

## PROJECT COMPLETION REPORT (PCR)

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TITLE:- SYSTEMATIC STUDIES OF MACROFUNGI DIVERSITY

DISTRIBUTED IN AMRAVATI REGION

### INTRODUCTION

Watling and Gregory (1980) predicted that since India is richer in flowering plants than any other country in size, the fungal wealth of India is also expected to be equally diverse. Several investigators have explored bio-geographical regions of India and recorded good number of macromycetes but central India was not given due attention. At present, it is estimated that, out of about 10,000 total species, there are at least 2000 edible species of larger fungi. (Kaul, 1999).

India is a rich treasure of natural resources and wild macromycetes is one of them. Macromycetes, embrace a whole host of unrelated groups of fungi viz. cup fungi, morels, truffles, earth-tongues, bracket fungi, agarics, hedge-hog fungi, jelly fungi, puff-balls, stinkhorns. Studies on wild mushrooms with special reference to their edibility, utility and medicinal value with the early references on larger fungi may be beneficial for humanity. Mushrooms are recognized for distinct source of vegetable protein and have a high percentage of all the amino acids. They are free of cholesterol and richer in water-soluble vitamins and minerals than most of the vegetables. A wide range of therapeutic potential including anticancer, anticholesterolenic, antidiabetic, hepatoprotective, immunomodulative, cardiovascular and antimicrobial properties are reported in the literature of mushroom science. (Rai, et.al.,2005).

During the past few decades some reports on Indian edible mushrooms have been published by a number of workers. In one study during 1997-2000 foray conducted in 25 districts of central India having 47 diverse regions and 121 tribal localities yielded 150 mushroom species out of 53 are edible forms regularly consumed by tribals of the state of Madhya Pradesh and Chhattisgarh. The collection includes 4 new species, 10 new records for India and 53 new records for the state of Madhya Pradesh (Rajak, 2004). A number of species have been reported to be edible in India such as, *Podaxis pistillaris* (Munjal and Bahl, 1973); *Calvatia fragilis*, *C. pachyderma*, *Geastrum arenarius*, *Lycoperdon rimulatum*, *L. muscorum* (Gupta et. al., 1974); *Rhizopogon* spe. (Kaul et. al., 1978); and *Astreus hygrometricus* (Thakur, 1980). Some eminent Indian mycologists have prepared excellent monographs on certain groups of fungi but in this treatise an attempt has been made to present exclusively a systemic account of edible mushrooms of India mainly based on the compilation of authentic reports published to-date (Purkayastha and Chandra, 1985; Rai et. al., 2005).

It is expected that edible mushroom industry, if properly organized, can ease the problem of food, medicine, energy and employment generation to some extent. Mushroom cultivation is eco-friendly and offers to be an excellent means for recycling of about 25 million tones of agro-forestry waste presently available in India. (Singh, 2004).

Collecting larger fungi should not be considered a haphazard pursuit. It is to emphasize that the task of identification and proper record of larger fungi is of prime importance and can only be fulfilled by extensive survey of different zones of the country. Such studies will also help in bringing up many more species not known to Indian flora so far. The study of mushrooms in the tropical regions is still more difficult. First, there is an abundance of species in these regions which are imperfectly known. Second, fleshy fungi in these regions develop and decompose very quickly, which makes it impossible to process them adequately in time (Kaul, 1999). It is necessary in such situations to examine them repeatedly over several seasons.

Amravati is endowed with Melghat tract rich in hilly terrain Satpuda ranges. It is surrounded by Melghat Tiger Reserve Forest and Pohara Forest. Due to suitable geographical and favourable climatic conditions, wide and rich flora and fauna are hidden in these areas.

## **SIGNIFICANCE OF STUDY**

- (1) Exploration of many highly priced, edible, non edible, poisonous and medicinally important fungal forms, which is considered as the great wealth, hidden in the forests of nearby area of the region.
- (2) Enlisting of macromycetes flora which is unknown and unpublished, which is recommended by the Department of Forest (Kakodkar, 2005).
- (3) Edible mushroom industry if properly organized, can ease the employment generation to some extent.
- (4) Few new highly proteinaceous wild mushrooms can be introduced to the society.

