



## **A Study of Macrofungal Flora of Chilkigarh, Jhargram District of West Bengal, India**

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### **Abstract**

Macrofungal are very important for various reasons. The diversity of macro fungi in Laterite region of West Bengal was explored. One subgenus has some ecological functions, were found to grow among two types of habitats, i.e., natural forests and plantation forests. Extensive field survey in different location of Chilkigarh of Jhargram district of West Bengal, was conducted from April, 2021 to July, 2021. Those macro fungi were collected for preparation of a taxonomic profile of macro fungi of this region. From this study area different types of macro fungus were collected. Among all identified macro fungal members belongs to Basidiomycota and Ascomycota. Among those 7 species are edible, 8 species are medicinally important and 3 species are poisonous.

**Keywords:** Wild fungi, Chilkigarh, Fungal flora of West Midnapore, Macrofungal diversity.

### **Introduction**

Macrofungi are a group of fungi which produce mature spore-bearing and morphologically distinct sporocarps which is visible in naked eye and generally are 1 cm in size (Arnolds 1992, Redhead et al. 1997). They are known to inhabit diverse types of habitats, varying in the composition of their tree species and substrates. These habitats have assemblages of variety of macrofungal species, some are very specific and are facilitated by the presence of trees and other plant species, some of which provide a functional platform of fungi (Unterseher et al. 2006). However, some macrofungi are neutral to the

presence or absence of the dominant plants (Ohtonen et al. 1992). The variety of fungi and their natural beauty occupy prime place in biological world and India has been cradle for such fungi (Mani et al. 2006). Macrofungi are defined as fungi that form macroscopic fruiting body such as gilled fungi, jelly fungi, bracket fungi, coral fungi, stinkhorns, puffball etc. (Hawk Swarth et al. 1995; Richard et al. 2002). It is usual for a particular fungus to produce a visible fruiting body under precise combination of condition including a particular geographical area, temperature, sunlight, humidity of surrounding flora (Smith, 1963). Generally, fungi are most important components of forest ecosystem and

they generally grow on rainy season. The high humid atmosphere during monsoon period provides an ideal atmospheric condition for growth of Macro fungi (Brown N et.al, 2006). Macrofungi generally consist of fruiting body of unrelated groups of Ascomycota and Basidiomycota, easily observed spore bearing structures that are visible from above the ground level (Walting T et al. 2005; Chang et al. 2004). Macrofungi studies have long interest to scientists and public due to their importance in human welfare (Murray 2002; Bates 2006). So, to study the macro fungal flora of the laterite zone of Jhargram District we survey on that area of Chilki garh village.

#### Aims and Objects of this survey: -

1. Invention of macro fungal diversity of Chilki garh Village of Jhargram of West Bengal.
2. To study habitat of macro fungi and preparation of taxonomic profile on present and former distribution of wild fungi.
3. Giving guidelines to people for better management of mycological valuable spot Chilki garh and their economic and ecological value.

#### Materials and Methods

##### Study area: -

Chilki garh is a sacred grove forest situated at Jhargram District under Jamboni police station of

West Bengal. This area lies between 22.449°N in latitude and 86.8747°E longitude and having altitude about 81m from sea level. It occupies around 60 acres beside the Dulung River. The temperature during summer arise up to 42°C and in winter it is near about 15°C. At the end of the summer (June-July) the humidity increases up to 83% to 90% due to monsoon. The amount of average rainfall of this area is 1307mm to 1450mm per year. The soil mainly belongs to the lateritic group, varying reddish to reddish brown, loamy to fine in texture.

In this area, mostly Laterite soil is found and in maximum place contain dry deciduous forest except the place of temple of Chilki garh. In our study area we found two types of forest i.e., natural Sal forest and natural or planted mixed forests. In the vegetation of Sal forests, it covers up predominantly by Sal (*Shorea robusta*), Sonajhuri (*Cassia fistula*), Akashmoni (*Acacia auriculiformis*) and also many shrubs and under shrubs are present. Other trees like Arjuna (*Terminalia arjuna*), Kend (*Diospyros melanoxylon*), Shireesha (*Albizia lebbek*), Sissoo (*Delbergia sissoo*), Palas (*Butea monosperma*), Akashmoni (*Acalypha auriculiformis*), *Eucalyptus* sp., Mahua (*Madhuca latifolia*), Kusum (*Schleichera oleosa*), Kurchi (*Holarrhena antidysenterica*), Keli Kadam (*Nauclea parvifolia*), Simul (*Bombax* sp.) are found in mixed forest area.



