

## Nutraceutical Application of *Hericiumerinaceus* and It's Artificial Cultivation

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### Introduction

*Hericiumerinaceus* is a medicinal and edible fungus that has been utilised since ancient times in East Asia. Lion's mane is another name for *Hericiumerinaceus*. *Hericiumerinaceus* is a relatively uncommon mushroom that has been included on the Red List of Endangered Species in numerous European and North American nations. Lion manes get their name from the huge, shaggy white mushroom that looks like a lion's mane (long thick hairs that grow from the neck). The mushroom is consumed as a meal in Chinese and Japanese cuisine. Many people compare its flavour to that of crab, shrimp, or lobster, claiming that it tastes like seafood or relatively tastier than non-vegetarian meals. It has therapeutic effects in addition to flavour.



Fig: *Hericiumerinaceus*

### **Medicinal and nutraceutical application of *Hericiumerinaceus***

*Hericiumerinaceus* is extremely beneficial to brain health. It appears to be particularly useful for elderly people who are experiencing a greater-than-normal deterioration in memory and cognitive abilities for their age. It aids in the treatment of sleep problems, dementia, depression, anxiety, age-related hearing loss, as well as all mental processes and memory. *Hericiumerinaceus* can help with nerve development and function. It can also help to keep the nerves healthy. It may aid in the prevention of illnesses such as anxiety, memory loss, Alzheimer's and Parkinson's disease.

Apart from above mentioned medicinal properties additionally several clinical trials have been conducted on the elderly and the sick over the years to see if *Hericiumerinaceus* can aid with depression and memory. Following testing, it was discovered that *Hericiumerinaceus* had a beneficial effect on various illnesses. *Hericiumerinaceus* is a complete medication for brain health, as evidenced by a number of studies that revealed considerable beneficial effects, which also:

- Improvement of Mental Health via strokes.
- Boosting the Immune System
- Increment in Energy levels
- Diabetes controlling power
- Depression and Anxiety Support
- Cholesterol Lowering ability
- Anti-Cancer properties
- Inflammatory bowel Disease (IMD) Protection
- Anti-fungal and Anti-bacterial activities
- Reducing Chronic Inflammation and Oxidative Stress
- Diversified antioxidant activity

Scientific reports also indicates that this mushroom is also good for stomach inflammation or gastritis, stomach ulcers, bacterial infections, and weight reduction. *Hericiumerinaceus* appears to preserve the stomach's inner mucus membrane lining. It aids in the relief of symptoms associated with long-term inflammation of the stomach lining

(gastritis) or stomach ulcers. Its extracts are frequently found in a variety of health products. Its extract is also used to treat wounds on the skin.

### **Biology and Development of *Hericiumerinaceus***

*Hericiumerinaceus* resembles huge white snowballs, with some becoming brown when injured or old. Each mushroom's fruit may be fairly hefty, weighing around half a kilogram at times. Mushrooms are distinguished by their long spines or tooth-like shape. The spines, or 'teeth,' are short at initially but become larger as they mature. This mushroom is spongy and mushy, and it might be half hollow. Despite the fact that many cultivars cultivated successfully in India have a smaller hair or tooth-like structure than those found in East Asia. In the nature, it resembles a coral or snowflake suspended from a tree.

### **Artificial Cultivation of *Hericiumerinaceus***

For the beginners, you can cultivate *Hericiumerinaceus* on a small scale in home, in your yard, or in a local garden. It is to remember that, like any other mushroom, *Hericiumerinaceus* mushrooms require a lot of moisture and ventilation to flourish. *Hericiumerinaceus* mushrooms generally start off as little clusters before colonising sacs when produced at home. The knots will continue to develop as the days pass, and dents or hairs will emerge, forming a spiky-looking mushroom. The location of the bag will impact how one's lion mane mushroom grows, since gravity will play a role. You may grow *Hericiumerinaceus* from a side angle at home to mimic the appearance of a wild lion's mane. The growing of *Hericiumerinaceus* is now possible in India because to ICAR-Directorate of Mushroom Research Himachal's excellent research. In the last several years, artificial culture of *Hericiumerinaceus* has become commercially viable in India. Around the world, *Hericiumerinaceus* is mostly grown on sawdust, sugarcane, bagasse, cottonseed hulls, or harvested paddy straw as a substrate medium. Although the Directorate of Mushroom Research employed autoclaved wheat straw and sawdust, both of which are widely available in India. The optimal temperature for fruiting of *Hericiumerinaceus* in India is between 20 and 25 degrees Celsius, according to the research.

However, many studies on *Hericiumerinaceus* in India have found that the ideal temperature range for best production is between 18 and 24 degrees Celsius. In around 20-25 days, the spawn run of the *Hericiumerinaceus* mushroom is completed. The mushrooms begin to yield fruit 7-10 days after opening or piercing the bag. After 35-40 days, the first



harvesting is usually completed. During artificial growing in India, a single mushroom fruit of *Hericiumerinaceus* typically weighs 13-18 g and can attain weight up to 120-150 g. *Hericiumerinaceus*, according to researchers and farmers, produces a high output of 38-40% biological efficiency. As a result, a bag of 10 kg substrate can provide up to 4 kilogram's of mushrooms, which is considered to be a very good yield.

It is widely used in the field of medicinal research due to its therapeutic characteristics. As a result, it is in great demand in the pharmaceutical industry. It is a new product in India. The growers of this mushroom sell it directly to pharmaceutical companies as well as international hotels. Outside of India, it is quite popular. As a result, Indian farmers export it to other nations in the form of dried mushrooms or spawn.

### **Conclusion**

*Hericiumerinaceus* is an edible and medicinal fungus that has been utilised in East Asia for thousands of years. They can be consumed in a variety of ways or taken as supplements. They can deliver a multitude of health advantages, according to research. It is most typically used to treat brain-related issues. Artificial production of *Hericiumerinaceus* has begun commercially in India in the last few years. The temperature range for optimal production, according to the experts, is 18-24<sup>0</sup> C. *Hericiumerinaceus* is in high demand in the field of pharmacology because of its various therapeutic characteristics and widely exported in various countries.