

Inventory of Macroscopic Fungi in Protected Forest Areas Malaka District Chartery

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Abstract: Mushrooms are eukaryotic organisms with spores, without chlorophyll that reproduce sexually and asexually, mushrooms can be used by humans as food ingredients and ingredients for traditional and modern medicine. The purpose of this study was to determine the type and habitat characteristic of macroscopic fungi conducted in the kateri procted forest area Malaka Regency. Using exploration and identification methods where the plant identification process is a process of matching a plant according to a particular taxonomi on each research transect line. There are 28 species of macroscopic fungi namely *Dacrymyces stilatus*, *Auricularia auricula-judae*, *Xylaria hypoxylon*, *Daldinia concentrica*, *Microporus xanthopus*, *Earliella scabrosa*, *Pycnoporus sanguineus*, *Polyporus alveolaris*, *Lentinus squarrosulus*, *Hexagonia tenuis*, *Trametes pubescens*, *Tyromyces chioneus*, *Marasmius oreades*, *Marasmius haematocephalus*, *Baespora myosura*, *Marasmius rotula*, *Marasmius andorsaceus*, *Trogia infundibiliformis*, *Leucocoprinus brebissonii*, *Lepiota helveola*, *Agaricus micromegathus*, *Bolbitius vitelinus*, *Mycena albicocapilaris*, *Crepidotus variabilis*, *Parasola plicatilis*, *Coprinopsis fragilisimus*, *Lycoperdon pyriforme*, *Pleurotus djamor*. Divided into 5 Orders namely *Dacrymycetales*, *Auriculariales*, *Xylariales*, *Polyporales*, *Agaricales*. And 12 family namely *Dacrymycetaceae*, *Auriculariaceae*, *Xylariaceae*, *Polyporaceae*, *Marasmiaceae*, *Agaricaceae*, *Bolbitiaceae*, *Mycenaceae*, *Crepidotaceae*, *Psathyrellaceae*, *Schizophyllaceae*, *Pleurotaceae*. The most abundant habitat Characteristics were on rotten wood branches as many 9 species, on dead wood stem many as 8 species, in leaf little many as 4 species and in soil with hums many as 7 species.

Keywords: Fungi Macroscopic; Characteristic; Inventory; Kateri Forest

1. INTRODUCTION

East Nusa Tenggara Province (NTT) is a region in Indonesia which covers the eastern part of the Nusa Tenggara archipelago, geographically located between 80-120 South Latitude and 1180-1250 East Longitude. This region is known to have extensive tropical rainforests with abundant biodiversity, both in the lowlands and highlands ([BPS NTT Province 2021](#)). One aspect of this diversity is fungal diversity. Fungi generally inhabit various types of habitat, such as soil, litter, animal waste, and so on. Forest ecosystems are one type of environment that can provide conditions that support the growth of fungi due to high humidity ([Nasution, 2018](#)). Malaka Regency, which is located in NTT Province, is also known

to have natural forest potential which is a habitat for various types of flora and fauna, including fungi.

Malacca Regency has natural forest potential which includes Protected Forests and Mangrove Forests. This protected forest covers an area of around 4,699.32 Ha with a height of 10 to 355 meters above sea level and is in Kateri Village, Central Malaka District. Its function as a protected forest is very important to regulate water management, prevent flooding, and reduce the risk of landslides and erosion. The Kateri Protected Forest area is a primary forest area that is rich in various types of trees, as well as being a habitat for both protected and unprotected wild

animals. Apart from that, this area also supports a diversity of organisms, including fungi.

Fungi are eukaryotic organisms that have spores, do not have chlorophyll, and reproduce both sexually and asexually. In the classification based on body size, there are two main categories, namely macroscopic fungi which are large enough to be visible to the human eye, and microscopic fungi which are small and require a microscope to be seen ([Darwis, 2011](#)). The uniqueness of fungi enriches the diversity of living creatures in the environment. Many types of mushrooms have beneficial value for humans, both as food ingredients and as sources of medicinal ingredients, both in medicinal traditions and in the development of modern medicine ([Wahyudi, 2016](#)).

Several types of mushrooms have various uses, such as as a source of food, medicine, and so on. Meanwhile, there are also types of mushrooms that can cause poisoning. Among the mushrooms that grow naturally, straw mushrooms (*Volvariella volvacea*) and wood ear mushrooms (*Auricularia auricula*) are mushroom varieties that are in great demand as food ingredients by the public. Apart from being processed into food, there are also mushrooms that are known to have health benefits, such as maitake mushrooms (*Grifola frondosa*) which are believed to help prevent the development of tumors and cancer ([Campbell et al., 2003](#)).