## **OBJECTIVES OF THE PROJECT**

- (1) Survey and study of larger fungi of Amravati region. This will include study of habit, habitat, distribution and field records of fungi.
- (2) Identification of sporophores.
- (3) Enlisting of edible, non-edible, poisonous and medicinally important species.
- (4) Preservation of collected specimens to develop herbarium (museum), and conservation for future applications.
- (5) To add the knowledge of fungal flora to the benefit of students and welfare of people and tribals.
- (6) To inculcate and popularize the mushroom science by organizing one day workshop on ‘Mushroom cultivation and mushroom recipes’.

## **MATERIALS AND METHODS**

Survey, collection, identification and preservation form the basic building blocks of systematic studies of macromycetes. healthy specimens were collected from forests of Melghat and Pohra including the forest nurseries of Amravati and Tapovaneshwar. They were cleaned and brought to the laboratory. Standard techniques for collection, preservation and description have been followed (Atri and Saini 2000). Morphological observations were based on fresh specimens. The microscopic observations and spore prints were made immediately after collection (Kaul 1999). Colour terminology used is that of Kornerup and Wanscher (1967). The specimens were deposited in the Botany Museum, P.G. Department of Botany, Amravati, India.

Identification, edibility and medicinal properties were noted by referring the standard literature (Atkinson 1961; Lange and Hora 1981; Purkayastha and Chandra 1985; Patil et al 1995; Keizer 1998; Swanton 2002; Lamaison and Polese 2005; Rai et al 2005). Edibility was confirmed by interacting with the local and tribal people, who were habitual to consume the specific mushrooms of that region.

## **RESULTS AND DISCUSSION**

### Description of some studied wild edible mushrooms:

#### ***Agaricus campestris* L. ex Fr. (Field mushroom)**

Sporophores- Solitary, stipitate, white when young. Pileus- 4.0-8.0 cm. in diameter, first rounded, then convex and more or less flattened at maturity, sometimes with light brown triangular scales towards centre of cap. Gills- crowded, distinctly formed, free from stem, at first white then pink and finally purple brown. Stipe- central, cylindrical, 5.0 - 8.0 cm. long, 8 – 12 mm. in thickness, white and fleshy. Annulus- single, white. Flesh- white, firm. Basidiospores- purple brown, spherical to ellipsoidal.

Collected from- S.G.B. University campus, amongst grass, by roadsides, Tapovan.

Edibility- Atkinson (1961), Walting (1973).

#### ***Auricularia mesenterica* Pers. (Jews Ear)**

Sporophore- growing on dead wooden logs, 3.0-7.5 cm. wide, 0.2- 0.4 cm. thick, sessile, cup or ear-shaped, lobed, gelatinous and somewhat translucent, the upper surface velvety, hairy and concentrically zonate, lower surface reddish-purple or deep purple. Six distinct hyphal zones in transverse section of sporophore, bone-hard when dry. Basidiospores- sausage-shaped.

Collected from: Wadali forest, Amravati, on log of *Eucalyptus*, Melghat on log of *Tectona*, College on dead branch of *Alstonia*.

Edibility: Cheng and Tu (1978).

#### ***Calocybe indica* P. & C. (Milky Mushroom )**

Sporophores- usually robust in size, centrally stipitate, fleshy, white. Pileus- 10.0-14.0 cm. in diameter, at first convex, later expanded and flattened, cuticle easily peeled, margin regular, incurved, smooth. Gills- crowded, separable, white, unequal. Stipe- central to eccentric, cylindrical, without annulus, with subbulbous base, up to 10.0 cm. long, white, cartilaginous, base solid. Flesh-white. Spores-white.

*Collected from:* Tapovan, College campus, Shivarpan colony, at the bottom of Gulmohor.

Edibility: Purkayastha and Chandra (1980).

