

Macrofungal Diversity and Community Structure in Datu Valley Tourism Park, Central Lombok, Indonesia

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Abstract. Fungi are one of the divisions of Cryptogamae plants that produce spores and their bodies are composed of fine threads called hyphae and branches to form a net-like structure called mycelium. The purpose of this study was to determine the diversity of macrofungi in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara. Sampling was carried out using a survey method with an exploratory approach in the Lembah Datu area. Researchers took samples using purposive sampling on various substrates at several locations and analyzed the data descriptively quantitatively to determine the diversity of macrofungi. Based on the results of observations, it was proven that there were 46 individuals of macrofungi that had been found in the Lembah Datu area which were included in 4 orders, 8 families, 13 genera and 12 species. Based on the value of the diversity of macrofungi species, it produced 2.00 and was included in the moderate diversity index. Based on the results of data analysis, it is known that the evenness value of macrofungi species produces 0.80 and is included in the moderate evenness index. The macrofungi dominance index shows a value of 0.20, which is smaller than 0.30. This value indicates a low Simpson dominance index. The macrofungi species richness index analyzed using the margalef species richness index shows a value of 2.87. This value is included in the moderate species richness category.

Keywords: Macrofungal diversity; Community structure; Species richness; Ecological indices; Datu Valley Tourism Park

INTRODUCTION

Indonesia is a tropical country with abundant natural resources that will continue to grow. Fungi are the first example of biodiversity. In general, fungi can be found in various environments, including soil, wood, litter, animal waste, and others. Because forests have high humidity, which facilitates human adaptation, forests are one type of environment that can be influenced by humans. The world has about 1.5 billion animal species, 28,700 types of macroscopic lichens (having fruiting bodies) and microscopic (without fruiting bodies), 13,500 types of lichens (symbiotic relationships between fungi and algae), and 1,433,800 types of macro and microfungi (Annissa & Ekamawanti, 2017).

One of the groups of Cryptogamae that produce spores are fungi, whose bodies consist of small threads called hyphae that branch to form a network-like structure called mycelium. Because they are colorless, fungi can be seen as beneficial or parasitic. In general, fungi grow well in conditions that are acidic, slightly lit, and have an organic matter moisture of 80-85%. Ecological theory states that fungi, together with bacteria and some protozoa, function as decomposers, greatly accelerating the decomposition of organic matter and increasing the amount of material in the forest environment. Therefore, fungi contribute to the fertilization of the soil by providing nutrients to plants, which allows the forest to be fertile (Diharjo & Nurmiyati, 2022).

In the ecosystem, fungi are active in the soil and the formation process ensures the death of plants and animals and plays a role in the nutrient chain. One of the interesting animal groups to observe is macrofungi. Often referred to as 'macrofungi', they are generally considered members of the phylum Basidiomycota. During the identification process, these macroscopic are identified using the main method of morphological analysis. In general, macrofungi are found in

rotting wood, soil, or litter stems. Parameters used as a reference to determine fungi include macroscopic characteristics (shape, color, and texture of the fruit body) (Naufal et al., 2021).

Orange, dark brown or light brown, yellow, white, yellowish white, yellow, and black are attributes of macroscopic morphological properties. At the macroscopic level, the fruiting body of the fungus can be fan-shaped, kidney-shaped, semicircular, trumpet-shaped, or umbrella-shaped. Macroscopically, fungal spores can be round, oval, cylindrical, polygonal, needle-like, or semicircular. Macroscopic fungi can also be red, brown, white, yellow, purple, or black. The three groups of fungi are Zygomycota, Ascomycota, Basidiomycota, and Deuteromycota, depending on the type of sexual spores they produce (Hanifa et al., 2022). Based on the description above, the aim of this research is to determine the diversity of macrofungi in the Datu Valley Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

RESEARCH METHODS

Location and Time of Research

The Lembah Datu Tourism Park in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara is the location of this research. Sampling was carried out using a survey method along with an exploration study in the Lembah Datu area. This research was conducted in April 2025 in the Lembah Datu Tourism Park area, Gelogor Hamlet.