Fig. 1 & 2- Location of study area (Chilki garh).

Source: - [www.googlemap.in](http://www.googlemap.in)

### **Survey: -**

Surveys are particularly sensitive to timing and location of observations. Macrofungi exhibit the pattern of diversity that is related largely substratum (Natarajan et al. 2005). Best time of survey is after the period of rain but some macrofungi are found throughout the whole year in some location (Susan metzler, 1992). We collected those fungi which are found during April, 2021 to July, 2021. The sporocarps are collected from the region of Chilkigarh for identification and to create a taxonomic profile of fungal flora.

### **Sampling: -**

Vegetation of Macrofungi and plant associations are useful criteria to dividing a landscape for sampling. Many Macrofungi occur in association with particular plant species (Anirban Roy et al. 2009). Macrofungi generally grow above 20°C with high humidity (Lodge et al. 2004). Primarily investigation suggested that there are two types of vegetation i.e., natural forest of Sal and mixed vegetation of planted forest. Repeated field surveys are conducted during April to July of 2021 in the study area of Chilkigarh.

### **Equipment of Sampling: -**

For sampling some equipment are require like sharp knife for collecting large sporocarps of fungi, forceps for collecting small sporocarps,

scale for measurement of sporocarps. Zipper bags and containers are used for collection of fungi. Hand lens is used to observe small fungi. Camera, notebook and pen are also required for sampling to study the ecological habitat and morphological characters.

### **Collection and Preservation: -**

Sporocarps were removed from the habitat very carefully after taking the photographs. After collecting from the habitat, the specimens were wash gently and then collected in zipper bags or 4% FAA (Formalin acetic acid) solution. Generally dry and hard specimen were preserved in zipper with naphthalin and wet specimens and soft specimens were preserved in FAA solution. After then some specimens are observed under simple and compound microscope for better identification.

### **Identification of the specimens: -**

Identification of those specimens were done by literature, research articles, books and guide.

## **Results and Discussion**

After careful examination and identification of collected samples those were listed down according to the classification of Ainsworth, 1973-

**Table 1: Taxonomic profile of macrofungi found in the village Chilkigarh, West Bengal.**

Division	Family	Name of the species	Ecological Association	Applied Features	
ASCOMYCOTA	Xylariaceae	<i>Xylaria</i> sp.	Saprophytic	Poisonous	
		<i>Xylaria</i> sp.	Saprophytic	Non edible	
	Hypoxylaceae	<i>Daldinia concentrica</i>	Saprophytic	Medicinal	
BASIDIOMYCOTA	Agaricaceae	<i>Lepiota</i> sp.	Saprophytic	Poisonous	
		<i>Lycoperdon pusillum</i>	Saprophytic	Edible	
		<i>Lycoperdon pyriforme</i> .	Saprophytic	Edible	
		Bolbitiaceae	<i>Lycoperdon</i> sp.	Saprophytic	Edible
			<i>Agrocybe</i> sp.	Saprophytic	Non edible
			<i>Conocybe tenera</i>	Saprophytic	Poisonous
		Clavariaceae	<i>Clavaria</i> sp.	Saprophytic	Medicinally important
		Diplocystaceae	<i>Astraeus</i> sp.	Mycorrhizal	Poisonous
		Ganodermataceae	<i>Ganoderma apillantum</i>	Saprophytic	Used as tonic.
	<i>Ganoderma lucidum</i>		Saprophytic	Medicinal value and causing root rot of Plants.	
		Geastraceae	<i>Geastrum</i> sp.	Mycorrhizal	Edible
		Pleurotaceae	<i>Pleurotus</i> sp.	Saprophytic	edible
		Polyporaceae	<i>Hexagonia tenuis</i>	Saprophytic	Uneatable
			<i>Lentinus polychrous</i>	Saprophytic	Usually eatable
			<i>Lentinus</i> sp.	Saprophytic	Edible
			<i>Microporus xanthopus</i>	Saprophytic	Antimicrobial property
			<i>Pycnoporus coccineus</i>	Saprophytic	Generally caused White Rot of plants.
			<i>Pycnoporus sanguineus</i>	Saprophytic	Causing white rot in plants and also have medicinally importance.
			<i>Trametes</i> sp.	Saprophytic	Boost up immunity.
		Schizophyllaceae	<i>Schizophyllum commune</i>	Saprophytic	Anti-cancer drug
	Tremellaceae	<i>Tremella fuciformis</i>	Parasitic	Edible	