There have been several previous studies that conducted inventory research on the types of macroscopic fungi that have been found in West Kalimantan, including 49 types of macroscopic fungi in the Kantuk Traditional Forest, Sintang Regency ([Syafrizal, et al. 2014](#)), 20 types of macroscopic fungi in the Peat Swamp Forest of Teluk Bakung Village Sungai Ambawang District, Kubu Raya Regency ([Wahyudi, et al. 2016](#)), 57 types of macroscopic fungi in Kantuk, Sintang Regency ([Syafrizal, et al. 2014](#)), 20 types of macroscopic fungi in the Peat Swamp Forest, Teluk Bakung Village, Sungai Ambawang District, Kubu Raya Regency ([Wahyudi, et al. 2016](#)), 57 types of macroscopic fungi in Mount Senujuh, Sambas Regency ([Yunida, et al., 2014](#)), and 26 types of macroscopic fungi in the Mas Rain Forest, Kawat Village, Tayan Hilir District, Sanggau Regency ([Anggraini, et al. 2015](#)).

Based on the description above, it is necessary to characterize the types of fungi found in the Kateri forest, Malacca Regency.

2. METHODOLOGY

This research was carried out by applying the Free Exploration Method, where direct observation was carried out on research objects found at the research location. In addition, measurements were made of physical environmental factors. Mushrooms that are successfully identified include fungal characteristics which are then documented and collected. Next, the mushroom samples were taken to the laboratory for further identification, using the Pocut Meurah Intan Forest Park Mushroom Identification Book.

Time and Place

This research was conducted in the Kateri Protected Forest area, Kateri Village, Central Malaka District, Malacca Regency. The identification process was carried out at the Biology Laboratory, Faculty of Agriculture, Science and Health.

Tool and Materials

The tools used in this research are a ruler, stationery, camera.

Procedure

1. Research Location Survey

An initial survey was carried out to see the condition of the research location and to determine the exploration route at each observation point in the Kateri Protected Forest area, Malaka district. Next, prepare the tools and materials needed for the research

2. Preparation research

Before research activities are carried out, first prepare the tools and materials that will be used in the research.

3. Observation and Documentation

Mushrooms that have been found at the research location are directly observed, the characteristics of the fungus are recorded and followed by taking pictures.

4. Sample collection

Macroscopic fungi found in the field were collected by placing them in a sample container filled with 70% alcohol. Wet preservation from

the field was taken to the laboratory for further identification.

5. Identify mushrooms

From the results of observations, documentation and sample collection, proceed with identifying the mushrooms using references mushroom identification books and taxonomi.

3. RESULT AND DISCUSSION

Result

Exploration of macroscopic fungi in the Kateri Protected Forest Area, Malacca Regency, resulted in the identification of 28 species of macroscopic fungi with a variety of different morphological characteristics and habitat characteristics, as documented in Table 1.

No	Spesies	Tempat tumbuh	Jumlah
1	<i>Dacrymyces stilatus</i> <i>Xylaria hypoxylon</i> <i>Microporus xanthopus</i> <i>Polyporus alveolaris</i> <i>Hexagonia tenuis</i> <i>Marasmius andorsaceus</i> <i>Trogia infundibuliformis</i> <i>Crepidotus variabilis</i> <i>Pleurotus djamor</i>	Rotten wooden twigs	9
2	<i>Auricularia auricula-judae</i> <i>Daldinia concentrica</i> <i>Earliella scabrosa</i> <i>Pycnoporus sanguineus</i> <i>Lentinus squarrosulus</i> <i>Trametes pubescens</i> <i>Tyromyces chioneus</i> <i>Marasmius oreades</i>	Dead wood	7
3	<i>Baespora myosura</i> <i>Leucocaprinus brebissonii</i> <i>Lepiota helveola</i> <i>Agaricus micromegathus</i> <i>Parasola plicatilis</i> <i>Coprinopsis fargilisimus</i> <i>Lycoperdon pyriforme</i> <i>Marasmius haematocephalus</i>	Humus soil	8
4	<i>Marasmius rotula</i> <i>Bolbitius vitelinus</i> <i>Mycena albicopularis</i>	Leaf litter	4
Total			28

Revealed that the substrate or habitat varies. The results showed that the most common substrate found was rotting wood twigs, with 9 types of fungi identified. Meanwhile, dead wood supports the growth of 7 types of fungi, leaf litter provides habitat for 4 types of fungi, and humus soil facilitates 8 types of fungi.

