

The Role of Substrate and Preservation Techniques in the Commercial Production of *Pleurotus florida* sporocarps

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Abstract: This content discussed about the role of substrate and preservation techniques which play a pivotal function within the commercial production of *Pleurotus florida* sporocarps. The preference of substrate influences the yield and dietary first-rate, whilst maintenance techniques like long term and short period which determine the shelf life and sensory attributes. Balancing those elements is critical for generating high-quality mushrooms that meet market demands and sustainability needs.

Keywords: *Pleurotus florida* sporocarps, nutritional quality, mushrooms, sporocarps

I. INTRODUCTION

Pleurotus spp. is normally referred as the Florida oyster mushroom because the pileus or cap is shell-like, spatulate and the stipe is eccentric or lateral. *Pleurotus ostreatus* (Jacq.: Fr.) Kummer is one of the first-rate recognised species among the few of the oyster mushrooms.

The industrial manufacturing of *Pleurotus florida* sporocarps, normally known as the Florida oyster mushroom, hinges on important elements: the selection of substrate and the strategies used for upkeep. This article delves into the role of these factors in making sure excessive yield, nutritional fee, and prolonged shelf lifestyles of *Pleurotus florida* sporocarps.

Various *Pleurotus* species have been shown to own a number of medicinal homes, such as antitumour, immunomodulatory, anti-genotoxic, antioxidant, anti-inflammatory, hypocholesterolaemic, antihypertensive, antiplatelet-aggregating, antihyperglycaemic, antimicrobial and antiviral activities.



Fig.1. *Pleurotus florida* sporocarps

II. SUBSTRATE SELECTION

Types of Substrates

The substrate is a vital issue in mushroom cultivation as it affords the essential vitamins for boom. Various agricultural products can be used as substrates for *Pleurotus florida* sporocarps, including:

1. **Straw:** Wheat and rice straw are generally used because of their high cellulose and hemicellulose content,

which are crucial for increase in mushroom production.

2. **Saw Dust:** Particularly from hardwoods, sawdust is wealthy in lignin and cellulose, making it an superb substrate for *Pleurotus florida* sporocarps.
3. **Agricultural Wastes:** Corn cobs, sugarcane bagasse, and cotton waste are an increasing number of being utilized because of their availability and nutrient content.

Substrate Preparation

The preparation of the substrate involves several steps to ensure to make up it free from contaminants and make it suitable for mushroom cultivation:

1. **Moisture Adjustment:** The substrate have to have the ideal moisture content, commonly around 60-70% is standard as per literature to facilitate the mushroom sporocarp (fruiting body) production.
2. **Pasteurization or Sterilization:** This step is vital to eliminate any competing microorganisms. Pasteurization can be achieved by deeping the substrates in warm water (100⁰C) or by passing steam jet.
3. **Supplementation:** Adding vitamins along with bran or gypsum can enhance the substrate's high-quality and enhance mushroom yield.

III. PRESERVATION TECHNIQUES

Short-Term Preservation

Generally for short duration, preservation of the mushrooms' and maintaining sensory and dietary values following techniques are generally used:

1. **Refrigeration:** Storing mushrooms at low temperatures (0-4°C) which slow

down microbial growth and metabolic activity, supports extending their shelf life up to 2 weeks.

2. **Modified Atmosphere Packaging (MAP):** Using gas combos to reduce oxygen degrees and boom carbon dioxide can significantly make bigger shelf lifestyles by means of inhibiting spoilage organisms and by increasing fresh breathing content.

Long-Term Preservation

For long-term storage, following preservation techniques are employed:

1. **Drying:** This method reduces water content, inhibiting microbial increase. Both sun drying and mechanical drying (including oven or freeze-drying) are effective, though the oven and freeze-drying is preferred for keeping nutritional level in mashroom fruiting body.
2. **Freezing:** Freezing at -18°C or decrease can preserve mushrooms for several months. However, it may affect the texture because of ice crystal formation on fruiting body.
3. **Canning:** This method includes blanching of the mushrooms and sealing them in airtight packing containers. It can hold the mushrooms for up to one year but may affect the content of a few nutrients to some extent and modifications in texture could be observed in some cases.

IV. IMPACT ON NUTRITIONAL AND SENSORY QUALITY

Nutritional Quality

The nutritional quality of *Pleurotus florida* sporocarps is inspired through both substrate and protection methods:

1. **Proteins and Amino Acids:** Substrates rich in nitrogen enrich protein content material. While, preservation strategies like drying and canning can result in degradation in few protein content in sporocarp of mushroom.
2. **Vitamins and Minerals:** Substrate supplementation can enrich diet and mineral content of sporocarp of mushroom. However, vitamins, especially B complex and vitamin C, are sensitive to heat and could be reduced during the course of drying and canning.

Sensory Quality

Preservation techniques significantly have an effect on the following sensory attributes of *Pleurotus florida* sporocarps:

1. **Texture:** Refrigeration and MAP can keep texture better in comparison to freezing and drying, that may make the mushrooms harder.
2. **Flavor:** Drying and freezing can occasionally concentrate flavors, while canning can regulate them due to the blanching procedure.

Economic and Environmental Considerations

The desired substrates and preservation strategies additionally has monetary and environmental implications:

1. **Cost-Effectiveness:** Using domestic agricultural waste like wheat straw, paddy straw, saw dust, baggages as substrates can lessen fees. Efficient renovation techniques can decrease losses and enlarge market price of mushroom.
2. **Sustainability:** Recycling of agricultural waste with the aid

of products as supplements promotes sustainability. Environmentally friendly renovation techniques, which include sun drying which can reduce the carbon footprints.

V. CONCLUSION

This article focused on variable use of substrate and protection techniques of sporocarps of mushrooms play an important role in the field of business production of *Pleurotus florida* sporocarps. The preference of substrate affects the yield and nutritional value, even as protection techniques decide the shelf life and sensory attributes. Balancing those elements which are depleting the quality of sporocarps is important for producing terrific mushrooms that meet marketplace, demands and sustainable desire in the market.

VI. REFERENCES

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