**Table 2: Comparison of macro-fungal population between Sal forest and mixed forest.**

Characters	Sal forest	Mixed forest
No. of families	10	14
No. of coprophilous fungi	00	00
No. of ecto-mycorrhizal fungi	02	00
No. of humicolous fungi	04	00
No. of Saprophytic fungi	08	13
No. of parasitic fungi	00	01
No. of lignicolous fungi	05	11
No. of edible fungi	06	01
No. of poisonous fungi	01	02
No. of medicinal fungi	07	01

**Description of the collected macro fungi:-**

***Xylaria sp.***

Ascocarp: -

Sporocarp 2-7 cm tall and 1-3 cm broad. More or less club shaped with rounded tip. In immature condition sporocarp is grey to brown but when it is mature then it turned black. It is hard and there is no taste and odor.

Habitat: -

*Xylaria* is a saprobic fungus. It is a common inhabitant of deciduous forest and woodland areas, usually growing from the bases of rotting or injured tree stumps and decaying wood. This fungus is found after heavy monsoon.

Economic Importance: -

It is a highly toxic fungi contain amanitin and phalloidin. So, it is harmful for human being.

***Xylaria sp. (1)***

Ascocarp: -

Ascocarp is 3-10 cm long, thin hair like, black and white at the tip, sporocarp is branched one or two times, when mature it turns black. It has no taste and odor.

Habitat: -

Generally, grows on leaf litter mass or decaying moist wood. It grows after heavy rainfall when the leaves are decaying.

Economic Importance: -

No such economic importance.

***Dalldidia concentrica: -***

Ascocarp:-

Ascocarp globose to subglobose, sometimes incurved, purple brown in immature condition and later it turns black, upto 5 cm long, hard, dotted with pores of perithecial ostioles which form circular layer beneath the crust, sessile.

Habitat: -

This is perennial, abundant with in June to September, growing on woods mostly dead logs.

Economic Importance: -

This fungus is known as Coal fungus. It is dried and mixed with coconut oil and used in burnt.

***Lepiota sp.***

Basidiocarp: -

Pileus 2-3cm broad and 4-5cm long, creamy white in color, surface moist, smooth and minutely pubescent. Gills are white when it is mature. Gills are regular and free and gills margin concolorous. Stripe is white, long, smooth, and a ring like structure present on the stripe. Smell pleasant with mild taste.

Habitat: -

Commonly found in mixed forest and grassland during the month of June to August.

Economic Importance: -

It is a poisonous fungus.

***Lycoperdon pusillum: -***

Basidiocarp: -

Basidiocarp is globose to sub globose, small, 3.5-10mm in diameter, often adhering white cord like rhizomorph, smooth surface and found in naked eye. Exoperidium covered by minute, fugacious, mealy, a polygonal squamulose. Endoperidium is white or Sulphur yellow in color and up to 1mm thick when it is fresh. When it is matured then it releases hyaline spores.

Habitat: -

Generally, grows in grassland and forest floors. It is very common and found abundantly in this area. It grows in monsoon time of May to July.

Economic importance: -

It is an edible fungus contains high amount of protein. It is eaten when it is young. Commonly known as 'watered puffball'

***Lycoperdon pyriforme: -***

Basidiocarp: -

Basidiocarp is smaller, almost sterile, pale yellow in color, globose to sub globose in size. Apical pore is found at mature stage. Peridium is pear shaped, sub persistent and scaly. Peridium are cracking in wet moist weather.