The growth of fungi is greatly influenced by their habitat, where fungi can grow by utilizing food sources that come from weathering wood or the environment. This includes both wood that is undergoing decay and wood that is already rotting. This concept is in accordance with the views of [Syafrizal \(2014\)](#), who emphasized that macroscopic fungi in forests generally grow on dead, weathered trees, soil, or leaf litter. [Sudirman \(1995\)](#) also stated that fungi are closely related to wood weathering, where fungi grow by utilizing food sources from weathered wood or the surrounding environment. Furthermore, [Pardosi \(2019\)](#) emphasized that fungal diversity does not only depend on species richness, but also on interactions between individuals of various species. This shows that aspects of fungal diversity are influenced by the dynamics of relationships between individual species.

Discussion

1. *Dacrymyces stilatus*



Figure 1. *Dacrymyces stilatus* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Dacrymycetes
Order	: Dacrymycetales
Family	: Dacrymycetaceae
Genus	: <i>Dacrymyces</i>
Species	: <i>D. stilatus</i>

This fungus is around 1-4 mm wide, sometimes looking bigger when close to other sporocarp. The shape resembles a slightly flattened pillow, with a surface that protrudes, but is not completely curved, similar to jelly. When fresh, these mushrooms are dull orange in color, and when ripe, they become slightly translucent with dull orange overtones. When it dries, this fungus turns rusty brown and forms a conspicuous crust on the substrate. Although it can survive in

damp conditions, this fungus is mostly saprophytic and is usually found on dead tree twigs and conifer plants. It is important to note that this mushroom is not suitable for consumption ([Alexopoulos et al., 1996](#)).

2. *Auricularia auricula-judae*



Figure 2. *Auricularia auricula-judae* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Auriculariales
Family	: Auriculariaceae
Genus	: Auricularia
Species	: <i>A. auricula-judae</i>

The fruit body size of this mushroom ranges from 3-8 cm, and this mushroom usually grows on dead wood stems. Furthermore, this mushroom can be consumed because it contains nutrients and has a delicious taste. Apart from that, this mushroom is also used as a medicinal ingredient because it has antiglycogant and anticoagulant properties which are beneficial for health ([Hasanuddin, 2014](#)).

The fruiting body has a distinctive shape, often resembling a flexible ear, although the fruiting body also shows cup characteristics. Typically, these fruiting bodies are attached to the substrate laterally and are sometimes equipped with very short stalks. This species has a springy, elastic texture when fresh, with thin, gelatinous flesh. However, when they dry out, these mushrooms become hard and brittle. The outer surface of the fruit body has a reddish brown to light brown color, often covered with fine gray hairs. The fruit body can be grooved and shriveled, with the color darkening with age. Meanwhile, the inner surface is gray and smooth. Ear fungus (*Auricularia auriculajudae*) is a type of fungus that has great potential as a forest resource. However, management has not been optimal to

date. Ear fungus belongs to the heterobasidiomycetes class and can be found growing naturally on wood, so it is often referred to as wood fungus or wood rot fungus. The specialty of this mushroom lies in its high nutritional content and significant economic value ([Onyango et al., 2011](#)).

3. *Xylaria hypoxylon*



Figure 3. *Xylaria hypoxylon* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Ascomycota
Class	: Sordariomycota
Order	: Xylariales
Family	: Xylariaceae
Genus	: Xylaria
Species	: <i>X. Hypoxylon</i>

The fruiting body (stroma) is small, upright, sometimes with several simple branches or several branches resembling more horns. Initially black and finely hairy near the base and white at the tip. The entire stroma eventually blackens as the fruit body ripens. Saprobic in fallen branches and large dead trees. *Xylaria hypoxylon* is a fungus that degrades soft cellulose and harder lignin, causing wood to become soft and can be grown by other fungi and insects. The body size of this fungus is 3-5 cm. This fungus cannot be consumed, but it produces secondary metabolite compounds in the form of dihydroisocoumarin which are useful as an anti-fungal and is able to act as an inhibitor of Alzheimer's disease ([Rahma, 2018](#)).

The life cycle of *Xylaria hypoxylon* can be considered a quite complex process. The formation of spores, asci, and perithecia occurs in the mature stage of these fungi and is part of sexual reproduction. When it reaches the adult stage, *Xylaria hypoxylon* produces asexual spores by producing conidia in a powdery layer, this

event generally occurs when spring is ending ([Hidayat, 1995: 179](#)).