Research Design

Purposive sampling was used to collect samples from multiple substrates at different locations, and quantitative descriptive analysis of these data was used to determine macrofungal diversity.

Research Instruments

The tools and materials used in this study include a camera to record time, writing instruments to record data, millimeter blocks to record errors, and a flashlight. The work process of this study began by identifying three points of macrofungal sampling locations, namely the middle, right, and left of the sample in the data valley area. Furthermore, each location point was made into a 5x5 meter of plot, where sampling was carried out and the types of macrofungi found were identified. Finally, the data was collected and documented for a more comprehensive analysis.

Data Analysis

The tools and materials used in this study include a camera to record time, writing instruments to record data, millimeter blocks to record errors, and a flashlight. The work process of this study began by identifying three points of macrofungal sampling locations, namely the middle, right, and left parts of the sample in the data valley area. Furthermore, each location point was made into a 5x5 plot, where sampling was carried out and the types of macrofungi found were identified. The community structure of macrofungi was analyzed by calculating density, relative density, frequency, and relative frequency. These parameters were subsequently used to determine the Importance Value Index (IVI) of each species.

The data were analyzed using several ecological indices to describe the structure of the macrofungal community. Species diversity was assessed using the Shannon–Wiener diversity index (H'), while the distribution of individuals among species was evaluated using Pielou's evenness index (E). Species dominance was determined using Simpson's dominance index (C), and species richness was measured using the Margalef richness index (D_{mg}). The values of each index were interpreted according to widely accepted classification criteria to determine the levels of species diversity, evenness, dominance, and richness within the observed macrofungal community.

RESULTS AND DISCUSSION

Twelve species of macrofungi were found based on research conducted on macrofungi in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok. The results of macrofungal observations conducted in the Lembah Datu area are as follows Figure 1.



Figure 1. (a). *Lepiota cingulum*, (b). *Tigrinus sp.*, (c). *Alveolar neophagus*, (d). *Macrolepiota albuminosa*, (e). *Trametes gibbosa*, (f). *Auricularia polytricha* (g). *Auricularia auricula-judae*, (h). *Tremella fuciformis*, (i). *Schizophyllum commune*, (j). *Daedaleopsis confragosa*, (k). *Gymnopilus luteofolius*, (l). *Ganoderma applanatum*.

Based on the results of research conducted on macrofungi species found in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara, they are quite diverse. There are macrofungi with patterned and plain cap morphology and various cap colors, such as white and black brown. These fungi also have various shapes, such as ear mushrooms or mushrooms with umbrella-like caps. The macrofungi mentioned here also include basidiomycota.

Based on the exploration study of macrofungi in the data valley area, Central Lombok, 12 species of macrofungi were identified, including four orders: Agaricales, Polyporales, Auriculariales, and Tremellales. The following are the seven families: Auriculariaceae, Tremellaceae, Polyporaceae, Ganodermataceae, Agaricaceae, Schizophyllaceae, and Hymenogastraceae. In addition, there are twelve different genera, including *Lepiota*, *Macrolepiota*, *Schizophyllum*, *Gymnopilus*, *Lentinus*, *Neofavolus*, *Trametes*, *Daedaleopsis*,

Ganoderma, Gymnopilus, Auricularia, and Tremella (Table 1). Each described species belongs to the phylum Basidiomycota. Basidiomycota are multicellular organisms with septate hyphae and vegetative hyphae attached to the substrate (Rahmi et al., 2021). Studying fungal diversity It is important to understand the role of basidiomycota in the ecosystem and how these fungi can be used in various fields (Azzahra et al., 2023).