Habitat: -

Grows on decaying tree trunk or dead wood or leaf litter or open grass field. It is found abundantly in the month of June to July. In most of the cases fruiting bodies are crowded together.

Economic importance: -

These fungi are serving as food containing high nutritious value. Sporophores are used in immature condition. The local name of this fungi is "Putka Chhatu"

***Lycoperdon sp.***

Basidiocarp: -

Sulphur yellow or white in colour, with clay buff-coloured scales. 0.4-0.7 cm in diameter, globose to sub globose, sessile, basal mycelium is cord like, gleba colour same as peridium.

Habitat: -

Found in Shal forest, growing on plant debris and fruiting bodies are crowded together. Generally, found in last of the summer (May-July) in dry moist condition.

Economic importance: -

It is used as food in immature conditions. In the locality it is known as "Dhula Chhatu".



***Agrocybe sp.***

Basidiocarp: -

Caps are 2-3cm in diameter, bell shaper, and yellow brown in colour. Gills are arranged and yellow brown in colour. When matured it is thin shiny and soft with rough margin. The stripe is thin, brown and pubescent. Rhizoids are present at the base.

Habitat: -

Fungi are growing aggregately under the Sal forest. Generally, grows on wood cheeps and other organic material.

Ecological Importance: -

It is a poisonous fungus and no economic importance is found.

***Conocybe tenera: -***

Basidiocarp: -

Caps are 1-3 cm in diameter and becoming bell shaped and light brown in mature condition. Gills are adnexed type and rust colour when it is mature. The thin, shiny, slender stripe is upto 7cm in length and rust brown coloured. The stripe is shiny, hollow and pubescent. Rhizoids present at the base.

Habitat:-

This fungus is saprobic in nature, generally grow in rotten wood chips and leaf litter of forest or grass lands. This fungus is found in monsoon. Generally found in May to July.

Economic Importance: -

This fungus is not economically important but highly poisonous for human and animals.

***Clavaria sp.***

Basidiocarp: -

Coralloid basidiocarp, erect, white, 3-5cm tall, branched 4-5 times, presence of tooth like projections, smooth or slightly wrinkle surface, slightly odor and taste present, those basidiocarp contain 2.5-4 $\mu$ m ellipsoid spores. The basidiocarp became creamy in colour when it is mature.

Habitat: -

It is found abundantly in sal forest during the rainy season. It is growing saprophytically on leaf litter or any organic material (humicolous).

Economic Importance: -

It is commonly known as 'Coralloid fungus'. It has highly medicinal important as it is used as cancer medicine. Generally, sarcoma patients get well by using the medicine containing polysaccharide of *Clavaria*. This fungus is also a threaten species marked by IUCN.

***Astraeus sp: -***

Basidiocarp: -

The basidiocarp refers to hard two layered skin surrounding the spore mass. Fruiting body is yellow to yellow brown in colour, globose to sub globose and slightly flattened, 3-7cm in diameter, brownish scales present on the upper surface. The basidiocarp contain blackish brown spores.

Habitat: -

Ectomycorrhizal association with Sal trees.

Economic Importance: -

It is so poisonous.

***Ganoderma applanatum*: -**

**Basidiocarp: -**

Woody basidiocarp, typically sessile, 6-60 cm broad, 5-10 cm thick, fan shaped to slightly convex, rarely hoof-like and solitary, margin rounded early, becoming narrowed at maturity; surface hard and dull brown in color and irregular, often furrowed. Spores are brown in colour.

**Habitat: -**

Generally, grows in tree trunks, cutting logs or injured trees.

**Economic Importance: -**

It is usually used as medicine. The dust of this fungus used as tonic of cancer. Besides it has anti-inflammatory, antioxidant and anti-diabetic property. But it is harmful for those trees in which it is born. It causes root rot of the trees.

