



OYSTER MUSHROOM AS A POTENTIAL SOURCE MULTIPLE NUTRITION- A BOON FOR MALNUTRITION POPULATION

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ABSTRACT

Mushrooms are highly nutritive, low-calorie food with good quality proteins, vitamins and Minerals. Mushrooms are an important natural source of foods and medicines. Traditional Aborigines knew the medicinal importance of edible and wild mushrooms and these are now being screened for their bioactivity in various ailments. Mushroom represents a major and un tapped source of potent new pharmaceutical products. A wide range of activities including Antitumour, cardiovascular and antimicrobial are reported in mushrooms. In developing Countries like India mushroom progress is a boon in the field of food, medicine, and in generating employment. The alternative systems of medicine utilize the curative properties of mushrooms. By virtue of having high fibre, low fat and low starch, edible mushrooms have been considered to be ideal food for obese persons and for diabetics to prevent hyperglycaemia. They are also known to possess promising antioxidative, cardiovascular, hypercholesterolemia, antimicrobial, hepatoprotective and anticancer effects. The present review aimed to discuss on mushroom cultivation as well as medicinal importance as Nutraceuticals, antioxidative, cardiovascular, hypercholesterolemia, antimicrobial, hepatoprotective, anticancer, clinical trials and availability of mushroom medicines from Indian Context.

Keywords: Mushroom; Antioxidants; Cardiovascular; Hypercholesterolemia; Antimicrobial; Antitumor.

1. INTRODUCTION

A Nutraceuticals can be defined as a substance that may be considered a food or part of a food

that provides medical or health benefits like the prevention and treatment of disease. Mushrooms have become attractive as a functional food and as a source for the development of Nutraceuticals (Lakhanpal and Rana, 2005) responsible with their antioxidant, Fibrous Protein (Jones and Janardhanan, 2000) and antimicrobial properties. Besides their pharmacological features, mushrooms are becoming more important in our diet due to their nutritional value, related to high protein and low fat / energy contents (Agahar-Murugkar and Subbulakshmi, 2005). A native strain of *Pleurotus florida* was isolated and cultivated under laboratory conditions. Higher mushroom yield of 1300 g was recorded on supplemented Rice Straw, reaching a biological efficiency of 20.3% (Guerrero et al., 2011).

Mushrooms in the twentieth century are well known to people all over the India as an important bio-source of novel secondary metabolites. Particularly the alternative systems of medicine, utilize the curative properties of mushrooms. The secondary metabolites of these mushrooms are chemically diverse and possess a wide spectrum of biological activities, which are explored in traditional Nutritious.

2. Materials and Methods:

2.1 Mushroom Cultivation in India

A Good culture of *Pleurotus florida* and *Pleurotus sajorcaju* mushroom cultivation is very popular in India in popularity and consumption. This together form bulk of edible mushrooms produced in country about 1.2 tons per annum, (Dhar and Sharma, 2009). In India *Pleurotus sajor-caju* has been successfully cultivated on banana pseudo-stem and paddy straw (Jandiak, Jandiak and Kapoor, 1974). Rice straw, wheat straw, Ragi straw, hulled

maize cab, Soyabean straw, waste paper were used in different areas (Jandiak, Sivaprakasam et al., 1979; Thilagavathi et al., 1991). Sincere efforts have taken by various NGOs to bring mushrooms under cultivation were made and research is going in Himachal Pradesh, at Solan by the ICAR's Directorate of Mushroom Research in 1961, has been reported to be under cultivation in India (Jandiak, 1997).

Pleurotus has been reported to grow readily on a number of non-conventional substrates (Das et al., 2000; Mukherjee and Nandi, 2002; Nageswaran et al., 2003). In West Bengal Spent residues after the cultivation of edible mushroom could be better source of biologically pre-treated substrates for biogas production (Madan, 1994). Recycling of agro wastes is done through mushroom cultivation (Madan, 1994). In Chhattisgarh, the village people practiced mushroom cultivation by their own ways using paddy straw as a substrate and bring it to local market where it fetches for good prices (Thakur et al., 2003), and the hunting of Mushrooms is an occupation of tribal particularly in rainy season (Tiwari et al., 2009).