Table 1. Macarofungi found in the Datu Valley Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

| No | Order | Family | Genus | Species |
|----|-------------|------------------|-----------------------------|-----------------------------------|
| 1. | Agaricaceae | Agaricaceae | Lepiota | <i>Lepiota cingulum</i> |
| | | | Macrolepiota | <i>Macrolepiota albuminosa</i> |
| | | Schizophyllaceae | Schizophyllum | <i>Schizophyllum commune</i> |
| | | Hymenogastraceae | Gymnopilus | <i>Gymnopilus luteofolius</i> |
| 2. | Polypores | Polypaceae | Lentinus | <i>Lentinus tigrinus</i> |
| | | | Neovafolus | <i>Alveolar neophagus</i> |
| | | | Trametes | <i>Trametes gibbosa</i> |
| | | | Daedaleopsis | <i>Daedaleopsis confragosa</i> |
| | | Ganoderma | <i>Ganoderma applanatum</i> | |
| 3. | Auricularis | Auriculariaceae | Auricularia | <i>Auricularia auricula-judae</i> |
| | | | | <i>Auricularia polytricha</i> |
| 4. | Tremella | Tremellaceae | Tremella | <i>Tremella fuciformis</i> |

Table 2. The number of macrofungi found in each plot in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

| No | Observation point | Type | Amount | Habitat |
|----|-------------------|-----------------------------------|--------|-----------|
| 1. | Plot 1 | <i>Lentinus tigrinus</i> | 17 | Land |
| | | <i>Schizophyllum commune</i> | 8 | Wood |
| 2. | Plot 2 | <i>Lepiota cingulum</i> | 1 | Land |
| | | <i>Alveolar neophagus</i> | 2 | Wood |
| | | <i>Macrolepiota albuminosa</i> | 1 | Land |
| 3. | Plot 3 | <i>Trametes gibbosa</i> | 3 | Dead wood |
| | | <i>Auricularia polytricha</i> | 1 | Dead wood |
| | | <i>Auricularia auricula-judae</i> | 5 | Dead wood |
| | | <i>Tremella fuciformis</i> | 3 | Dead wood |
| | | <i>Daedalopsis confragosa</i> | 1 | wood |
| | | <i>Gymnopilus luteofolius</i> | 1 | Dead wood |
| | | <i>Ganoderma aplanatum</i> | 3 | wood |

Living macrofungi require analysis of many organisms present in the environment. Therefore, (Table 2) shows that the macrofungal species successfully identified from the three research points were found in the soil near dead trees and logs. The first two species mentioned are *Lentinus tigrinus*, which grows in the soil, and *Schizophyllum commune*, which grows on the roots of wood. The species *Lepiota cingulum* (soil), *Neofavolus alveolaridis* (wood), and *Macrolepiota albuminosa* (soil) are mentioned in the second section.

In addition, the following three species are mentioned: *Daedaleopsis confragosa* (wood), *Gymnopilus luteofolius* (dead wood), *Ganoderma aplanatum* (wood), *Trametes gibbosa* (dead wood), *Auricularia auricula-judae* (dead wood), and *Tremella fuciformis* (dead wood). On average, this type is found in wood. According to Putra (2021), fungi can be found in various places such as soil, litter, wood (also known as dead or alive), herbs, grass, between moss, on other people's bodies, and on animal feces. According to Arora (1986), fungi can grow more on substrates such as rotting wood and litter. They also thrive on dead or moving organisms (wood and grass) and soil (Anjella & Ardyati, 2023).

Table 3. The use and ecological function of macrofungi in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara

| No. | Species | Use | Ecological Function |
|-----|-----------------------------------|-----------------|---------------------|
| 1 | <i>Lepiota cingulum</i> | Drugs | Saprophyte |
| 2 | <i>Letinus tigrinus</i> | Food | Decomposer |
| 3 | <i>Alveolar neophagus</i> | Not yet known | Decomposer |
| 4 | <i>Macrolepiota albuminosa</i> | Food | Saprophyte |
| 5 | <i>Trametes gibbosa</i> | Drugs | Decomposer |
| 6 | <i>Auricularia auricula-judae</i> | Food and health | Decomposer |
| 7 | <i>Tremella fuciformis</i> | Drugs | Saprophyte |
| 8 | <i>Tremella fuciformis</i> | Drugs | Saprophyte |
| 9 | <i>Schizophyllum commune</i> | Drugs | Saprophyte |
| 10 | <i>Daedaleopsis confragosa</i> | Poisonous | Decomposer |
| 11 | <i>Gymnopilus luteofolius</i> | Drugs | Decomposer |
| 12 | <i>Ganoderma aplanatum</i> | Drugs | Decomposer |