#### ***Calvatia cyathiformis* (Bosc) Morg. (Cup-shaped puffball)**

Sporophores- growing solitary or scattered on the ground, in meadows, grassy lands, pear-shaped, rounded above and tapering below to the stout base, 6.0-12.0 cm. high. Peridium- 5.0-12.0 cm. wide, white when young, pinkish or brownish when old, surface covered with warty

patches. Gleba- white when young and purplish at maturity, wall cracking into irregular fragments and purplish mass of the spores is exposed. Capillitium and Spores- purple-brown. Old sterile cup-like bases of sporophore are often found in the field after spore dispersal. Basidiospores- round, purple brown.

Collected from: Tapovan Goshala, on grassland.

Edibility: Atkinson (1961), Krieger (1967), Jong (1978).

***Coprinus comatus* (Muell ex Fr.) S. F. Gray (Shaggy ink caps)**

Sporophores- singly or in clumps on compost, refuse dumps. Pileus- 5.0–10.0 cm. long (before expansion), oblong, companulate fleshy, fragile, white, covered with woolly, shaggy scales, the center smooth and yellowish-brown, whitish between the scales, the margin becomes pinkish then black as autodigestion proceeds. Stipe- central, tapering at the top, smooth, hollow, 12.5-17.5 cm. long, 10-12 mm thick. Gills- at first white, then pink and finally black, deliquising into an inky fluid. Spores- black. Common on rich ground, road-sides.

Collected from: Wadali road, College campus, on dung rich grassy land, Shivaji Agri; on compost, S.G.B. Amravati University on compost.

Edibility: Atkinson (1961), Kaul (1971), Phillips (1981).

***Leucocoprinus capaestipes* ( Sow. ex Fr. ) Patouillard (Onion-stemmed *Lepiota*)**

Sporophores- in groups on rotten wood, straws, decomposed vegetable matters, with powdery veil and collapsing at maturity. Pileus- ovate to bottle shaped when young, later expanded or broadly conical with an umbo, usually white, squamules often appear. Stipe- slender 5.0 – 8.0 cm. long, 2.0 – 6.0 mm. thick, bulbous at the base, white, smooth, hollow, ring thin. Gills- crowded, free, narrow, white. Flesh- white and very soft. Spores- white.

Collected from: Tapovan, Tapovaneshwar on rotten wood of *Butea monosperma*, Agriculture field on Soybean straw, Camp at the bottom of *Butea*.

Edibility: Krieger (1967).

***Lycoperdon pusillum* Persoon ( Puff-ball )**

Sporophores- scattered on grazed sandy soil. Peridium- globose or subglobose, about 2 cm. in diameter, with a strongly developed basal rhizomorph, yellowish when young, becoming brown with age, sterile base and diaphragm absent. Exoperidium- with minute squamules, fragile. Endoperidium- membranous, smooth, dehiscing by a small irregular plane stoma. Gleba- yellowish, becoming brown at maturity. Capillitium- branched, brownish. Spores- globose, olivaceous.

Collected from: Wadali, Pohara forest, Yogiraj nagar, on grazed land.

Edibility: Cunningham (1979).

***Macrolepiota procera* (Scop. ex Fr.) Sing. (Parasol mushroom)**

Sporophores- growing solitary or in clusters in woods, in pastures, 12.0-20.0 cm. high. Pileus- 8.0-15.0 cm. in diameter, at first ovate, then companulate, finally becoming expanded, surface

cracking into large, brown scales which are concentrically arranged except at the umbo, the margin thin, usually turning downwards. Gills- free, not forked, white when young and pinkish at maturity, broad in the middle. Stipe- cylindrical, with prominent bulbous base, 15.0-20.0 cm. long, covered with minute darker scales, annulus large, conspicuous, thick, white, movable. Flesh- white, remaining unchanged when bruised, soft. Spores- white, ovate to elliptical.

Collected from: Pohara forest road-side.

Edibility: Atkinson (1961), Krieger (1967), Jong (1978).

***Macrolepiota rhacodes* (Vitt.) Singer (Shaggy Parasol mushroom)**

Sporophores- in clusters, forming fairy rings in open forests, centrally stipitate.

