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DIVERSITY OF MACROSCOPIC FUNGI IN THE LOMBONGO TOURISM PARK AREA GORONTALO PROVINCE

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Abstract

Fungi are organisms that do not have chlorophyll and are heterotrophic. Fungi can be found everywhere, both in the tropics, subtropics, at the North Pole and Antarctica. Fungi have very diverse types. The area of Lombongo Tourism Park, Gorontalo Province has various species of fungi. The Lombongo Tourism Park is located at the foot of Tilong Kabila mountain in Bone Bolango Regency, Gorontalo Province. The purpose of this study was to identify the types of macroscopic fungi in the Lombongo Tourism Park area of Gorontalo Province. This research was conducted in October 2020 at the Lombongo Tourism Park using the Cruise Method. The tools and materials used are digital cameras, GPS, masks, plastic gloves and writing instruments. The results showed that in the area of Lombongo Tourism Park, Gorontalo Province, there were 32 species of macroscopic fungi belonging to the Basidiomycota and Ascomycota divisions. The Basidiomycota division consists of 2 classes, namely Agaricomycetes and Basidiomycetes while the Ascomycota division consists of 1 class, namely Pezizomycetes. In the area of Lombongo Tourism Park, Gorontalo Province as a whole there are 3 classes, 6 orders, 16 families, 24 genus and 32 species. Family Polyporaceae are mostly found in the area of Lombongo Tourism Park, Gorontalo Province.

Keywords: Diversity; Lombongo Tourism Park; Macroscopic Fungi

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INTRODUCTION

Macromycetes groups significantly affect forest food webs, survival or germination of tree seedlings, tree growth, and overall forest health. Thus, the presence of macroscopic fungi is an important indicator of dynamic forest communities (Tampubolon *et al.*, 2013).

Heterotrophs take their food from organic matter. Through the help of enzymes produced by fungi hyphae where organic matter can be converted into simple molecules, then these simple molecules are absorbed directly by fungi hyphae (Sari *et al.*, 2016).

Fungi are usually found in humid environments. In addition, fungi can also be found on plant stems that have died and plants that are still alive, around the yard after rain, on rotting food residue and in places rich in organic substances. Factors that influence the growth of fungi are a humid and shady environment, lighting and wind currents. In addition, macroscopic fungi can grow well when the temperature and air circulation are cool and the need for indirect sunlight in lowland environmental conditions (Fitriani *et al.*, 2018).

Fungi are often found in moist forests. Several forests and tourist park areas in Gorontalo Province have many types of fungi (Santosa, 2013). One of the tourist park areas overgrown by fungi is

the Lombongo Tourism Park area. By looking at the conditions and the importance of preserving the nature of the tourist park area, it is important to identify the types of macroscopic fungi that exist in the park area. The distance between the city and the Lombongo Tourism Park area is about 17 km, it was inaugurated in 1989 and has an area of about 32 hectares. The location of the Lombongo Tourism Park area is still in the area of the Bogani Nani Wartabone National Park, Bone Bolango Regency, Gorontalo Province.

MATERIALS AND METHODS

This type of research uses descriptive research which aims to describe the diversity of macroscopic fungi found in the Lombongo Tourism Park area, Gorontalo province. This study was conducted to identify and classify the types of macroscopic fungi in the Lombongo Tourism Park area, Gorontalo province. The method used in this research is the cruise method, which is carried out by exploring paths that can represent the types of ecosystems or vegetation dominated by hardwood as well as shrubs and grasses in the area studied. The tools used in this study were digital cameras, GPS, masks, plastic gloves and writing utensils. The research was conducted in October 2020 in the

Lombongo Tourism Park area, Gorontalo province. Explorations are carried out once a week during Oktober 2020.

RESULTS AND DISCUSSION

Based on the results of research the macroscopic fungi obtained consisted of 2 divisions, namely the Basidiomycota and Ascomycota divisions and from these

two divisions, 32 species of macroscopic fungi were found. The results of the identification of macroscopic fungi obtained in the Lombongo Tourism Park area, Gorontalo province based on Alexopoulos C.J., et al., 1979 can be seen in table 1 as follows.

Table 1. Types of Macroscopic Fungi in the Lombongo Tourism Park Area, Gorontalo Province

Kingdom Fungi					
Devision	Classes	Order	Families	Genus	Spesies
Basidiomycota	Agaricomycetes	Agaricales	Maramiaseace	Marasmius	<i>Marasmius androsaceus</i> <i>Marasmius candidus</i> <i>Marasmius sp.</i> <i>Marasmius candidus</i>
			Agaricaceae	Pleurotybella	<i>Pleurocybella porrigens</i>
				Marasmius	<i>Marasmius rotula</i>
				Mycena	<i>Mycena sp.</i>
				Marasmius	<i>Marasmius foetidum</i>
			Hygrophoraceae	Lichenomphalia	<i>Lichenomphalia umbelliera</i>
				Psilocybe	<i>Psilocybe allenii</i>
			Mycenaceae	Panellus	<i>Panellus stipticus</i>
			Tricholomataceae	Delicatula	<i>Delicatula integrella</i>
			Pleurotaceae	Pleurotus	<i>Psilocybe allenii</i> <i>Trametes villosa</i> <i>Trametes ochracea</i> <i>Trametes polyzone</i>
Ascomycota	Basidiomycetes	Polyporales	Polyporaceae	Polyporus	<i>Polyporus arcularius</i> <i>Pycnoporus sanguineus</i> (L.)
				Pycnoporus	<i>Pycnoporus coccineus</i>
				Microporus	<i>Microporus affinis</i>
				Lentinus	<i>Lentinus sajor-caju</i>
			Ganodermataceae	Ganoderma	<i>Ganoderma philippii</i>
			Entolomataceae	Entoloma	<i>Entoloma procerum</i>
			Irpicaceae	Gloeoporus	<i>Gloeoporus pannocinctus</i>
			Meripilaceae	Rigidoporus	<i>Rigidoporus sp.</i>
			Auriculariaceae	Auricularia	<i>Auricularia auricular</i>
			Russulales	Bondarzewiaceae	<i>Heterobasidion annosum</i>
Ascomycota	Pezizomycetes	Aphyllophorales	Schizophyllaceae	Schizophyllum	<i>Schizophyllum commune</i> <i>Cookeina sulcipes</i>
				Cookeina	<i>Cookeina tricholoma</i> <i>Cookeina garethjonesii</i>
			Spindles	Lichen	<i>Lichen foliose</i>