3. Result and Discussion:

- Mushroom is an excellent source of folic acid, the blood building vitamin that prevents anaemia (Kannaiyan and Ramaswamy, 1980; Bisaria et al., 1987).
- Mushroom protein is comparable to muscle protein in terms of nutritive value (Kannaiyan and Ramaswamy, 1980). The species that have been properly analysed for Nutritional value are: *Pleurotus sajorcaju*, *Pl. Florida* and *Pl. ostreatus* (Oyster mushroom). they have been analysed for both their nutritional and Nutraceuticals components (Lakhanpal and Rana, 2005). **The active constituents found in mushrooms are polysaccharides, dietary fibres, oligosaccharides, triterpenoids, peptides and proteins, alcohols and phenols, and mineral elements** (Pardeshi and Pardeshi, 2009) such as zinc, copper, iodine, selenium and iron, vitamins, amino acids etc. These have been also found to boost the immune system, have anti-cancerous properties, act as anti-hypercholesterolemia and hepato-protective agents,

- The antioxidant potential has been studied from fruiting bodies of the species of mushrooms naturally grown (Nethravathi et al., 2006). Three species of *Pleurotus sajorcaju*, *Pl. Florida* and *Pl. ostreatus* can be cultivated almost throughout the year in India except high summer season.
- They have been analysed as antioxidant potentialities with a view to popularize medicinal mushrooms among common middle class people at low-cost instead of administering costly medicines.
- **Antimicrobial Properties:** In recent years Basidiomycetes and other higher fungi including some recognized medicinal mushrooms have been recognized medicinal mushrooms have been re-investigated as sources of novel antibiotics mainly as a result of increasing difficulty and the cost of isolating novel bioactive compounds from the Actinomycetes and Streptomycetes. The research possesses an idea about the antibiotic activity of some of the important wild mushrooms of India (Karwa and Rai, 2009). Growth of medically challenged bacteria like *S. Aureus* and *B. cereus* was inhibited by mushrooms selected. Moreover the synthetic antimicrobial discs have been showed a marked increase in their activity when combined with mushroom extract.
- The petroleum ether, chloroform, acetone and water extracts of mushroom has been observed the antibacterial activity against *Staphylococcus aureus*, *Bacillus subtilis*, *E. coli* and *Pseudomonas aeruginosa*. The water extract alone showed antibacterial activity against the tested organisms.

4. Conclusion

- India has a tradition for using Mushroom as consumable edibles and Medicine. The mushroom industry is gradually taking route in India but the pace is rather slow because of insufficient scientific support and inadequate training programmes (Kapoor, 2004). The Indian mushroom Industry needs modern technology for their survival in awareness among

people. The research reports highlighted the Indian mushroom cultivation as well as importance as Nutraceuticals, anti-oxidative, antimicrobial, and availability of mushroom medicines in India. However, the screening of mushrooms from different ecological and geographical regions of India is still required to identify, isolate, design, develop, modify or to prepare new pharmacologically active compounds from wild mushrooms. The mechanism of action of various secondary

metabolites isolated from medicinal and wild edible mushroom is yet to be elucidated. Government Organizations spread over our country have already taken extensive initiative to aware the common people to practice mushroom cultivation as well as research. Non Government Organizations too, are actively taking initiative in this respect but enough scope is still lacking to disseminate the knowledge to each and every one of a vast country like ours.

1.1. Tables

2. The contents of Nutritional Value in the oyster mushroom identified as:

Sr. No.	Name Of Nutrient content	% found	Use/ Applications
1	Protein	20-30% by dry weight	Useful for vegetarians or anyone looking to increase the protein content in their diet.
2	Fiber	12-25%	Helps lower cholesterol and is important for the digestive system
3	Vitamin D	.002%	Essential for the absorption of calcium
4	Niacin and vitamin B	0.03%	This is be another good supplement for vegetarians.
5	Copper , Selenium , Potassium , phosphorous, zinc, and magnesium	0.23%	Absorbs Oxygen in Blood cells, antioxidants, which reduce the risk of Cancer

3. Illustrations



Fig.1. Paddy Strawcutting in suitable size



Fig.2. Cultivation of working Spawn/ seeds



Fig. 3. Pleurotus florida



Fig. 4. Volvariella volvacea



Fig.5. Dried Oyster Mushrooms

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