Pileus- 8.0-15.0 cm. in diameter, globose when young, then convex to expanded, reddish brown, scales formed by the rupture of the cuticle, scales concentrically arranged. Gills- crowded, free from stipe, whitish to pinkish, broad. Stipe- 8.0-16.0 cm. long, thick, surface glabrous, base enlarged, annulus not movable, edge not red. Flesh- white, soft, turning red on cutting or when broken. Spores- white, elliptical-oval.

Collected from: Yogiraj Nagar.

Edibility: Ghosh and Pathak (1965), Krieger (1967).

***Morchella conica* Pers. ( Conic morel )**

Sporophores- scattered on sandy loam organic rich soil, yellowish when young. Pileus- 3.0 – 6.0 cm. long, 3.0 – 5.0 cm. in diameter at the base, with narrowing tip, conical in shape, pits are usually longer and arranged more or less in distinct rows, ridges extend longitudinally from the base to top, buff to brownish. Stipe- cylindrical, 4.0 –7.0 cm. long, 1.0 –3.0 cm. thick, hollow fragile. Ascospores – lacking internal oil drop.

Collected from: Chikhaldara garden and Sipna college on organic rich soil amongst Coffee plantation.

Edibility: Christensen (1955), Atkinson (1961).

***Podaxis pistillaris* (L. ex Pers.) Morse ( Khumbi Mushroom )**

Sporophores- growing abundantly on sandy soil. Peridium- ovate-oblong, 5.0-10.0 cm. tall, 1.0-3.0 cm. in diameter, apex rounded, reaching up to 15.0-25.0 cm. in height. Exoperidium- covered with scales. Endoperidium- membranous, dehiscing by longitudinal fissuring. Stipe- 6.0-8.0 cm. tall, 6-12 mm. thick, covered with white, brittle fibrils, stipe may be provided with a bulbous rooting base. Gleba- dense, reddish brown to black, capillitium threads deeply coloured, aseptate, sparingly branched. Spores- reddish brown, apically perforated by a conspicuous pore. Common on road-side, near bricks factory, sandy soil, semi compost.

Collected from: College campus, Rampuri camp, Wadali road, on roadside.

Edibility: Kannaiyan and Ramasamy (1980).

***Russula claroflava* Pers. ( Yellow Russula )**

Sporophores- often solitary, brightly coloured. Pileus- up to 8.0-10.0 cm. across, convex then flattened or a little depressed, smooth, cadmium yellow margin slightly striate with age. Stipe- 5.0- 9.0 cm. long, 1.0-2.5 cm. thick, white at first, but turning grayish at length, longitudinally furrowed. Gills- pale-yellow, broad, free. Flesh- white, becoming grayish with age. Spores- pale ochraceous in the mass, coarsely warted, elliptical.

Collected from: College campus, Tapovan, Camp at the bottom of *Tamarindus indica*.

Edibility: Lange and hora (1981).

***Sparassis crispa* Wulfen ex Fries. ( Cauliflower fungus )**

Sporophores- large, 20.0-25.0 cm. across, creamy to pale buff, much branched and forming a dense mass, cauliflower like shape, branches compact, fleshy, brittle, flattened, lobed, wavy or curled, the edges tinted brownish with age. Stem- whitish, short. Spores- pale ochraceous, egg-shaped.

Collected from: Chikhaldara garden at the base of conifer.

Edibility: Lang and Hora (1963), Garcha (1980), Phillips (1981).

***Termitomyces heimii* Natarajan ( Dumberisathi Mushroom )**

Sporophores- in association with termite nests, fleshy, centrally stipitate.

Pileus- 6.0-10.0 cm. in diameter, plano-convex with an umbo; whitish gray at the umbonal region, margin inflected and cracking. Gills- crowded, free, whitish but pinkish with age. Stipe- 12.0-16.0 cm. long, white, annulate, cylindrical, pseudorhiza fleshy. Basidiospores- pinkish gray, ellipsoidal.

Collected from: Shivaji College garden, S.G.B.University campus.

Edibility: Bose (1923), Sathe and Kulkarni (1980).