***Ganoderma lucidum*: -**

**Basidiocarp: -**

The shape is initially irregularly knobby or elongated, but by maturity more or less fan shaped and shiny. The glossy portion often roughly arranged into lumpy 'zones'- red to reddish brown when it is mature and the immature one has yellow to white zone towards the margin. Stripes present sometimes. The ventral portion is white or creamy in color and it is porous. The basidiocarp is up to 15cm long in length and 5-8mm broad.

**Habitat: -**

It generally grows on tree trunk of the trees of mixed forest in deciduous forest during the heavy monsoon season of June to September. It is commonly found in this locality.

**Economic Importance: -**

It is commonly known as "Shuka Chhatu" in the locality. Local people used it as tonic. Dust of this fungus used as anti canceral medicine.

***Geastrum sp*: -**

**Basidiocarp: -**

Basidiocarp sessile, globose to sub globose, hard, 7-10mm in diameter, white peridium, 1.5 – 2 mm thick at the base and it is three layered, hygroscopic, gleba sessile, white when it is immature but dark brown in maturity. The lower part of peridium is star shaped. Spores are dark brown in colour, dehiscence by irregular slit. Rhizomorph hyphae are thick walled and branched, 3-4 mm in diameter.

**Habitat: -**

Growing solitary or in aggregates in the moist Sal forest floor with ectomycorrhizal association. It grows abundantly in Sal forest during June to August.

**Economic Importance: -**

Tribal people of this area used as medicine. They used spores are blended with mustard oil and used in brunt cases. They also intake it as food. It is popularly known as "Kurkure Chhatu" in the locality.

***Pleurotus sp*: -**

**Basidiocarp: -**

This basidiocarp is very tender and white in colour and up to 4cm long. Gills are free and arranged and white in colour. The surface of the fungus is smooth containing black dots. A small stripe is present which 2-4mm long is. It is white in colour. Basidiocarp is tapering towards the base.



Habitat: -

Growing under the Sal tree after a heavy rainfall.

Economic Importance: -

It is an edible fungus to the local people.

***Hexagonia tenuis: -***

Basidiocarp: -

Basidiocarp solitary, sessile, effused reflexed, applanate, coriaceous, 3.5 X 2 – 0.05-0.2 cm, upper surface of pileus glabrous, rough surface, when it is dry it is semi brown in colour and when immature it is white in colour. Numerous hexagonal pores are found.

Habitat: -

It grows throughout the year and growing lignicolously on trees.

Economic Importance: -

This genus is not so much economically important.

***Lentinus polychrous: -***

Basidiocarp: -

Corner (1983) described this fungus to be almost trimetric. In this fungus is skeletal and skeletogenic hyphae are found. In mature condition the lamellae turn black. It is 7-10 cm broad in length. Gills are black in colour. Stripe is present and 5-7mm long, tapering towards the base, terete and solid.

Habitat: -

Generally, it grows on tree trunk (mainly at the lower portion of tree). It is found during May to July in Sal forest.

Economic Importance: -

It is known as “Murgi Chhatu” to the local people. They fry this with mustard oil and eat as food as it contains high nutritious value. Besides it has myco-remedial property as it can remove oil and heavy metal ions from the soil.

***Lentinus sp. (1): -***

Basidiocarp: -

Basidiocarp is semi soft, yellowish brown in colour, 2-3cm long, smooth surface, gills are free, brown, arranged. A medium stripe is present which is brown in colour and 5-6cm long.

Habitat: -

Growing under the Sal tree or any bushy area of Sal forest.

Economic Importance: -

Usually, no such information about its economic importance.

***Microporus xanthopus: -***

Basidiocarp: -

Basidiocarp stipitate, growing singly or in groups, hard or drying, leathery, semi-circular to circular, 3- 8cm long with a small stripe. The ventral portion is creamy white and porous.

Habitat: -

Lignicolous, annual, growing gregariously or fallen litters of leaves and twigs in moist and shady areas of mixed forest of Chilkiarh.

Economic Importance: - This fungus has antimicrobial property.

***Pycnoporus coccineus*: -**

**Basidiocarp: -**

Basidiocarp sessile, broadly attached with wood, 5-7cm in length, orange in colour, upper surface smooth and velvety and the lower surface is porous, a small stripe is present which is 5-9mm long, this fungus looks almost fan like with thick margin.

