

# Study Of Wild Mycoflora (Mushroom) From Sautada, District Beed, Maharashtra

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**Abstract**—Mushrooms occupy a prominent position in the biological world due to their remarkable diversity, economic value, and environmental importance. In developing countries like India, mushrooms contribute significantly to food security, medicinal applications, employment generation, and sustainable agriculture through agro-waste recycling. Nutritionally, mushrooms are valued for their high-quality proteins, dietary fibers, vitamins, minerals, and low-fat content, positioning them as an important alternative food resource. Globally, out of approximately 1.5 million fungal species, about 14,000 are recognized as mushrooms, with India contributing nearly 10% of the world's mushroom diversity. The present study focuses on the collection, preservation, morphological and anatomical identification, and ethnomycological significance of wild mushrooms from Sautada, District Beed, Maharashtra. Five wild mushroom samples were collected during October 2025 and identified using standard macroscopic and microscopic techniques. The identified species belonged to families Lyophyllaceae, Boletaceae, Polyporaceae, and Bolbitiaceae, including *Volvariella volvacea*, *Boletus edulis*, *Trametes versicolor*, *Bolbitius* sp., and *Lentinus tigrinus*. The study highlights the diversity, habitat preferences, occurrence, and edibility of wild mushrooms from the study area, emphasizing their potential role in nutrition, ethnomycology, and sustainable utilization. Documentation of such wild mushroom resources is essential for biodiversity conservation, promotion of mushroom-based livelihoods, and exploration of their nutritional and medicinal potential.

**Index Terms**—Mushrooms, wild, ethnomycological, morphological, anatomical

## I. INTRODUCTION

In the biological world diversity, economic value and environmental importance of mushrooms occupy a

prominent place (Sarma, 2010). In developing countries like India, mushrooms are the source of progress in the fields of food, medicine and unemployment (Khatun et al., 2011). Mushroom production represents one of the most commercially important steps towards diversification of agriculture based microbial technology for large- scale recycling of agro-wastes in an agricultural country like India. Mushrooms are usually placed above vegetables and below high proteins in meat, fish and therefore can solve world's food scarcity problem (Boa 2004). Mushrooms are globally appreciated for their nutritional value and medicinal properties. Mushrooms are great providers of several minerals and trace elements, as well as dietary fibers, and have low fat, high protein, and vitamin levels. In recent years, mushrooms have become recognized as a fantastic source of antioxidants, nutraceuticals, anticancer agents, prebiotics, immunomodulators, anti-inflammatory agents, and antibacterial and anti-diabetic agents. Mushrooms include bioactive substances in addition to the polysaccharides (-glucans) and proteins that make up their cell walls, as well as secondary metabolites such phenolic compounds, terpenes, and steroids. The species of mushroom, substrate, fruiting conditions, stage of development, age of the mushroom, storage conditions, and obviously cooking techniques all have an impact on the concentration and effectiveness of bioactive chemicals.

There are about 15,00,000 fungi present all over the world in which 14,000 are recognized as mushroom species (Mishra et al., 2021). Out of 14,000 species of mushrooms reported worldwide, about 1,200 species belonging to the order Agaricales, Boletales and Russulales are described from India, which contributes 10 percent of the global mushroom

diversity (Thiribhuvanamala et al., 2011). Mushrooms are cosmopolitan in nature and occur seasonally in several habitats all over the world. The day-time temperature in summer, the rainy season, rises to around 35°C and in winter cools to 25°C with a night time minimum of around 10°C which favours the growth of most of the macrofungal species (Das et al., 2005).

Wild edible fungi (WEF) have been collected and consumed by people for thousands of years. Of the 14,000 mushroom species, nearly 7000 species are well studied to possess varying degree of edibility and more than 3000 species spread over in 31 genera are regarded as prime edible. In broad sense, “mushroom is a macro fungus with a distinctive fruiting body, which can be either epigeous or hypogeous and large enough to be seen with naked eye and to be picked by hand” (Chang et al., 1982). It is perhaps the most well-known and documented edible forest product (Chamberlin et al., 1998). Mushrooms have been widely used as foods (Falconer et al., 1990, Gilbert et al., 1957) and very often as delicious and nutritious foods (Vincent et al., 2013). Approximately 14,000 described species of the 1.5 million fungi estimated in the world produce fruiting bodies that are large enough to be considered as mushrooms (Chang et al., 2006). Mushrooms belong to basidiomycetes and ascomycetes with a cell cycle including the formation of sexual spores and have two growth phases, i.e., the vegetative phase (mycelia) and the reproductive phase (fruit bodies). The fungal spores are located in a special structure called the basidium (for Basidiomycetes) or the ascus (for Ascomycetes).

With the increasing population and its decrease in per capita arable land, along with rapid urbanization and industrialization, climate change, and a demand for quality and functional foods, it will be necessary to focus on secondary agriculture and novel crops, such as mushrooms. Mushroom cultivation could also be an important part of sustainable agriculture and forestry. Huge quantities of wide varieties of organic waste are generated from agriculture, forestry, and food processing

## II. MATERIALS AND METHODS

### Collection:

Collection is carried out from the Sautada, Dist. Beed, and MH. Collected in proper fruiting bodies are approximately fully developed. The visit for collection of mushrooms was carried out during the month of October 2025.