4. *Daldinia concentrica*



Figure 4. *Daldinia concentrica* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Ascomycota
 Class : Sordariomycetes
 Order : Xylariales
 Family : Xylariaceae
 Genus : *Daldinia*
 Species : *D. Concentrica*

Daldinia concentrica fungus forms a hard, almost spherical fruit body. The fruit body is initially reddish brown, becoming black when mature. The surface is smooth and often has fine cracks if looked at under the lens, if cut inside the fruit body it will reveal a dark brown to black context forming a series of concentric rings. This mushroom generally grows on dead wood or twigs with conspicuous fruit bodies that persist throughout the year and have a diameter of 1-4 cm. This mushroom cannot be consumed because it is poisonous ([Hall et al., 2003](#)). *Daldinia concentrica* lives on dead wood and this type of mushroom is not edible ([Wardhani, 2023](#)).

5. *Microporus xanthopus*



Figure 5. *Microporus xanthopus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Polyporales
 Family : Polyporaceae
 Genus : *Microporus*
 Species : *M. xanthopus*

The fruit body of a mature mushroom has a very thin and stiff funnel-shaped cap with a fruit body width ranging from 2-7 cm and a stalk (stipe) measuring 1-3 cm. This mushroom has a thin, brownish red fruit body with concentric, flat lines and a slight funnel near the stalk. [Agus \(2002\)](#), stated that the *M.* The body surface is smooth and smooth with a shine (semiglossy). The bottom of the hood is smooth and white. *Microporus xanthopus* lives on wood twigs either solitary or in colonies. It has no annulus and volva, and cannot be consumed ([Kent, 2006](#)).

According to [Florence & Yesodharan \(2000\)](#), *M. xanthopus* has fruit bodies that are annual, can be single or branched, and the surface of the hood is violet brown. The underside is yellowish white. The mushroom stalk is attached to the center or slightly away from the center, is yellow or yellowish brown, and has a smooth and smooth surface without any hair.

6. *Earliella scabrosa*



Figure 6. *Earliella scabrosa* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Polyporales
 Family : Polyporaceae
 Genus : *Earliella*
 Species : *E. scabrosa*

The fruit body is semicircular or kidney-shaped with a white to cream color when young,

as it ages it changes to reddish brown from the center to the edges. The upper surface is glabrous and uneven, slightly convex and the edge near the basal is slightly curved, sometimes forming a lobe, the pore surface is creamy white. Pores are angular type, do not have rods. Dried fruit bodies can come to life in moist conditions. *E. scabrosa* is a lignin decomposing fungus which can cause white rot in wood, this fungus cannot be consumed (LIPI, 2017). *Earliella scabrosa* fungus is often found in open places that are exposed to a lot of sunlight (Susan & Retnowati, 2018).

7. *Pycnoporus sanguineus*



Figure 7. *Pycnoporus sanguineus* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Polyporales
Family	: Polyporaceae
Genus	: <i>Pycnoporus</i>
Species	: <i>P. sanguineus</i>

The fruit body is semicircular, kidney-shaped, planoconvex. Measuring 2-13 cm with a thickness of up to 2 cm. The upper surface is finely hairy, becomes rough (often pockmarked with age), bright reddish orange in color and fades over time, the lower surface is porous. The stemless fruit has hard flesh, causes white rot and the fruit body is annual, this mushroom cannot be consumed (Rahma, 2018). According to Wursten (2009), *Earliella scabrosa* generally has a brown-red color and usually grows on dead wood. Winkler (2008) also classifies this fungus as a tropical fungus and is included in the category of white rot fungus, which is capable of degrading lignin in wood.

8. *Polyporus alveolaris*

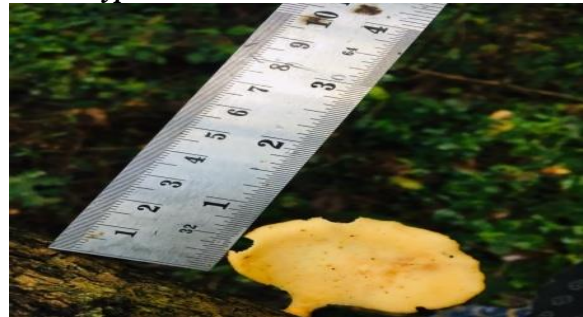


Figure 8. *Polyporus alveolaris* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Polyporales
Family	: Polyporaceae
Genus	: <i>Polyporus</i>
Species	: <i>P. Alveolaris</i>

The fruit body is fan-shaped, semicircular, or kidney-shaped. Upper surface orange to orange when fresh and when young, fades with age to yellowish or almost white, radially fibrillose surface scaly (at first), dry has short and rather stubby lateral stems, but sometimes with more centrally located stems and substantial (in this case the cap is round, not kidney-shaped), the bottom surface is porous all the way down the stem, the color of the pores is whitish to pale yellow (Hasanuddin, 2014). The pores are up to 1x2 mm in size, diamond or “honeycomb” shaped, usually radially arranged. Flesh up to 2 mm thick, white, firm, does not change when sliced. The spore trail is white. Saprobic on recently dead woody twigs and small woody twigs. This mushroom cannot be consumed (Rahma, 2018).

