



Dietary supplements



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MUSHROOMS *and Human Health*

Zero Emission Research Initiative



WHAT IS IN THE MUSHROOM?

In general mushrooms are a good source of vitamins such as thiamine (vitB1), riboflavin (vitB2), niacin, biotin and ascorbic acid.

When used as a dietary supplement or as an ingredient in the human diet, mushrooms supply the body with proteins, carbohydrates, lipids, vitamins and inorganic minerals. Mushrooms are rich in protein, and their protein contain all the essential amino acids.

The protein level of some edible mushrooms such as the Pleurotus sajor-caju, *P.ostreatus*, *Agaricus bisporus* and *Volvariella volvacea* is impressively high (20 to 40 % on dry weight basis). Regular use of mushrooms products such as dietary supplements protects the body from the common vitamin deficiency diseases such as beriberi, pellagra and scurvy.

Mushrooms also contain mycochemical that activate and promote the body's immune-response systems. For example, flavonoids have antioxidant, antimicrobial, anti-allergic and anti-inflammatory activities while anthraquinones have antimalarial activity.

Edibility of Mushrooms

The edibility of mushrooms is known in virtually all human societies. Their characteristic unmistakable flavor, texture and taste have been celebrated by humans from days immemorial. A wide spectrum of mushroom species have over the years been collected for use as food, medicine and tonic. In some societies the most highly treasured species were in fact, fit to be presented to the king.

Poisonous species also occur. Indeed ugly historical accounts are documented in the literature, whereby individuals destroyed their enemies using mushrooms as exterminants. The death cap mushroom *Amanita phalloides* is reported to be responsible for 90% of fatal poisonings caused by fungi. **Do not eat, if not sure!!!**

Medicinal Mushrooms

Some fungi like the *Ganoderma lucidum*, *Lentinula edodes*, (shiitake), Cordyceps species Grifola frondosa (maitake), truffles, and some Agaricus species are medicinally important as immuno-boosters.

These fungi are being used as remedies for cancers, diabetes, high blood pressure, and in the improvement of the conditions of many ailments including HIV/AIDS

Dietary supplements of most medicinal mushrooms are not associated with any significant side effects.

The oyster mushrooms naturally contains lovastatin which is used as a drug that is used to lower cholesterol levels by inhibiting the enzyme HMG-CoA, which plays a central role in the production of cholesterol in the liver. Increased cholesterol levels have been associated with cardiovascular diseases and statins are therefore used in the prevention of these diseases.

Research has found that statins are most effective for treating cardiovascular disease.



Dietary supplements

Some mushroom species are effective in promoting the body's general fitness when used as dietary supplements. Mycochemicals extracted from such mushrooms, which have both medicinal and nutritional attributes, and which are packaged as capsules, tablets, tonics and teas are referred to as nutraceuticals. Medicinally potent or nutritionally valuable mushrooms can also be consumed directly as part of the normal diet.

Examples of medicinal mushrooms include the famous *Ganoderma lucidum*, *Cordyceps sinensis*, *Lentinula edodes*, *Grifola frondosa*, and *Hericium erinaceus* to mention just a few.