**Habitat: -**

This fungus grows annually on the dried rotten wood log mostly in scattered form.

**Economic Importance: -**

This fungus has industrial importance as it digests lignin. Besides it has medicinal importance as it has antioxidant, anti-cancer property. It kills *Candida sp.* So different diseases caused by *Candida* can recover by it.

***Pycnoporus sanguineus*: -**

**Basidiocarp: -**

Sporocarp annual, sessile or substipitate, dimidiate, thin and coriaceous, up to 7-10cm long, upper surface orange, red and glabrous, smooth, zonate, tough fibrous, non-stocked, fan shaped.

**Habitat: -**

It grows annually (mainly July to November) on dried rotten wood.

**Economic Importance: -**

This fungus has industrial importance as it digests lignin. Besides it has medicinal importance as it has antioxidant, anti-cancer property. It kills *Candida sp.* But it causes white root rot in plants.

***Trametes sp.***

**Basidiocarp: -**

Basidiocarp mostly solitary, sessile, imbricate, corky and creamy in colour. 4.8-6.4cm long and 0.5- 0.6cm broad, later becoming sooty black, finely matted tomentose when young, glabrous later, concentrically zoned, sometimes black prominent zone is found. When it is mature it becomes smooth and velvety.

**Habitat: -**

Usually annual, lignicolous, grows on wooden log.

**Economic Importance: -**

It is a rich source of nutritive compounds with important pharmacological properties like antioxidant, anti-inflammatory and anticancer properties.

***Schizophyllum commune*: -**

**Basidiocarp: -**

Basidiocarp is up to 5cm in diameter, semicircular to circular, fan shaped, white to creamy in colour, incurved margin, lobed in larger fruit body, gills distinctly formed or greyish white in colour. When it is dry it becomes involute.

**Habitat: -**

Those fungi are saprophytic in nature. Basidiocarps are growing on branches, tree trunk, and old wood, attached to the substratum.

**Economic Importance: -**

It is commonly known as “pakha Chhatu” to local people. Local people used it as a tonic for energy.

***Tremella fuciformis*: -**

Basidiocarp: -

It is a jelly fungus which grows on tree trunk. Basidiocarp is watery white, frond-like, gelatinous and up to 2-4cm in height, branched.

Habitat: -

It a parasitic fungus of *hypoxylon* *sps.* It also growing on dead attached fallen branches or

broadleaf trees. Generally, growing at heavy rain fall time of July.

Economic Importance: -

It is used as soup and also used in ice-cream.

Pictures of Collected Macro- Fungi in Their Habitat: -







Fig.- A. *Xylaria sp.*, B. *Xylaria sp.* C. *Daldinia concentrica*, D. *Lepiota sp.*, E. *Lycoperdon pusillum*, F. *Lycoperdon pyriforme*, G. *Lycoperdon sp.*, H. *Agrocybe sp.* I. *Conocybe tenera*, J. *Clavaria sp.*, K. *Astraeus sp.*, L. *Ganoderma applanatum*, M. *Ganoderma lucidum*, N. *Geastrum sp.* O. *Pleurotus sp.*, P. *Hexagonia tenuis*, Q. *Lentinus polychorus*, R. *Lentinus sp.*, S. *Microporus xanthopus*, T. *Pycnoporus coccineus*, U. *Pycnoporus sanguineus*, V. *Trametes sp.*, W. *Schizophyllum commune*, X. *Tremella fuciformis*.

### Discussion: -

There are approx. 1.5 million species of fungal flora found on Earth (Hawksworth, 1991). In India 27000 fungal specimens are discovered (Sarbhoy et al. 1996). Many researchers and investigators have studied different places of West Bengal and recorded the fungal flora of West Bengal and flora of Laterite zones but till now Chilkigarh Forest (both mixed and Sal forest) is studied for very few times. From the study area 24 different macrofungal species are collected. Among them 14 collected specimens are identified up to species level and 10 species are

identified up to genus level but unfortunately two species are remaining unidentified which belongs to Basidiomycota, are not mentioned in this survey report.