9. *Lentinus squarrosulus*



Figure 9. *Lentinus squarrosulus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Polyporales
 Family : Polyporaceae
 Genus : Lentinus
 Species : *L. squarrosulus*

The fruit body of *L. squarrosulus* is shaped like a shallow funnel and the surface is milky white with a few rough scales. The gill sheets are of the decurrent type and are usually very close together. Stems tend to be 1-2 cm short compared to the overall central fruiting body size. Has no annulus or volva. It is a saprobic fungus on dead wood, growing in crowded clusters, usually consisting of three to six but sometimes reaching up to thirty fruiting bodies. A widespread and very common species, this fungus can be consumed and lives in groups on dead woody stems. ([Rahma, 2018](#)).

10. *Hexagonia tenuis*



Figure 10. *Hexagonia tenuis* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Polyporales
 Family : Polyporaceae
 Genus : Hexagonia
 Species : *H. tenuis*

The fruit body of *H. tenuis* is thin in the form of a rough bracket that grows from the side or is attached from the bottom, from a dead branch. The upper surface is velvety with concentric zones in various shades of fawn or brown, sometimes becoming purple towards the edges. The fruit body is very hard and stiff, the pore surface is more or less flat, with large shallow pores resembling a honeycomb. Greyish white when

young, dark to yellowish brown from the center when ripe. The pores are usually hexagonal in shape and like honeycombs, this species usually sticks straight on without a stem, which makes it clear that this mushroom cannot be consumed ([Rahma, 2018](#)).

11. *Trametes pubescens*



Figure 11. *Trametes pubescens* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Polyporales
 Family : Polyporaceae
 Genus : Trametes
 Species : *T. Pubescens*

The fruit body of *Trametes pubescens* is small and thin. The surface of the hood is cream colored and smooth. Unlike most other species of *Trametes* which resemble turkey tails, the surface of the cap does not have zones of highly contrasting color. The fruit body is white or cream with hard, cork-like flesh, semicircular in shape, smooth or velvety on the upper surface. The fruiting body is often tiered with adjacent caps sometimes fused laterally to the substrate. Has no stem, slightly angular white pores often vary randomly and sometimes merge, 5-8 cm in diameter, habitat in dead wood trunks. Traces of white spores are saprobic fungi and these fungi cannot be consumed ([Rahma, 2018](#)).

12. *Tyromyces chioneus*



Figure 12. *Tyromyces chioneus* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Polyporales
Family	: Polyporaceae
Genus	: <i>Tyromyces</i>
Species	: <i>T. Chioneus</i>

The fruit body is convex, measuring 2-12 cm and semicircular to kidney-shaped, initially like very smooth velvet, becomes bald with old age, the surface crusts over and becomes wrinkled or withers. White in color, the color changes from yellowish to brownish with age. The fruit body is soft. The pore surface is white, becomes yellowish when old or dry and does not bruise easily. When fresh, this mushroom feels soft and juicy, has No. stems and lives saprobically and grows solitary or in groups, sometimes overlapping or merging on rotting wood. This mushroom can be consumed and has medicinal properties ([Rahma, 2018](#)).

13. *Marasmius oreades*



Figure 13. *Marasmius oreades* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Agaricales

Family	: Marasmiaceae
Genus	: <i>Marasmius</i>
Species	: <i>M. Oreades</i>

The fruit body is a hooded type, bell-shaped with slightly curved inward margins at first, as it matures it becomes convex, somewhat flat with even or slightly raised margins, with a slight central bulge, dry, smooth surface. Pale brown in color, sometimes pale or reddish brown, usually the color changes markedly as it dries. Lamellae attached to the stem or free, almost far apart, pale brown. The stems are equal in size, the surface is dry, firm and flexible, whitish or the same color as the hood. Having No. annulus and volva, this fungus cannot be consumed but produces enzymes that can break down organic materials with high fiber content, so that they can be used as additional ingredients for making animal feed ([Shay, 2016](#)).