***Termitomyces mammiformis* Heim ( Dumberisathi Mushroom)**

Sporophores- growing in groups in association with termite nests, fleshy, centrally stipitate. Pileus- 7.0-9.0 cm. in diameter, with a very prominent umbo and inflexed margin. Gills- crowded, white, free. Stipe- 5.0-8.0 cm. long and 1.0 cm. wide, persistent annulus present, pseudorhiza up to 10.0 cm. deep. Flesh- white. Basidiospores- pinkish, hyaline, ellipsoidal.

Collected from: S.G.B. University campus, on humus rich soil.

Edibility: Zoberi (1972).

The surveys conducted in Amravati – Melghat region revealed the occurrence and distribution of 43 species of wild mushrooms belonging to 37 genera. Out of these 43 species, 21 mushroom species were identified as edible, 15 non-edible and 7 with medicinal potential. (Table -1). Total 39 species belong to Basidiomycotina and 4 came under Ascomycotina. Various locations were visited, but Amravati region was found ideal for wild mushroom flora, because as the University campus, Agriculture field, Tapovan area and Forest nurseries were protected and non-grazed. Identified mushroom species showed diversity and comprises various sub-groups viz. gill fungi, pore fungi, cup fungi, stomach fungi, jelly fungi and bracket fungi.

During 1997-2000 foray conducted in 25 districts of Madhya Pradesh and Chhattisgarh, 150 mushroom species were recorded and only 53 were found edible (Rajak 2004). Total 73 species of wild mushroom flora belonging to 56 genera were collected from Madhya Pradesh and Chhattisgarh during 1999-2001 by Khatri et al 2009. Out of these 73 species, 31 were identified as edible, 3 mushrooms had fair edibility, 11 medicinal mushrooms, 27 non - edible and 1 poisonous. Pandey and Budhathoki (2008) published a list of 37 wild mushroom species from Sundarikal and Kathamandu region in Nepal.

In Western Maharashtra, Date (1976) collected 3 fleshy fungi. Total 17 fungal species from Southern Maharashtra were recorded by Thite et al 1976. Sathe and Deshpande (1980) collected 25 mushroom species from nearby Poona region. Though sporadic attempts have been made in the past to collect and identified the mushroom flora in various region of the country (Kaul 1999). But there are few references available on mushroom flora of Vidarbha region. Ghurde and Wakode (1981) recorded 3 Morchells from Central India. Pusadkar et al 2004, during manson surveys, recorded 10 wild edible mushroom species from Vidarbha region. Recently, Hedawoo and Mohite 2008, have been reported 15 wild edible mushroom species from Melghat and Amravati region viz.- *Agaricus campestris*, *Auricularia mesenterica*, *Calocybe indica*, *Calvatia cyathiformis*, *Coprinus comatus*, *Leucocoprinus capaestipes*, *Lycoperdon pusillum*, *Macrolepiota procera*, *M. rhacodes*, *Morchella conica*, *Podaxis pistillaris*, *Russula claroflava*, *Sparassis crispa*, *Termitomyces heimii* and *T. mammiformis*.

In the present investigation, out of 43 wild mushroom species, 15 were previously recorded by Hedawoo and Mohite, 2008. Remaining 29 including medicinal mushrooms are the new additions to the wild mushroom flora from Amravati region. During surveys the genera like- *Agaricus*, *Coprinus*, *Cyathus*, *Lycoperdon*, *Macrolepiota*, *Phallus*, *Schizophyllum*, *Termitomyces*, *Daldinia*, *Polyporous* and *Ganoderma* were found in dominating form every year.

## CONCLUSION:

Amravati-Melghat region is found to be one of the important biodiversity rich-area for varied wild fleshy fungi. This biodiversity must be protected and conserved. If edible mushroom industry is properly organized, it can ease the problem of malnutrition prevalent in Melghat and Bhamragarh and also provide medicine and employment.