Among all identified specimen 12.5% members belongs to Ascomycota and 87.5% members belongs to Basidiomycota. All macrofungal specimens are identified on the basis of morphological characters (both microscopical and naked eye). No chemical tests are used here. Molecular biological data is not considered for this classification.

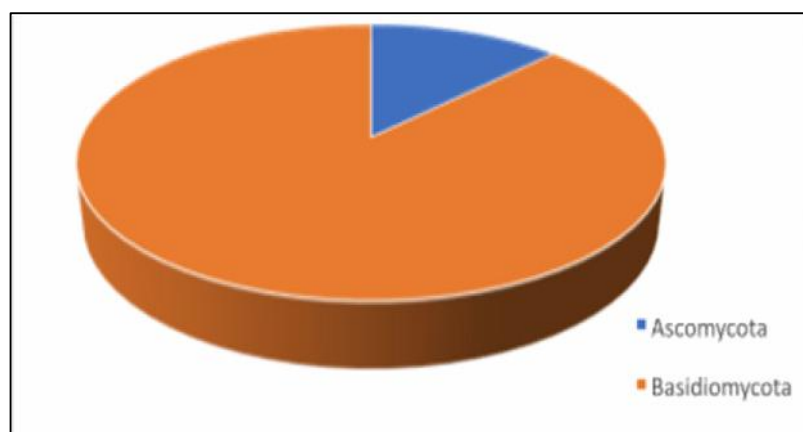
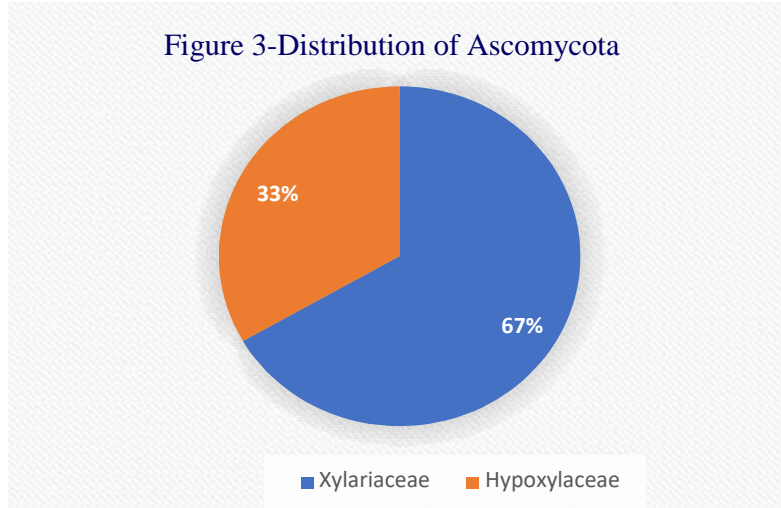


Figure 3 - Distribution of Macro-fungi

All the collected specimens of Ascomycota are distributed among two families, that are Xylariaceae and Hypoxylaceae from the order of

Xylariales. Among them 2 species are belong to Xylariaceae and one species belongs to Hypoxylaceae.



All the identified specimen of Basidiomycota is distributed in 10 families that are Agaricaceae, Bolbitaceae, Clavariaceae, Diplocystaceae, Ganodermataceae, Geastreaceae, Pleurotaceae, Polyporaceae, Schizophyllaceae, Tremellaceae. Among them 4 species belong to Agaricaceae, 2 Species belong to Bolbitaceae, One species belongs to Clavariaceae, 1 species belongs to

Diplocystaceae, 2 species belongs to Ganodermataceae, 1 species from Geastreaceae, One species belongs to Pleurotaceae, 7 species are in Polyporaceae, One species from Schizophyllaceae and one from Tremellaceae are observed in this study area of Chikigarh from Jhargram District.

