

Report on the Exploitation of Mycelia Powder Products

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Abstract: The "Developing Program (2001-2010) for Food and Nourishment in China" reported that the next ten years are an important period for changing the nation's food structure and improving nourishment levels. Rapid food development and reform of food structure, and improvement of the nation's nourishment level is the key to simultaneously achieving abundance of supplies and enhancement of quality, and is an important task in the construction and modernization of socialism. Developing the next process of fungus food is an important means of attaining this aim.

Key words: Food structure, improvement of nourishment levels, fungal foods, mycelial powder preparations

1 Developing Program (2001-2010) for Food and Nourishment in China

The "Developing Program (2001-2010) for Food and Nourishment in China" reported that the next ten years are an important period for changing the nation's food structure and improving nourishment levels. Rapid food development and reform of food structure, and improvement of the nation's nourishment level is the key to simultaneously achieving abundance of supplies and enhancement of quality, and is an important task in the construction and modernization of socialism. Developing the next process of fungus food is an important means of attaining this aim. "Health and longevity are human ideals and pursuits, and they will become even more important when our country enters an aged society." With the economy developing and science advancing, and the quality of life improving, food structure ultimately undergoes changes. Especially after the "SARS" outbreak, people are more interested in food safety and functionality. "Regressing nature, no social effects of pollution, high nourishment, immunity and health protection" has been the aim of all food production factories either in our country or overseas. Adding various kinds of supplements such as selenium can be helpful, but exploiting and utilizing the fruiting bodies and underground sclerotia of rare fungi are more important.

The theories of traditional Chinese medical science think that medicinal supplements are no more beneficial than that of food, and we should improve our health and immunity, and reduce the rate of debilitation from everyday eating. Fungus food not only has special taste but also several different living materials, especially some novel forms of polysaccharide, nucleic acids, eighteen amino acids essential to human beings, and other very important ingredients, such as minerals and vitamins. In particular, some fungi have strong anti-radiation capability, which is good for computer operators and handlers of radiation. Screening of fungi can be conducted in factories, searching for selenium and other relatives at the same time. Using new technology, the fungi can be converted into all kinds of mycelia powder.

2 Constituents and Bioactivity of Various Mushrooms

2.1 *Lentinus edodes*

The mycelium of this mushroom contains enzymes, 18 amino acids and multivitamins. Every 100g of mycelium contains 15.6g of protein (6.4165g of essential amino acids and 9.7644g non-essential amino acids), 64.5g glucide and 1.2g fat. Amylose in *Lentinus edodes* restrains S180 sarcoma by 70-100% because it is a very good

activator and regulator of immunity.

2.2 *Ganoderma lucidum*

This is a notable healer fungus. The content of organic germanium is 800-1000ppm that, together with polysaccharides can strengthen the body's immune system.

2.3 *Flammulina velutipes*

This mushroom contains 18 amino acids amounting to 20.9g in 100g dry fungus. Essential amino acids make up 44.5% of this total.

2.4 *Polyporus umbellatus*

This fungus is abundant with multi-nutrients. It can resist caducity, keeps the brain healthy, protects the thrombus and moistens the skin. In particular, this fungus has strong anti-radiation capability that is good for computer handlers and those working with radiation. The choline, threonine and leucine content of *Polyporus umbellatus* can ward off tiredness, strengthen the memory and improve reaction times, and thereby would be highly beneficial to athletes and brainworkers.

3 Development of Mycelium Powders

The development of mycelium powders symbolizes that the processing of fungi has entered a new development phase. It will save plenty of the original materials, remove resource restrictions in the industry and the limitations on mushroom production caused by, for example, local climatic conditions, and turn the tradition of eating fruiting bodies and sclerotia into eating mycelium powder. The characteristics of the technique are: 1) fungi that cannot be eating directly in the form of a lignified fruiting body can be converted into mycelium powder; 2) improving the flavor and nourishment level, and advancing the remedial action by mixing the mycelium powder into flour, 3) turning the use of fungi from a dish-eating form into a multi-functional form. Some kinds of fungi, such as *Tricholoma*, *Morchella*, *Boletus* and *Tuber*, cannot be cultivated artificially, so we can take advantage of their mycelia. Some higher-value fungi (such as: aweto, Brazil fungus) and other fungi which have long life cycle or cannot be stored for long periods can be made into mycelia powder.

With the development of a social economy, lack of action, and simple foods and beverages, cannot satisfy the different administrative levels of consumers. Now, the priorities of consumers are good taste, protecting against and curing disease, resisting caducity and accelerating health and longevity. Multi-functional mycelia powder - a new high-tech production concept, will be propitious in balancing nourishment and adjusting meal formulations, and will be the best choice for consumers of different levels.

Furthermore, the potential value of mycelia powders is very great. In the process of exploration, adding the proper supplements will complement, consummate and enhance. Taking full advantage of the mycelia of many fungi has a promising future.

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