14. *Marasmius haematocephalus*

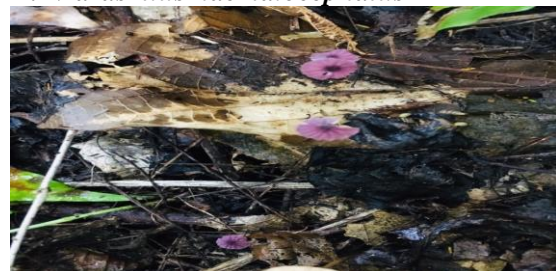


Figure 14. *Marasmius haematocephalus* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Agaricales
Family	: Marasmiaceae
Genus	: <i>Marasmius</i>
Species	: <i>M. Haematocephalus</i>

The fruit body forms a small, thin convex cap. The surface of the cap is smooth but serrated or fluted, the cap is pink or light purple or reddish purple. Lamellae are widely spaced, pink or pale in color. Stems are long and thin and smooth, without rings, without volva, red brown to dark brown. *Marasmius haematocephalus* is a widespread tropical and subtropical species, often appearing in areas of fallen leaf litter and is saprobic. The nickname *haematocephalus* means 'blood red hat' and has an alternative English

name pink bonnet. It has a size of 2-8 cm and a diameter of 1-2 cm. This type of mushroom cannot be consumed ([Shay, 2016](#)).

15. *Baespora myosura*



Figure 15. *Baespora myosura* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agariomycetes
 Order : Agaricales
 Family : Marasmiaceae
 Genus : Baespora
 Species : *B. Myosura*

The fruit body has a convex to slightly flat convex hood. The surface is dry and slightly moist, smooth or very smooth, white to fade clearly so that the lamellae are visible and the margins are not lined, or very faint when old. Lamellae are rarely attached to the stem or almost free from it, whitish, the stem is 1.5-5 cm long and 1-2 mm thick, the same size from the base. The surface of the stem is powdery or hairy, whitish to the base, the stem is attached to the substrate with conspicuous rhizomorphs. It has No. rings and the volva has whitish flesh. Print spores are white and this fungus cannot be consumed ([Shay, 2016](#)).

16. *Marasmius rotula*



Figure 16. *Marasmius rotula* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Marasmiaceae
 Genus : Marasmius
 Species : *M. Rotula*

The fruit body has a convex hood with a central depression like a navel, pleated usually appears to have a flat upper and flat side when viewed from the side, brownish in the middle, white at the edges. The lamellae are attached to a small “collar” that surrounds the stem, white to yellowish white, the distance between the lamellae is long, the stem is the same size (equal), dry, shiny, pale at first but turns dark brown to black except at the top, base sometimes with stiff hair. Without a volva, the fungus grows in groups on rotting wood such as twigs and litter and this type of fungus cannot be consumed ([Shay, 2016](#)).

17. *Marasmius andorsaceus*



Figure 17. *Marasmius andorsaceus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Marasmiaceae
 Genus : Marasmius
 Species : *M. Andorsaceus*

The fruit body has a small hood, some are convex and some are flat with a wrinkled surface, pink and white, brownish cream and have a peak that can be differentiated in color. The stem is black, hairy, stiff and quite hard. Some of the flesh is thin and some is thick according to the hood with white printed spores. According to [Hasanuddin \(2014\)](#), the *Marasmius andorsaceus* mushroom has a hood and a flat shape with a

wrinkled surface. This mushroom cannot be eaten because it contains poison. Measuring 2-5 cm, this fungus is found growing on rotting twigs in groups ([Shay, 2016](#)).

18. *Trogia infundibiliformis*



Figure 18. *Trogia infundibiliformis* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Agaricales
Family	: Marasmiaceae
Genus	: <i>Trogia</i>
Species	: <i>T. Infundibiliformis</i>

The fruit body is cone-shaped or funnel-shaped and measures up to 1-4 cm deep and is grooved from the edge to the center of the hood, the edge of the hood with a curved tip. When mature, the sporocarp of *T. Infundibiliformis* is light brown, thin and slightly translucent. Solid stipe measuring 0.5-4 cm, cylindrical and tapering downwards. The stem is the same color as the hood, No. ring, No. volva. The flesh is firm and white. The fruit body is hard when dry, but can come to life when moistened. It grows on rotten wood or wooden materials and this fungus cannot be consumed ([Shay, 2016](#)).

19. *Leucoprinus brebissonii*



Figure 19. *Leucoprinus brebissonii* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Agaricales
Family	: Agaricaceae
Genus	: <i>Leucoprinus</i>
Species	: <i>L. brebissonii</i>

L. brebissonii has a small fruit body, with white and brittle flesh. The hood expands with age, with a brown or dark gray center. The surface has rough scales in the middle and fine scales on the edges. The stem is white, long and slender with a thickness of 3-6 mm, the stem size is the same or slightly clavate. It usually has a ring, but due to its fragile nature it sometimes disappears or falls off. Doesn't have a Volvo. The gills are crowded, white and attached to the stem but sometimes fall off with age. Growing in soil with litter and this fungus cannot be consumed because it is poisonous ([Hasyiati, 2019](#)).