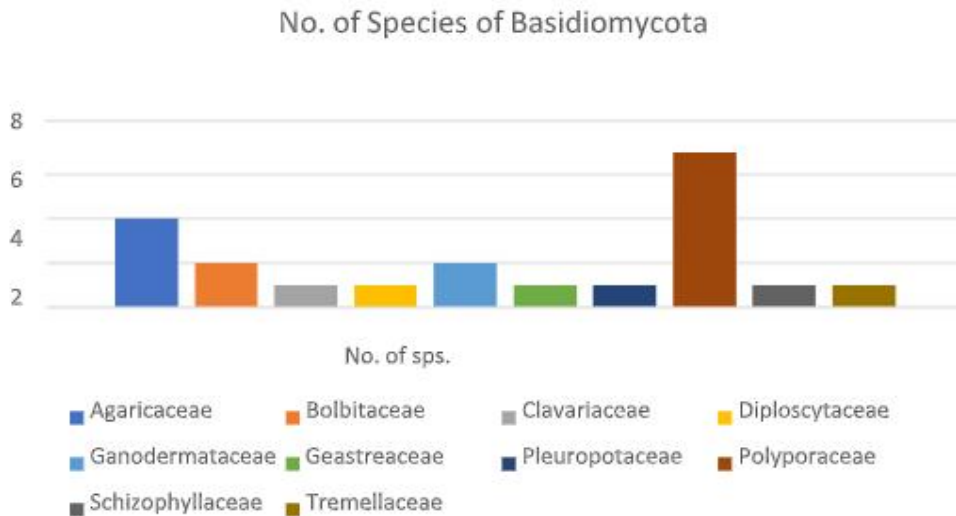
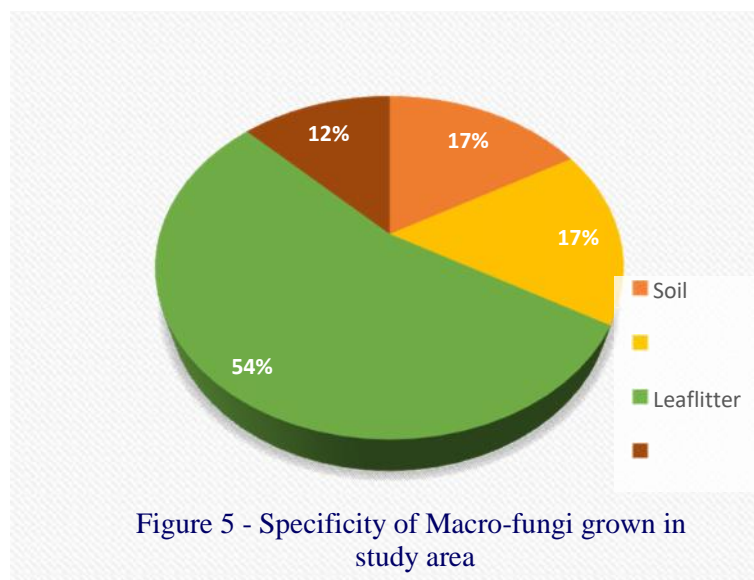


Figure 4- Species diversity under various families of Basidiomycota

All the macrofungi are collected from the study area were grown in different substratum such as leaf litter, plant root, tree trunk, open soil etc. Maximum species are saprophytic and some are mycorrhizal and very few no. of fungi is parasitic. The fruiting body of those fungi generally grow

after heavy rainfall. Among all identified species - 4 species are growing on soil, four are growing on litter mass, 8 species are growing on dead rotten wood or wood chips, 5 species are growing on tree trunk and only 3 species are growing on humus.



In this survey we conducted to local people and comes to know that among those identified species only seven species are edible, 9 species have medicinal importance and 4 species are poisonous like *Lepiota*, *Xylaria* etc. And others have no such importance.

### Conclusion: -

The investigation was conducted from April, 2021 to July, 2021. This investigation will help to create a taxonomic profile and preparation of systemic study of macrofungal flora available in Chilkigarh, Jhargram. Wild edible mushrooms are not only tasty and flavors but also, they have high nutritious value. The medicinal fungi should be protected and can be widely used in medicinal science. The study has revealed that Jhargram forest has a rich biodiversity of macrofungal population. Awareness of local inhabitants and educating them of the values of macrofungal diversity and edibility should be needed.

Conflict of interest statement- The author declared that there is no conflict of interest.

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