



### Mushroom Cultivation and Their Health Benefits

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A well balance diet contains all essential nutrients which are necessary for good health, but there are certain dietary factors which go further than meeting our recommended dietary intakes. Mushrooms can serve as food, as tonic, and as medicine. Often grouped with vegetables, mushrooms provide many of the nutritional attributes of produce, as well as attribute more commonly found in beans or grains. Mushrooms are low in calories, fat-free, cholesterol-free and very low in sodium, yet they provide several nutrients that are typically found in animal foods or grains.

#### Introduction

There are many of us who think twice before indulging in relishing mushroom dishes. In one hand certain section of people consider mushroom to be non-vegetarian, whereas on the other hand some of us avoid mushroom thinking them to be poisonous in nature. However, it is quite essential to note that there are many types of mushroom come in wide variety and are known to have many health benefits. Some of the well known mushrooms are white mushrooms, shiitake, reishi, chanterelle and porcini, these mushrooms are few edible mushrooms and are known to be extremely beneficial for our health. Filled with proteins, vitamins, minerals, amino acids, anti biotic and anti oxidants, mushrooms are high in nutritional values. They are also distinctive in their colour, texture, shape and properties. The nutritional values of mushroom is not known to the people and are into misconception that mushrooms are just eaten for the taste they give. This delicious edible fungus is used extensively for all kind of dishes, from soups to pizzas and from salads to pickles. Here are the types of mushrooms and their health benefits including their nutritional values:

- 1. White Mushroom:** White mushroom contains selenium which aids in weight loss and is known to prevent prostate cancer. These mushrooms have special carbohydrate that gives a strong metabolism rate and also maintains equal blood sugar levels.
- 2. Shiitake Mushroom:** Shiitake mushrooms have the potential to fight tumors, as they have high amount of lentinan, which is a natural anti-tumor compound. These flavourful, meaty mushrooms contain excellent source of vitamin D and help in fighting infections.



3. **Reishi Mushroom:** Reishi mushroom has properties which serves all the needs to defending us from diseases. They are known to have properties that are anti-cancer, anti-oxidant, anti-bacterial, anti-viral and anti-fungal. Apart from that these mushrooms contain gandodermic acid which helps reduce bad cholesterol which in turn can lower high blood pressure.
4. **Maitake Mushroom:** Maitake mushroom are good for preventing breast cancer. Including mushroom in our daily diet is known to cleanse our body system and also keep our immune system strong.
5. **Oyster Mushroom:** Oyster mushrooms are high in nutrients. They have significant level of zinc, iron, potassium, calcium, phosphorus, vitamin C, folic acid, niacin, vitamins B-1 and B-2. It has a high anti-oxidant compounds and is known to save us from variety of diseases and also helps us in beating stress.
6. **Chanterelle Mushroom:** Chanterella Mushroom are known to be good for our eyes, lungs and makes our immune system strong. These mushrooms are known to have the properties which are anti-microbial, bacterial and fungal. They are also high in vitamin C, D and potassium.
7. **Porcini Mushroom:** Porcini Mushroom are known to be anti-inflammation. This meaty mushroom contains the compound called ergosterol which is capable of fighting against infection causing diseases. They are high in calcium level which makes our bones strong and also fiber content, which of course avoids us from having constipation.
8. **Shimeji Mushroom:** Shimeji Mushroom can fight tumors. They can also help diabetes, asthma and certain allergies by enhancing the immune system and boosting its healing capabilities. They are high in essential nutrients such as zinc, copper, manganese and have high amount of Vitamin D.



### Mushroom Cultivation

Mushrooms aren't difficult to grow at home if you set up the proper environment. Unlike plants, which grow from seeds, mushrooms grow from microscopic spores that take root in a substrate, or growing medium. These are various steps which we need to focus on during mushroom cultivation:

- I. **Choosing Mushroom Spawn and Substrate:** Decide what type of mushroom to grow. There are hundreds of types of edible mushrooms to choose from, and most of them can be grown in your home. When you've decided what type of mushroom to grow, purchase spawn (a mixture of mushroom spores and nutrients they need to thrive).
  - White button mushrooms are hardy and produce plenty of "fruit." They are a great addition to salads, soups and everyday meals.

- Oyster mushrooms have a mild, delicious flavor that makes them a popular ingredient in stir-fries and soups. Since oyster mushrooms are delicate, they aren't frequently found in stores, which make them growing at home the entire more special.
- Shiitake mushrooms have a deep, smoky flavor, and their firm texture makes them a delicious vegetable.