**Table-1 Reported mushroom species, their common names, locations, edibility and references on edibility**

<i>Agaricus campestris</i> (L. ex Fr.)	Field mushroom	Amravati	E	Watling (1973)
<i>Agaricus placomyces</i> (Peck)	Flat capped Psalliota	Amravati	E	Krieger (1967)
<i>Auricularia mesenterica</i> (Persoon)	Jews Ear	Wadali and Melghat forest, Amravati	E	Cheng and Tu (1978)
<i>Calocera cornea</i> (Fr.) Fr.	Jelly fungi	Wadali and Amravati	NE	-
<i>Calocybe indica</i> (P. & C.)	Milky mushroom	Amravati	E	Purkayastha and Chandra (1980)

<i>Calvatia cyathiformis</i> (Bosc) Morg.	Cup shaped puff-ball	Amravati	E	Jong (1978)
<i>Chlorophyllum molybdites</i> (Meyer ex Fr.) Mass.	Scaly mushroom	Rahatgaon and Amravati	E	Zoberi (1972)
<i>Coprinus comatus</i> (Muell ex Fr.) S.F. Gray	Shaggy ink caps	Wadali and Amravati	M	Rai et al (2005)
<i>Cyathus striatus</i> (Haller ex Pers.)	Bird's nest fungi	Amravati	NE	-
<i>Daldinia concentrica</i> (Bolt.ex Fr.) Ces.	Wood rotting fungi	Amravati and Melghat	M	Khatri et al (2009)
<i>Favolus brasiliensis</i> (Fr.) Fr.	Pore fungi	Amravati	NE	-
<i>Ganoderma applanatum</i> (Pers. ex Waller.) Pat.	Bracket fungi	Amravati and Wadali	M	Rai et al (2005)
<i>Ganoderma lucidum</i> (Leyss.) Karst	Reishi mushroom	Amravati and Melghat forest	M	Wasser (2005)
<i>Geastrum fimbriatum</i> (Fries) Fischer	Earth star	Amravati	NE	-
<i>Hygrophoropsis aurantiacus</i> (Wulf.) Fr.	False Chanterella	Amravati	NE	-
<i>Laccaria amethystine</i> (Bolt.) Pk.	Amethyst Laccaria	Amravati	E	Krieger (1967)
<i>Leucocoprinus capaestipes</i> (Sow. ex Fr.)	Onion Stemmed Lepiota	Tapovaneshwar and Amravati	E	Krieger (1967)
<i>Lycoperdon pusillum</i> (Persoon)	Puff-ball	Wadali, Pohra forest and Amravati	E	Cunningham (1979)
<i>Macrolepiota procera</i> (Scop. ex Fr.) Sing	Parasol mushroom	Pohra forest and Amravati	E	Jong (1978)
<i>Macrolepiota rhacodes</i> (Vitt.) Singer	Shaggy Parasol mushroom	Amravati	E	Krieger (1967)
<i>Marasmius rotula</i> (Scop.) Fr.	Wheel mushroom	Amravati	NE	-
<i>Morchella conica</i> (Persoon)	Conic morel	Melghat forest	E	Atkinson (1961)
<i>Mutinus caninus</i> (Hudes. ex Pers.) Fr.	Carrion fungi	Amravati	NE	-
<i>Peziza rutilans</i> (Dill.) L.	Cup fungi	Amravati	NE	-
<i>Phallus impudicus</i> (L. ex Pers.)	Stink horn	Amravati and Melghat, Pohra forest	NE	-
<i>Pleurotus dryinus</i> (Pers. ex Fr.) Kummer	Oyster mushroom	Wadali forest	E	Atkinson (1961)
<i>Pleurotus ostreatus</i> (Jacquin ex Fr.) Kummer	Oyster mushroom	Amravati	E	Phillips (1981)
<i>Pleurotus petaloides</i> (Bull. ex Fr.) Quel.	Petal-like Agaric	Tapovaneshwar	E	Atkinson (1961)
<i>Podaxis pistillaris</i> (L. ex Pers.) Morse	Khumbi mushroom	Amravati and Wadali	E	Kannaiyan and Ramasamy (1980)
<i>Polyporus varius</i> Fries	Wood polypore	Amravati and Wadali	NE	-
<i>Pterula mulifida</i> (Fr.) Fr.	Fairy clubs	Melghat forest	NE	-
<i>Russula claroflava</i> (Persoon)	Yellow Russula	Amravati	E	Lange and Hora (1981)