**Figure 2.** and ecological function of macrofungi in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara

Based on the graph above, 59% of the mushrooms used in the Gelogor Hamlet area, Pemepek village, Pringgarata sub-district, Central Lombok, West Nusa Tenggara is home to the Lembah Datu Tourism Park has benefits for use as medicines. There are about 17% of mushrooms that can be used as food or can be consumed, 8% are poisonous, 8% are used as food or for health, and 8% whose benefits or uses are not yet clear. Since fungi do not have chlorophyll, they cannot produce their own food. Additional characteristics include being eukaryotic, having fruiting bodies made up of hyphae, chitin-based cell walls, and mycelium, which is a collection of hyphae. Fungi utilize soil to release enzymes into the environment and absorb nutrients. Many animals use wood, soil, litter, trees, and logs as their homes. Important details about the biotic and abiotic elements of human habitats can be found in fungi. Because they facilitate the decomposition of dead plants and animals, fungi are essential for soil formation and nutrient fertility. Fungi can be divided into two categories, macroscopic and microscopic fungi based on their size and shape. Macroscopic fungi come in a variety of colors, including orange, white, gray, brown, and even black, and can be easily seen with the naked eye without the need for special equipment. Microscopic fungi, on the other hand, are so small that they can only be examined under a microscope. The presence of macroscopic fungi is one of the key markers for dynamic forests because they are a group of organisms that break down lignin, hemicellulose, and lignocellulose, allowing the cycle of materials in water to continue (Firyal et al., 2022).

In the processes of fertility and soil formation, as well as in the ecosystem nutrient cycle and the death of plants and animals, fungi are active (Naufal et al., 2021). The diversity and potential of these fungi are noteworthy, especially in forests with high biodiversity. Macrofungi, also known as macrofungi, are generally considered members of the genus Basidiomycota, which

are often found near the beginning of the rainy season. (Susan & Retnowati, 2018). In the identification process, these macroscopic fungi are identified using primary morphological methods during sample preparation. Usually, macrofungi grow on soil, leaf debris, or rotting wood from the trunk. Macroscopic characteristics (fruit body shape, color, and texture) are one of the criteria used as a guide to identify fungi (Solle, 2017).

One of the largest macroscopic fungi has a skeleton similar to an umbrella, with reproductive structures consisting of blades (gills) held on the surface of the umbrella or cap (Frandida & Khastini, 2024). Generally, fungi live on decaying leaves in the fungal feeding sites, which are home to various organic materials. In addition, various types of fungi can be found growing on decaying trees or wood, as well as in the soil and on living trees (Napitupulu & Situmorang, 2020). Certain types of mushrooms, such as *Pleurotus ostreatus* and *Auricularia* spp., have been used and even cultivated as food or medicine (Arini & Christita, 2016). In addition to its ecological benefits, mushrooms are used in various industries, bioremediation, textiles, food (shredded mushrooms), medicine, and agriculture. One of the foods with the highest nutritional content is shredded mushrooms. The nutritional value of this mushroom usually consists of vitamins, minerals, proteins, fats, amino acids, and glycogen (Rahman et al., 2023).

The use of macrofungi as mushroom food has been consumed by humans for years. Due to its high nutritional content, especially in Asia and Europe, mushrooms are known as a special food that offers delicious taste. However, information and literature on macrofungi and their benefits in general are still quite minimal in Indonesia even today, including types of mushrooms originating from Wallacea which are known to have high endemicity (Permana & Rahman, 2016).

