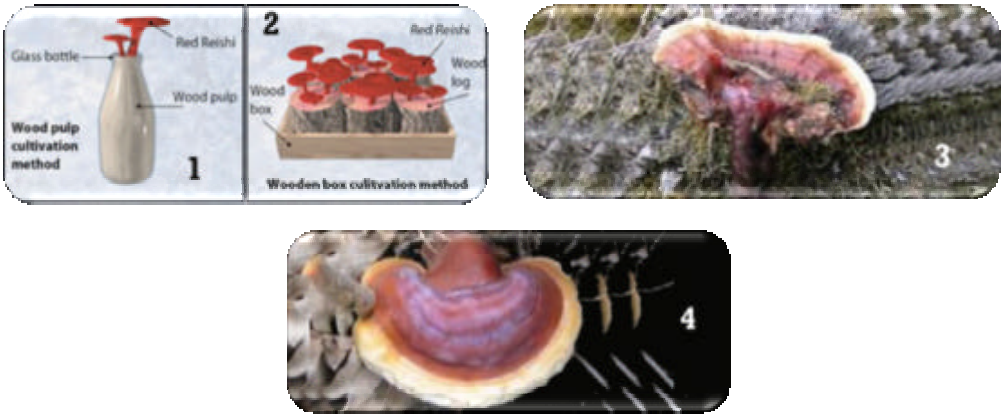

Fig. 1: Production of Reishi on different substrates-1.Wood pulp cultivation method, 2. Wooden box cultivation method, 3.Tree Stump method, 4. Saw dust.

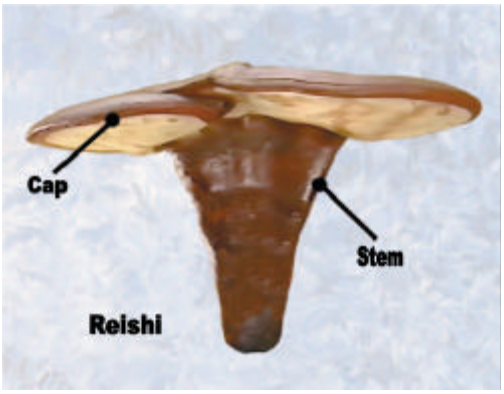

Fig. 2: Body of Reishi Mushroom.

similar contents of nutritional components compared with wild types and the extraction significantly increases the amounts of crude protein and carbohydrates and deleted crude fiber [6].

Several experiments reported that the composition of *G. lucidum* extract, which consisted of folin-positive material (68.9%), glucose (11.1%), protein (7.3%) and metals (10.2%) (K, Mg and Ca are the major components However, there are qualitative and quantitative differences in the chemical composition of *G. lucidum* products depending on the strain, origin, extracting process and cultivation conditions [7].

Major Bioactive Constituents: Over 300 reports have been published concerning the chemical constituents of G. Lucidum and related species. The fruiting body, mycelia and spores of *G.lucidum* contain approximately 400 different bioactive compounds, which mainly include triterpeniods, polysaccharides, nucleotides, sterols, steroids, fatty acids, proteins, peptides and trace elements [8].

Physical Characteristics and Chemical Composition of Reishi: Since mushrooms have become staples of a healthy diet, much information has been gathered in the biological study of fungi. The following provide a general description of the physical components of Reishi fungi and its chemical constituents.

The body of a 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 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 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 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 Reishi mushrooms in the wild [9].

Reishi mushrooms are primarily composed of complex carbohydrates called polysaccharides, triterpeniods, proteins and amino acids. Studies indicate that it is these polysaccharides, the most active element found in Reishi that are responsible for Structural analysis of anti-tumor polysaccharides to strengthen the body's immune system.

Health Benefits of Reishi Mushroom

Nerves: Reishi mushrooms have been traditionally recommended by Chinese and Japanese herbalists for insomnia due to their "sleep-promoting factor" [10]. Reishi mushrooms are prescribed in China for a number of psychiatric and neurological afflictions, including diseases involving the muscles, anorexia and debility following lengthy illnesses [11].

The dried "mycelium" of Reishi the root-like body that produces mushrooms has been found to be highly effective in the treatment of neuroses caused by "environmental stress". In addition, in an eight-month study of Alzheimer's disease, patients taking a Reishi mycelium product demonstrated significant improvement [12].

Immune System: *Ganoderma lucidum* contains high concentration of Organic Germanium, Polysaccharides and Triterpenes. These active components are proven to strengthen our immunity cells and improve our immune system [13].

Anti-Allergic /Anti-Inflammatory Activity: Studies showed that Reishi extract significantly inhibited all four types of allergic reactions [14], including positive effects against asthma and contact dermatitis and effectively used in treating stiff necks, stiff shoulders, conjunctivitis (inflammation of the fine membrane lining the eye and eyelids), bronchitis, rheumatism and improving "competence" of the immune system without any significant side-effects [15].

Healing the Liver: Reishi is used for the treatment of chronic hepatitis. Reishi extract has been reported to be effective in treating patients with liver failure. In animal studies of mice with carbon tetrachloride-induced hepatitis, the extent of liver damage was significantly inhibited by continuous dosing with Reishi tincture and the regeneration of the liver was promoted [16].

Cancer: Studies of Reishi proved to have an anti-tumor effect. The active anti-cancer constituents in Reishi are called Beta-D-glucan. Beta-D-glucan is a polysaccharide basically a huge sugar molecule made up of many little sugar molecules chained together bound to amino acids. These intricate sugars stimulate or modulate the immune system by activating immune cells such as macrophage and helper T-cells, as well as increase the immunoglobin levels to produce a heightened response to foreign cells, whether bacteria, viruses, or tumor cells [17].

CONCLUSION

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 common people around the world.

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