The description of 32 species of macroscopic fungi found based on the results of research identification in the Lombongo Tourism Park Area of Gorontalo province can be seen in Figure 1 as follows.



Figure 1. Diversity of Macroscopic Fungi Species in the Lombongo Tourist Park Area, Gorontalo province

Based on the observations listed in table 1, the macroscopic fungi in the Lombongo Tourism Park area consists of 2 divisions, namely Basidiomycota and Ascomycota. Basidiomycota consists of 2 classes, namely Agaricomycetes and Basidiomycetes, 5 orders, 14 families, 22 genus and 28 species. While the Ascomycota Division has 1 classes,

namely Pezizomycetes, 1 order, 2 families, 2 genus and 4 species, namely *Cookeina sulcipes*, *Cookeina tricholoma*, *Cookeina garethjonesi*, *Lichen foliose*. The total number of macroscopic fungi found in the Lombongo Tourism Park area was 2 divisions, 3 classes, 6 orders, 16 families, 24 genus and 32 species.

Most of the Macromycetes found in the Lombongo Tourism Park are habitats on rotting logs, and support living trees, moist soil, and piles of leaf litter. Macroscopic fungi growth is largely determined by physical and environmental factors (Wahyudi *et al.*, 2012; Nurchalidah *et al.*, 2021)

The order with the most species found in the Lombongo Tourism Park area is the order Agaricales with 13 species consisting of 6 families. This is because the order Agaricales is a fungi that lives in an environment that has low humidity levels and cannot stand in dry conditions (Anggraini *et al.*, 2015). Given the humid environmental conditions in the Lombongo Tourism Park area, it is very possible for several species of fungi from the order Agaricales to thrive. Several species of the order Agaricales generally have an umbrella-like shape and soft texture.

In addition to the order Agaricales, the second most abundant order found was the order Polyporales with 8 species out of 5 orders. The large number of Polyporales fungi, especially from the Polyporaceae family, is due to the condition of the Lombongo Tourism Park Area where many dead and dry trees and humid environmental conditions are found. This is a very suitable place to live for Polyporales fungi to grow. This was

also found in the study of fungi diversity in the Gunung Mutis Nature Reserve area, which dominates the forest of the Nature Reserve which is from the Polyporaceae families due to humid environmental conditions and many dead or dry wood is found (Solle *et al.*, 2018). The morphology of the fungi families Polyporaceae is shaped like a small fan and stiff and hard when the fungi dries.

In the study of the identification of macroscopic fungi in the Lombongo Tourism Park Area, the most commonly found from the Polyporaceae families, as many as 8 species (Table 1). This is in line with the results of Nasution's research (Nasution *et al.*, 2018) found 12 species of fungi from the Polyporaceae families.

This is because the fungi from the Polyporaceae families has a large fruiting body, has a woody and hard structure (McKnight and Vera, 1987), is thick and rough (Dwidjoseputro, 1978). Families Polyporaceae has the ability to adapt very well in environments with high humidity and in various places with different altitudes (Tampubolon 2013). The spread and growth of organisms is largely determined by environmental factors. Factors that affect the growth of fungi are substrate, humidity, temperature, pH and chemical compounds in the environment (Achmad,

2013; Ulya, A., 2017; Roosheroe, I. G., Sjamsuridzal, W., Oetari, A., 2018). Humidity ranges from 80-90% and temperatures range from 18-28°C are the best conditions for fungi growth (Suhardiman, 1990; Hasanuddin, 2014). Air humidity and substrate humidity are higher in the rainy season compared to the dry season which then affects the development of fungi spores (Proborini, M. W., 2012; Riastuti, R. D., Susanti, I., & Rahmawati, D., 2018).

In general, fungi found in the Lombongo Tourism Park area have color pigments that serve as protection against radiation on the walls of fungi hyphae. Some of the color pigments produced by fungi include carotenoids, flavonoids, quinine and rubramin. Several factors influence the Macromycetes in producing color pigments, namely light, temperature and medium composition (Sastrawidana *et al.*, 2015).

Macromycetes as decomposer agents have a very important role for life in the forest (Priskila *et al.*, 2018) including in the Lombongo Tourism Park area, Gorontalo province.

CONCLUSION

This study concluded that the Lombongo Tourism Park area, Gorontalo province, 32 species of macroscopic fungi were found which belonged to the

divisions of Basidiomycota and Ascomycota. The Basidiomycota division consists of 2 classes, namely Agaricomycetes and Basidiomycetes, while the Ascomycota division consists of 1 classes, namely Pezizomycetes. In the Lombongo Tourism Park area, Gorontalo Province as a whole there are 3 Classes, 6 Orders, 16 Families, 24 Genus, 32 species. The Polyporaceae families is the most commonly found in the Lombongo Tourism Park Area, Gorontalo Province.

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