Macrofunctions of their presence in nature are very important for the health of the ecosystem. The balance between them, especially fungi, must be considered. Macrofungi have additional potential in ecological functions, such as decomposing ecosystems and gaining benefits as organisms that live and feed and obtain nutrients from organic matter that has been decomposed or decomposed. Fungi have an ecological function as decomposers (Yafa et al., 2022). The study showed that certain species, such as *Letinus tigrinus*, *Neofavolus alveolaris*, *Trametes gibosa*, and *Auricularia auricula-judae*, have ecological functions as decomposers, while other species, such as *Tremella fuciformis*, *Lepiota cingulum*, and *Macrolepiota albuminosa*, have ecological functions as sap tappers. Some fungi have a mutualistic symbiotic relationship with several types of bacteria, therefore fungi are very helpful in decomposing organic matter to increase the amount of material in the forest ecosystem (Bella et al., 2022).

The species *Lepiota cingulum*, also known as *Lepiota clypeolaria* and *Lepiota felina*, is a member of the genus *Lepiota*. This species has characteristics such as having rings on the stem (stipe) and veins, a brownish cap, a stem that is somewhat approaching a ring or a collapsed and sheathed ring zone, and spores made of long spindles. *Lepiota cingulum* is often found in small groups in Asam, especially in areas with high concentrations of conifers.

Letinus tigrinus is a type of fungus known as a fungus that can be found in the basidiomycetes group. With wavy borders and semicircular or irregular shapes, its body is yellowish-white to brownish. Rotten wood or most living trees will be more visible in the fungus as the body ages. Polese (2005) stated that this fungus can grow in layers of leaves with moist soil, has a short stem (eccentric) on the edge, and can be used as a fairly simple food source during its lifetime. This fungus can also sometimes be stemless. This fungus is not resistant to high temperatures and is easy to use.

The fungus *Neophavolus alveolaris*, also called the hexagonal pore polypore, is a member of the Polyporaceae family and is associated with rotting logs. This fungus is characterized by a white rot of dead hardwood. This fungus is characterized by a scaly cap that is yellow to orange in color, and its pores are diamond-shaped or hexagonal. The fruiting bodies of *Neophavolus alveolaris* can be kidney-shaped or fan-shaped and range in diameter from 1 to 10 cm (0.4 to 3.9 in). The fruiting bodies sometimes have stems, although some individuals are subtly affected by their growing environment. The dry cap surface is orange-yellow, or reddish orange,

composed of silk-like fibers that change from cream to white. As the pores break down with age, the tubes elongate radially. *Albuminosa macrolepiota* is found on earth with one type. The results of the macrolepiota albuminosa body have a length of 25 cm which is prominent at the base. On the near stem, the remains of the veil form a ring. At first, the hat was made of a cone; sometimes sold in the form of a rim. Easy to peel off the skin covering. The gills are white and the white stem is the two darker middle parts. The cap is whitish or pale brownish.

Gibbous mushrooms are found in environments characterized by moisture and moisture. They have a semicircular shape with unnatural edges. They are white in color, and have faint brownish lines like annual rings. The surface is whitish gray and the top is smooth. Due to algae growth, the elderly may now see greenish warning signs. Elongated pores can be found in the area below the surface of the body. In addition, these mushrooms are odorless and inedible. Decaying wood substrates and dead wood can be used to measure the quality of life. Their height can reach one meter and can be utilized profitably.

Ear fungus, or *Auricularia auricula-judae*, is characterized by its dark brown color, lack of a true stem, easily recognizable gel-like texture, flat, rounded cap, with wavy edges, and a surface covered with fine hairs. Antioxidants, anticancer agents, antimicrobials, antivirals, anticoagulants, and other compounds are included in the pharmacological potential of this fungus. One of the members of the Heterobasidiomycetes (jelly fungus) family is the white ear fungus (*Tremella fuciformis*), which is comparable to gelatin in its beneficial properties and has a fruit body that does not occur normally, with a leaf-like shape that is 3-4 cm long and separate from the stem. This fungus has a characteristic yellowish white color with curly edges. The fruit body in question is moist trunk wood, tampa trunk, and soft mushrooms, the surface is not slippery and not rough.