20. *Lepiota helveola*



Figure 20. *Lepiota helveola* (Personal documentation)

Classification

Kingdom	: Fungi
Division	: Basidiomycota
Class	: Agaricomycetes
Order	: Agaricales
Family	: Agaricaceae
Genus	: <i>Lepiota</i>
Species	: <i>L. helveola</i>

The fruiting body of *L. helveola* is hooded, when it is young the body is bell-shaped and then flat when mature with a slight convexity in the middle. The upper surface of the hood is ochre colored with blackish brown scales, especially in the middle. The hymenium (gill) layer is white. The stalk is white with fibers or scales and there is a ring (annulus). The annulus of this fungus is very unique because the sheet shape resembles a

star. Stems measuring 2-5 cm are the same color as the hood, central, have no volva. The habitat of the *L. helveola* fungus is in humus or moist soil and this type of fungus is poisonous because it contains amatoxin ([Sysouphanthong et al., 2011](#)).

21. *Agaricus micromegathus*



Figure 21. *Agaricus micromegathus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Agaricaceae
 Genus : *Agaricus*
 Species : *A. micromegathus*

The fruit body is hooded, convex, almost round at first, then widens to a somewhat flat, dry surface with small scales. The hood is brownish white. Lamellae are free from the stem, closely spaced, initially pink to dark brown to almost black at maturity. Stem length ranges from 2-7 cm, thickness 1-2.5 cm, approximately the same size from the base, the surface has small scales, white with a thin ring and has no volva. This mushroom cannot be consumed ([Hasyiati 2019](#)).

22. *Bolbitius vitelinus*



Figure 22. *Bolbitius vitelinus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Bolbitiaceae
 Genus : *Bolbitius*
 Species : *B. Vitelinus*

The fruiting body is egg-shaped when young and becomes convex, eventually almost flat. The color starts from amber or bright yellow, and fades to whitish or grayish with age. The gills are free from the stem or tightly attached, fragile and soft. The stem is 3-10 cm long and 2-5 mm thick, whitish yellow in color, the surface of the stem is dry with a few fine scales, without rings or volvae, grows mainly on fertile soil and sometimes in leaf litter in solitary or in groups. Not poisonous but this mushroom cannot be consumed ([Miller, 2006](#)).

23. *Mycena albicopularis*



Figure 23. *Mycena albicopularis* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Mycenaceae
 Genus : *Mycena*
 Species : *M. Albicopularis*

The fruiting body is egg-shaped when young and becomes convex, eventually almost flat. The color starts from amber or bright yellow, and fades to whitish or grayish with age. The gills are free from the stem or tightly attached, fragile and soft. The stem is 3-10 cm long and 2-5 mm thick, whitish yellow in color, the surface of the stem is dry with a few smooth scales, without rings or volvae. *Mycena* has a very wide distribution and has an important function as a decomposer to

maintain the ecosystem so that it remains stocked. Essential nutrients for plants. Habitat in leaf litter, solitary or in groups and this fungus cannot be consumed (Tyler, 1991).

24. *Crepidotus variabilis*



Figure 24. *Crepidotus variabilis* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Crepidotaceae
 Genus : *Crepidotus*
 Species : *C. Variabilis*

The fruiting bodies of members of this species are small, fan-shaped and sessile. The pileus ranges from 3-5 cm, most *Crepidotus* have a cap that attaches laterally to the substrate with a kidney-shaped or semi-round cap. The color is odorous, the surface is smooth like velvet, the edge of the hood is notched. The distance between the gills is quite far. *Crepidotus* is known as a secondary decomposer of plant matter, mostly saprobic in wood. Basidiocarps grow on stumps, logs, fallen branches, twigs and even on wood debris. This mushroom cannot be consumed (Gungor, 2014).

25. *Parasola plicatilis*



Figure 25. *Parasola plicatilis* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Psathyrellaceae
 Genus : *Parasola*
 Species : *P. plicatilis*

The fruit body of *P. plicatilis* is like an umbrella. The hood is strongly ribbed, and is initially egg-shaped, then convex and finally flat. A brown eye that contrasts with the pale gray color of the hood. Lamellae are white, turn gray and then black; thin with sufficient spacing. Lamellae radiate from a collar around the top of the stem. Unlike other inckap mushrooms, this delicate little mushroom has a flat cap and then shrivels up rather than turning into a black liquid. Stems with a slightly swollen base and very brittle, the stems of *P. plicatilis* are somewhat transparent, the color is white or dull cream to slightly brownish at the base. It has no annulus or volva, traces of spores are black and this mushroom cannot be consumed (Hasyati, 2019).