**II. Source the right kind of substrate:** To grow mushrooms, you will inoculate substrate with an injection of mushroom spawn. It's important to make sure you have the right kind of substrate for the type of mushroom you want to grow. Mushrooms come from all regions of the world and require substrates that mimic outdoor growing conditions. Mushroom growing kits come with pre-mixed "grow bags," which you inoculate with spawn through a small hole. The mushrooms grow directly in the bags, and you cut off the top of the bag to harvest them. This is a fine choice for a novice mushroom grower. If you want to grow mushrooms without the aid of a grow bag, buy a wooden tray about 6 inches (15.2 cm) deep and a few feet wide to fill with substrate according to the type of mushroom you are growing.

- White button mushrooms need composted manure substrate.
- Oyster mushrooms need straw substrate.
- Shiitakes, lion's mane, and hen-of-the-woods mushrooms grow best on wood or sawdust substrate. You can also grow them on a log.

**III. Creating the Optimal Growing Environment:** Find a dark, chilly place. If you've ever walked through a forest and stumbled on a patch of mushrooms, you know they tend to grow in the damp shade of tall trees. To grow them in your home, you'll need to recreate a forest-like environment with a temperature of between 55 and 60 degrees Fahrenheit. If your house gets hot during the summer, consider growing mushrooms in the winter instead, to make sure the mushrooms don't get overheated.

**IV. Create a humid environment:** Mushrooms need a high air moisture level to thrive. If you live in a very dry region, you may want to buy a humidifier to make the air around the mushrooms more conducive to their growth. Dark, humid environments can lead to mold growth and attract insects. Your designated mushroom-growing spot should be a place in your home that you don't mind temporarily converting into an outdoor-type environment. Different types of mushrooms require slightly different growing conditions. Research the type of mushroom you plan to grow to find out exactly how much humidity it needs.

**V. Inoculating the Substrate and Monitoring Mycelium Growth:** Inoculate the substrate with spawn. The spawn you ordered should have come in a plastic syringe. Remove the cover and inject the spawn into the substrate. If you're using a mushroom kit with a grow bag, place the syringe needle into the small hole on the front of the bag. Inject the substrate into the bag with the syringe. If you're using a tray filled with substrate, use the syringe to inject the substrate in several places. Keep the substrate warm for two weeks. For the first stage of its growth, mushroom spawn must be kept at a temperature of about

70 °F (21 °C). This encourages the growth of mycelium, the white, feathery roots that will eventually produce mushrooms.

If you're growing the mushrooms in a cool place without controlled heating, you can use a heating pad to keep the substrate at the correct temperature. Don't let the heat rise above 70 degrees, since higher temperatures can kill the spores. When you see mycelium, drop the temperature. Once a good base of roots has formed, remove the heating pad or adjust the thermostat to 55–60 °F (13–16 °C). Keep the substrate at this cooler temperature for the remainder of the growing cycle. Cover with an inch of soil or moss. When the delicate webbing of mycelium has formed, it's important to protect it with a layer of soil or peat moss. Place a layer of newspaper or a thin cloth over the layer of soil or moss.

If you're using a grow bag, open up the top when you see good mycelium growth.

Keep the top layer moist. Use a spray bottle filled with water to spritz the cloth or newspaper layer with water several times daily. It should be kept moist for at least ten days. Don't over water; the point is to create moist, damp conditions, but the growing environment should not be dripping wet. If you are using a grow bag, simply spritz the top layer of substrate in the grow bag with water every day to keep it moist. After 10 days, remove the cloth or newspaper. Continue misting the soil or moss underneath twice daily until you see pinheads, or tiny mushrooms, begin to sprout.

**VI. Harvesting the Mushrooms:** Pick the mushrooms when they have grown to full size. The pinheads will develop into full-sized mushrooms; pick them when they've reached the size you deem to be mature. You may eat them immediately or dry them for later use. Continue harvesting mushrooms. After you pick the first fruiting, the mushrooms will fruit again. There are usually more mushrooms the second time. Pick these when they're mature. The cycle will continue for three to four months until the supply has been exhausted.

### Conclusion

Mushroom cultivation has become a profitable business with the produce fetching good returns in the market because of the rise in demand for edible mushrooms, owing to their nutritional benefits. The health benefits of mushrooms include relief from high cholesterol levels, breast cancer, prostate cancer, and diabetes. It also helps in weight loss, and increases the strength of your immune system. Mushrooms can serve as food, as tonic, and as medicine. A regular intake of mushrooms can make you healthier, fitter, and happier.