Jelly fungus, or white ear fungus (*Tremella fuciformis*), is one of the species of the Heterobasidiomycetes class. *Tremella fuciformis* fungus, often known as jelly fungus or white snow fungus, is a member of the basidiomycota class. White ear fungus (*Tremella fuciformis*) has a fruit body morphology characterized by unnatural, white, and very useful tassels, like agar-agar. The genus *Schizophyllum* contains a species known as *Schizophyllum commune*, or the gnat fungus. *Schizophyllum* species are known to have eight communes of fruiting bodies, including fan-shaped, fleshy, and elastic, with a diameter of 1-3 cm, gray in color, long-haired cap, split at the edge, blade branched to the edge, pileus fruiting body in a sessile position, soft-fibrous rough upper surface, corky lower surface, and fibrous fruiting body edge. Pseudo-roots, yellow reticulated, and short stipe are the types of fruiting bodies. It is edible, and *Schizophyllum commune* habitat grows on rotting wood and dead saws.

Daedaleopsis confragosa species are found in a total of one wood. The upper surface is convex to flat, dry, smooth to slightly hairy, the fruiting body is shelf-like or fan-shaped up to semicircular. Generally speaking, it is sometimes blackish during maturity, ranging from reddish brown to grayish brown. A living tree is still alive. *Gymnopilus luteofolius*, also known as yellow-billed gymnopilus, is a large, long-legged mushroom. There are rust-orange colored spores and a bitter taste in this mushroom. *Gymnopilus luteofolius* fruiting body has a reddish to yellow color with a diameter ranging from 2 to 11 centimeters (3/4 to 4 1/4 inches), which can be used to indicate blueness. *Gymnopilus luteofolius*, also known as yellow-billed gymnopilus, is a large, long-legged mushroom. There are rust-orange spores and a bitter taste in this mushroom. The fruiting body of *Gymnopilus luteofolius* is reddish to yellow in color with a diameter ranging from 2 to 11 centimeters (3/4 to 4 1/4 inches), which can be used to indicate bluish (Taryati & Puspitasari, 2018). This species was found in groups of 3 on dead tree trunks.

Based on the results of data analysis of the most important macrofungi species found in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara, *Letinus Tigrinus* is the species with the highest index of 45.30 compared to *Schizophyllum commune* which has the lowest index of 25.73. Based on these results, *Letinus Tigrinus* is the macrofungal species that dominates the Lembah Datu

Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

Table 4. Importance Value Index of macrofungal species found in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

| No. | Species | Amount | D | RD | F | RF | IVI |
|---------------|------------------------------------|-----------|--------------|------------|-------------|------------|------------|
| 1. | <i>Lepiota cingulum</i> | 1 | 0.33 | 2.17 | 0.33 | 8.33 | 10.51 |
| 2. | <i>Tigrinus sp.</i> | 17 | 5.67 | 36.96 | 0.33 | 8.33 | 45.30 |
| 3. | <i>Alveolar neophagus</i> | 2 | 0.67 | 4.35 | 0.33 | 8.33 | 12.68 |
| 4. | <i>Macrolepiota albuminosa</i> | 1 | 0.33 | 2.17 | 0.33 | 8.33 | 10.51 |
| 5. | <i>Trametes gibbosa</i> | 3 | 1.00 | 6.52 | 0.33 | 8.33 | 14.86 |
| 6. | <i>Auricularia auricula -Judae</i> | 1 | 0.33 | 2.17 | 0.33 | 8.33 | 10.51 |
| 7. | <i>Tremella fuciformis</i> | 5 | 1.67 | 10.87 | 0.33 | 8.33 | 19.21 |
| 8. | <i>Tremella fuciformis</i> | 3 | 1.00 | 6.52 | 0.33 | 8.33 | 14.86 |
| 9. | <i>Schizophyllum commune</i> | 8 | 2.67 | 17.40 | 0.33 | 8.33 | 25.73 |
| 10. | <i>Daedaleopsis confragosa</i> | 1 | 0.33 | 2.17 | 0.33 | 8.33 | 10.51 |
| 11. | <i>Gymnopilus luteofolius</i> | 1 | 0.33 | 2.17 | 0.33 | 8.33 | 10.51 |
| 12. | <i>Ganoderma aplanatum</i> | 3 | 1.00 | 6.52 | 0.33 | 8.33 | 14.86 |
| Totals | | 46 | 15.33 | 100 | 4.00 | 100 | 200 |

Where: D: Density, RD: Realive of Density, F; Frequency, RF: Relative of Frequency, IVI: Importance Value Index.

