

CHAPTER I. INTRODUCTION

1.1 Background

Pleurotus spp. or oyster mushroom is a type of mushroom that is widely cultivated and popular as food and widely traded in the market. Oyster mushrooms are wooden mushrooms that come from the basidiomycetes group. This mushroom is called oyster mushroom because the cap is circular like an oyster shell (Meinanda, 2013). Oyster mushrooms are one of the most easily cultivated high-value consumption mushrooms because they can be grown in various types of substrates and have high adaptability to the environment (Kurt and Buyukalaca, 2010).

The native habitat of oyster mushrooms is in highland areas, but these mushrooms can be cultivated in lowland areas by conditioning their maintenance according to their natural habitat (Chazali and Pratiwi, 2009). According to Alex (2011), oyster mushroom growth is more easily achieved in highland areas about 700-800 meters above sea level. Limau Manis village is located at a land altitude of 1,300 meters above sea level with sufficient rainfall and moderate average air temperature. Therefore, the Area of Limau Manis was chosen as a place to cultivate oyster mushrooms by looking at productivity and growth in this area.

Pleurotus spp. consists of several varieties namely white oyster mushrooms, brown oyster mushrooms, yellow oyster mushrooms, pink oyster mushrooms, and gray oyster mushrooms (Pleurotus sajor-caju). Nutritional content of oyster mushrooms include protein (10.5-30.4%), fat (1.7-2.2%), carbohydrates (56.6%), thiamin (0.20 mg), riboflavin (4, 7-4.9 mg), niacin (77.2 mg), and calcium (314 mg) (Jakiyah, Hasni, and Dwi, 2017). The content of oyster mushrooms can be used as an

alternative protein source because it contains 20 essential amino acids. Protein content in oyster mushrooms contains 19-35% higher protein compared to rice (7.38%) or wheat (13.2%) (Maulana, 2012).

Gray oyster mushrooms (*Pleurotus sajor-caju*) is one type of mushroom that began to be favored by the public because it has a gray cap colour with a cap diameter between 4-12 cm. Gray oyster mushrooms have a rather sweet taste compared to white oyster mushrooms, have long durability, form a large clump, and have a wide body shape (Saputra, 2014). Gray oyster mushrooms have almost the same content as oyster mushrooms in general, namely in 100 grams of oyster mushrooms contain 27% protein, 1.6% fat, 58% carbohydrates, 7.5%-8.7% fiber and has a durability of 5 days outside the cooling machine (Yuliawati, 2016).

Based on data from Badan Pusat Statistik in 2020, oyster mushroom production in West Sumatra continues to increase from 2018-2020 from 40.11 tons to 189.554 tons. Based on the calculation of oyster mushroom production in Indonesia from 2018-2020 increased from 31.051 tons to 33.687 tons. It also proves that mushroom production has increased about 8,48% in 3 years in a row, yet is still lacking so it is necessary to increase production per year assuming a market increase of about 5% per year. The need for oyster mushrooms for the Indonesian region will rise to 21,900 tons/year. While the ability of farmers to provide it is only about 10,000- 12,500 tons/year. From the above information, it is clear that the prospect of cultivation of oyster mushrooms is very well developed with simple techniques (Piryadi, 2013).

Maryanti research (2017) obtained the result that the productivity of white oyster mushrooms in Alahan Panjang from the first harvest to the last harvest

obtained a percentage of productivity of 55.45% with 6 times the harvest in one bag log. This is in accordance with the opinion of Suriawiria (2002), during the growing season, harvesting can be done between 4-8 times depending on the content of planting substrates, mushroom seedlings, as well as the environment during maintenance. The success of mushroom cultivation is determined by the value of Biological Efficiency (BE), it is biologically efficient in determining the productivity of oyster mushrooms. The higher the value of BE, the better the cultivation of the mushroom.

From the description above, it is need to be conducted research on "The Growth and Productivity of Gray Oyster Mushrooms (*Pleurotus sajor-caju* (Fries) Singer) in The Limau Manis Area Padang City" to know the growth and productivity of gray oyster mushrooms (*Pleurotus sajor-caju* (Fries) Singer) in this area and provide information to the public about the benefits and potential of cultivation of gray oyster mushrooms in the area because there is no previously reported data on it.

1.2 Problem Formulation

- 1.2.1 How is the growth of gray oyster mushroom mycelium on corn and bag log media?
- 1.2.2 How is the productivity of gray oyster mushrooms (*Pleurotus sajor-caju*) on bag log media in the Limau Manis Area of Padang City?
- 1.2.3 How are the levels of polyphenols and antioxidant activity contained in gray oyster mushrooms (*Pleurotus sajor-caju*)?

1.3 Research Objectives

- 1.3.1 To observe the growth of gray oyster mushroom mycelium on corn and bag log media.

1.3.2 To determine the productivity value of gray oyster mushrooms (*Pleurotus sajor-caju*) on bag log media in the Limau Manis Area of Padang City.

1.3.3 To analyze the levels of polyphenol and antioxidant activity contained in gray oyster mushrooms (*Pleurotus sajor-caju*).

1.4 Research Benefits

The benefits of this research are to increase the treasures of science and provide information to the public about the potential growth and productivity of gray oyster mushrooms (*Pleurotus sajor-caju*) in the Limau Manis Area of Padang City.