<i>Schizophyllum commune</i> (Fries)	Split-gill fungus	Amravati and Badnera	M	Mizuno et al (1990)
<i>Scleroderma verrucosum</i> (Bull.) Pers.	Warted devil s snuff box	Rajura and Amravati	NE	-
<i>Sphaerobolus stellatus</i> (Tode ex Pers.)	Dung star	Amravati and Melghat forest	NE	-
<i>Termitomyces heimii</i> (Natarajan)	Dumbersathi mushroom	Amravati and Rahatgaon	E	Sathe and Kulkarni (1980)
<i>Termitomyces mammiformis</i> (Heim)	Dumbersathi mushroom	Amravati	E	Zoberi (1972)
<i>Trametes versicolor</i> L. ex. Fries	Bracket fungi	Pohra and Melghat forest	M	Tsang et al (2003)
<i>Tremella mesenterica</i> (Persoon)	Jelly fungi	Melghat forest and Amravati	NE	-
<i>Tricholoma album</i> (Fr.) Quel.	White Tricholoma	Amravati	E	Sinha and Padhi (1978)
<i>Tulostoma albicans</i> (White)	Stalked puff-ball	Amravati	NE	-
<i>Volvariella media</i> (Schum. ex Fr.) Singer	Straw mushroom	Amravati	E	Jong (1978)
<i>Xylaria polymorpha</i> (Pers.) Grev.	Wood club fungus	Amravati and Pohra forest	M	Khatri et al (2009)
<b>List of newly added mushroom species</b>				
<i>Agaricus sp.</i>				
<i>Pleurotus sp.</i>				
<i>Lepiota sp.</i>				
<i>Volvariella sp.</i>				
<i>Tricholoma sp.</i>				
<i>Phellinus sp.</i>				
<i>Coprinus sp.</i>				
<i>Omphalina sp.</i>				
<i>Panellus sp.</i>				
<i>Marasmius sp.</i>				
<i>Mycena sp.</i>				
<i>Inonotus sp.</i>				
<i>Dictyophora sp.</i>				
<i>Clathrus sp.</i>				
<i>Clavaria sp.</i>				
<i>Pisolithus sp.</i>				
<i>Fomes sp.</i>				

## Report on

### “One Day workshop on Mushroom Cultivation Technology and Mushroom Recipes”

Survey, collection, identification and perseveration form the basic building blocks of systematic studies of mushroom. After the systematic study it becomes necessary to add the knowledge of mushroom flora for the benefit of students and welfare of common people.

**Aims and objectives :-**

- i) To popularize the science amongst the society.
- ii) Utilization of science for improvement of rural life as advocated by Gandhiji and Nehruji.
- iii) Transfer the cultivation technology from lab to land and create the awareness about the mushrooms.
- iv) To develop eco-friendly, low cost technology and convert agricultural wastes into valuable product.

### **Importance to society**

1. To percolate the knowledge about ‘**Mushroom Cultivation Technology**’ by providing free consultancy.
2. To arrange workshops at different places for the awareness about importance of mushrooms.
3. Mushroom cultivation Technology having low input, with comparative quick output (30 days) and agri-waste based technology.
4. Mushroom industry will open new avenues for employment to the students, income generating source for villagers, tribals and local people.
5. Edible mushroom industry if properly organized,
  - can ease the problem of malnutrition/ medication
  - employment generation
  - recycling of agri-waste into valuable fertilizer
  - and farmers suicide problem minimize to some extent

### **Work Done:-**

One Day workshop on “**Importance of Mushroom Cultivation Technology and Mushroom Recipes**” was organized on 05.01.2010 at Yaoli (Shahid). The workshop was organized in associative with NSS unit of college. For the workshop total 60 participants were present including villagers, students and teachers.

### **ACKNOWLEDGEMENTS**

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