Table 5. Analysis of macrofungal index data in the Lembah Datu Tourism Park area in Gelogor Hamlet, Pemepek Village, Pringgarata District, Central Lombok, West Nusa Tenggara.

| No. | Species | Shannon- Wiener index (H') | Equity Index | Dominance Index | Species Richness Index |
|-----|------------------------------------|----------------------------------|-----------------|--------------------|------------------------------|
| 1. | <i>Lepiota Cingulum</i> | 2.00 | 0.80 | 0.20 | 2.87 |
| 2. | <i>Tigrinus sp.</i> | | | | |
| 3. | <i>Alveolar Neophagus</i> | | | | |
| 4. | <i>Macrolepiota Albuminosa</i> | | | | |
| 5. | <i>Trametes gibbosa</i> | | | | |
| 6. | <i>Auricularia Auricula -Judae</i> | | | | |
| 7. | <i>Tremella Fuciformis</i> | | | | |
| 8. | <i>Tremella Fuciformis</i> | | | | |
| 9. | <i>Schizophyllum Commune</i> | | | | |
| 10. | <i>Daedaleopsis Confragosa</i> | | | | |
| 11. | <i>Gymnopilus Luteofolius</i> | | | | |
| 12. | <i>Ganoderma aplanatum</i> | | | | |

The macrofungal diversity index in the Lembah Datu forest area, Central Lombok was analyzed using the Shannon-Wiener index (H'). The higher the H' value, the higher the macrofungal diversity in the location. The macrofungal diversity value produced a value of 2.00 which is included in the moderate diversity index. The large amount of open space with low humidity, the small amount of available substrate, and other factors such as prolonged dry season, sparse vegetation, and thin litter, all of which can affect macrofungi so that the fungi found are classified as moderate (Fikri et al., 2023).

Evenness index is a metric that can be used to describe certain aspects of a community. Evenness index can also describe the differences between a particular community and another community. Evenness value approaching 0 indicates that the type of evenness is increasingly uneven, while evenness value approaching 1 indicates that the type of evenness is increasingly even. Based on data analysis, it can be seen that the evenness value of macrofungi species is

0.80, which is included in the moderate evenness index. The abundance of individuals or evenness of wealth between species is represented by the evenness index. If each species has the same number of individuals, then the community has the lowest level of evenness. However, if the evenness is small, then the community has low evenness (Baderan et al., 2021).

Simpson's dominance index is used to determine whether a particular type of dominance is present. The macrofungal dominance index for Lembah Datu in the Central Lombok forest area analyzed using the Simpson dominance index produced a value of around 0.20, or less than 0.30. This is a low Simpson dominance index for Lembah Datu. According to Harmono et al. (2019), plants have a very clear correlation with the place they grow (environment) in terms of density, dominance, and type of distribution (Wasis & Sajadad, 2024). The macrofungal index for the Lembah Datu forest area in Central Lombok, analyzed using the Margalef index, produced a value of 2.87. With an index value of 2.87 which is greater than 2.5 but less than 4, this indicates the species richness index in the Lembah Data area, is included in the category of stationary species richness.

CONCLUSION

This study found a totals of 12 macrofungal species belonging to four orders, seven families, and 11 genera were documented in Datu Valley Tourism Park, Central Lombok, indicating a moderate level of macrofungal diversity. The macrofungal community was dominated by *Lentinus tigrinus*, reflecting its strong adaptation to the available environmental conditions and abundant woody substrates. Most recorded species function as decomposers and saprophytes, highlighting their important ecological roles in organic matter decomposition, nutrient cycling, and maintaining forest ecosystem stability. Several species also possess potential medicinal and edible value, emphasizing the importance of conserving macrofungal diversity as a biological resource.

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