At the time of collection, a sharp knife, cellophane bags, forceps, brush, camera, notebook, pen etc. were carried and they were used at the time of collection. Before collecting the mushroom samples photographs with habitat were captured and after collection a proper photograph of upper and lower body were captured. Mushrooms were removed from soil with a great care to avoid damage of the stipe and volva. After collecting mushroom samples were putted in cellophane bags and brought them to the lab. Along with these equipments labels were also carried where some parameters are mentioned like Collection No., date, location, habitat, brief note on distinguishing macroscopic features.

### Preservation

The collected samples were preserved in a preservative liquid like formaldehyde as soon as possible before it got decomposed and as a dried specimen or in a deep fridge in -20°C after isolation.

### Identification

Identification of the specimens was carried out by standard microscopic methods (Roy and De, 1996). Microscopic characters were observed under dissecting microscope carefully and try to find the similarities and dissimilarities and putted information in the questionnaire for further evaluation and identification. Identification of mushrooms was done with the help of literature and expertise available in the department. The collected edible mushrooms were listed as date wise as for as possible correct scientific name with citation of authors name and taxonomy position (Nage et al., 1991)

III. IDENTIFICATION OF COLLECTED WILD MUSHROOM FLORA

Morphological Identification

Morphological characteristics of wild mushrooms collected from Sautada are described in Table

Sr. No.	Morphologica l Characters	Sample Mush-I	Sample Mush-II	Sample Mush-III	Sample Mush-IV	Sample Mush-V
1	Shape	convex	Pulvinate	Plane	Infundibuliform	Infundibuliform
2	Size	5 c.m.	4. c.m	4 c.m.	3.6 c.m.	6.1 cm
3	Colour	White and purple patches	Maroon	Light Brown	Light Brown	white
4	Texture	Smooth	Smooth	Rough	Smooth	smooth
5	Height	4 cm	8 cm	4. c.m.	4.6 cm	7.00cm
6	Warts	Absent	Absent	Absent	Absent	Absent
7	Hymanophore	Ridged	Ridged	Porous	Ridged	Ridged
8	Gill Shape & Type	Thin & crowd	Thin & crowd	Absent	Thin & closed	Thin & crowd
9	Gill colour	Brown	Pale White	Same as Cap Colour	Same as Cap Colour	Ivory
10	Stem Shape	Equal	Equal	Equal	Equal	Equal
11	Smell	Chlorine	Coconut	Chlorine	Chlorine	Chlorine
12	Volva Type	Unknown	Sacrale	Unknown	Absent	Napiform
13	Stipe Base	Unknown	Caespitose	Inserted insititous base	Inserted insititous base	Strigose
14	Pileus Margin	Decurved	Recurved	Plane	Incurved	Plane

Anatomical Identification

Anatomical characteristics of wild mushrooms collected from Sautada are described in Table

Sr. No.	Anatomical Characters	Sample Mush-I	Sample Mush-II	Sample Mush-III	Sample Mush-IV	Sample Mush-V
1	Thickness of Cap	5 mm	4 mm	1 mm	1 mm	2 mm
2	Veil (Universal /Partial)	Absent	Absent	Absent	Absent	Universal
3	Margin of Cap	Smooth	Craked	Smooth	Striated	Crenate
4	Marginal Linnes (Striations /Zonation)	Absent	Absent	Zonation	Striations	Absent
5	Edge of gill	Smooth	Marginal	Absent	Smooth	Smooth
6	Attachment of gills to the cap	Adnexed	Adnate	Absent	Adnexed	Adnexed
7	Types of the stipes (T.S)	Solid	Hollow	Solid	Hollow	Tubular
8	Types of Veils	Absent	Absent	Absent	Absent	Flaring
9	Surface of stem	Smooth	Costate	Smooth	Costate	Smooth
10	Stalk Attachment	Central	Central	Lateral	Central	Central

The samples with identification are presented in Table.

Identification of Wild mushrooms

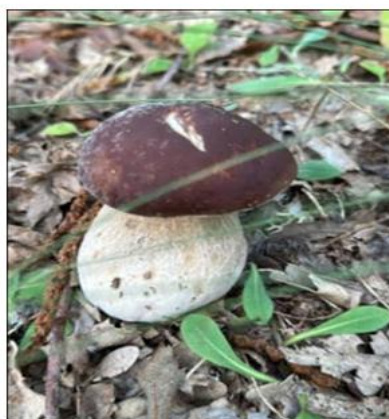
Sr. No.	Sample	Family	Genus	Species
1	Mush-I	Lyophyllaceae	Volvariella	volvoca
2	Mush -II	Boletaceae	Boletus	edulis
3	Mush -III	Polyporaceae	Trametes	versicolor
4	Mush -IV	Bolbitiaceae	Bolbittius	Sp.
5	Mush -V	Polyporaceae	Lentinus tigrinus	tigrinus

Traits of collected wild mushroom samples based on diversity and Ethno mycological knowledge

Collected Sample	Season of collection	Scientific Name	Habitat of Mushroom	Substrate of Mushroom	Extent of Occurrence	Important Feature
Mush-I	Spring	Volvariella volvocca	Land & Humid Environment	Single and Soil	Frequent	Edible
Mush -II	Spring	Boletus edulis	Land & Humid Environment	Single and Soil	Rare	Unknown
Mush -III	Spring	Trametes versicolor	Decaying wood & Humid Environment	Single and wood	Rare	Unknown
Mush -IV	Spring	Bolbittius sp	Decaying wood & Humid Environment	Single and wood	Rare	Edible
Mush -V	Spring	Lentinus sp	Decaying wood & Humid Environment	Single and wood	Frequent	Edible



Mush- I



Mush- II



Mush- III



Mush-IV



Mush-V

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