26. *Coprinopsis fragilisimus*

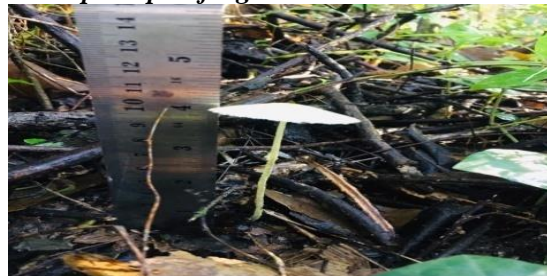


Figure 26. *Coprinopsis fragilisimus* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Psathyrellaceae
 Genus : *Coprinopsis*
 Species : *C. fragilisimus*

This mushroom has a small fruiting body. The shape of the hood is slightly convex, and finally flat with the tip curved inward, the surface color is pale with a grayish brown color in the middle but becomes paler towards the margin. Edges split to hairy (fibrillose). The gills are

attached or free to the stem, very thin and attached. The gill color is initially white, then develops to grayish brown and then black when the spores mature. When old, the gill tips dissolve into a black liquid. The whitish stems are hairy all over the surface, especially at the bottom and become smooth (bare) with age. It has no volva and rings, measures 1-3 cm and lives in humus soil and this fungus cannot be consumed ([Hasyiati, 2019](#)).

27. *Lycoperdon pyriforme*



Figure 27. *Lycoperdon pyriforme* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Schizophyllaceae
 Genus : *Lycoperdon*
 Species : *L. pyriforme*

The fruit body is pear-shaped, when young the shape is almost round to oval, resembling an egg. The surface of the fruiting body when young is covered with small white spines which usually fall off before the fruiting body matures. Small developing pores can be seen at the top, while the sterile base of the fungus is small and narrow in color ranging from almost white to yellowish brown with the development becoming darker with age. The central pores rupture as the fruiting body matures allowing wind and rain to disperse the spores. The base is attached to the substrate by means of rhizomorphs (thick, fan-like mycelium). It has no stems, rings and volva, has a diameter of 0.5-1cm and has medicinal properties ([Wahyudi 2016](#)).

Lycoperdon pyriforme is a type of fungus that belongs to the Puffball group. The fruit body is about 1.5-3 cm high and 2-4 cm wide, shaped like a pear (pyriform) to subglobe. This fungus has

striking white rhizomorphs, located on its base and substrate. When young, their color is pale white, but turns brownish when they reach maturity. The surface is smooth when young and becomes covered with grains when mature ([Huffman et al., 2008](#)).

28. *Pleurotus djamor*



Figure 28. *Pleurotus djamor* (Personal documentation)

Classification

Kingdom : Fungi
 Division : Basidiomycota
 Class : Agaricomycetes
 Order : Agaricales
 Family : Pleurotaceae
 Genus : *Pleurotus*
 Species : *P. djamor*

The fruit body measures 3-15 cm, kidney to fan-shaped in outline with a broadly convex surface, or almost round if grown on a wooden stem, slightly oily when young to red. Known as red oyster mushroom ([Tjokrokusumo, 2015](#)). The margins curve slightly inward when young. Lamellae run from the stem, the distance between the gills and the crossed gills is long and short. The stem is usually imperfect and lateral (almost non-existent) when the fungus grows from the side of the trunk or tree, but sometimes the position is somewhat central when it grows at the top of the trunk or branch. Stem size 1-7 cm white, hairy to slightly velvety. Saprophytic in dead and rotting wood, this fungus can be consumed ([Hasanuddin, 2014](#)).

4. CONCLUSION

Based on the research results, it can be concluded that, the environmental conditions at the research location measured were temperature 20-31°C, humidity 60-87%, and pH measurements 5.5-7.0. The macroscopic fungi found generally grow on rotting wood twigs, dead logs, in humus

soil and a small number are found growing on leaf litter. A total of 28 species of *Dacrymyces stilatus*, *Auricularia auricula-judae*, *Xylaria hypoxylon*, *Daldinia concentrica*, *Micorporus xanthopus*, *Earliella scabrosa*, *Pycnoporus sanguineus*, *Polyporus alveolaris*, *Lentinus squarrosulus*, *Hexagonia tenuis*, *Trametes pubescens*, *Tyromyces chioneus*, *Marasmius oreades*, *Marasmius haematocephalus*, *Baespora myosura*, *Marasmius rotula*, *Marasmius andorsaceus*, *Trogia infundibiliformis*.

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