DEPARTMENT OF MICRO BIOLOGY

BEST AND INNOVATIVE PRACTICES

TITLE: PRODUCTION OF MUSHROOMS

Mushroom cultivation

Objective:

- To provide basic knowledge in cultivation of mushrooms.
- Able to grow mushrooms in a natural way.
- Sustainable use of resources.
- To promote self-employment.
- To provide practical experience on cultivation of mushrooms.

Learning Outcomes:

- Understanding the various aspects of cultivation.
- To learn different cropping patterns.
- To understand how to identify and sustainably manage pest and diseases and weed mushrooms.

Context:

Mushrooms are the fruiting bodies of macro-fungi. They include both edible/medicinal and poisonous species. Mushroom cultivation can be a labour-intensive activity. Therefore, it will serve as means of generating employment, particularly for rural women and youths in order to raise their social status. It will also provide additional work for the farmers during winter months when the farming schedule is light. Mushroom cultivation is a cash crop. The harvested fruiting bodies can be sold in local markets for additional family income or exported for an important source of foreign exchange that will definitely improve the economic standards of the people. Mushroom farming is both a science and an art. The science is developed through research the art is perfected through curiosity and practical experience. However, mushroom farming is a business which requires precision. Indeed, it is not as simple as what some people often loosely stipulate. It calls for adherence to precise procedures.

Practice:

TTWRDC(W) Suryapet is practicing an innovative program entitled 'Mushroom Cultivation' under the guidance of B. Yashaswi, Lecturer in Microbiology. The students of Degree 2nd and 3rd Year MZC are involved in the project in the premises of college.

Materials used:

1.Spawn
2. Paddy straw
3. Casing soil
4. Polythene bags
5. Formaldehyde
6. Water sprayers

1st Phase of Practice

- Spawn source - IIHR Bangalore
- Weight of the span - 3kg
- Cost of the span - 950
- Date of bag filling - 14.02.2024
- Duration of dark period – 20 days
- Date of filling casing soil – 07.03.2024
- Observations – contamination and weeds observed

Evidence of Success:

1st Phase of Practice-

- Contaminated due to improper sanitation and unhealthy spawn.
- Black mould developed in entire beds.
- Weeds are attacked due to paddy straw

Problems Encountered and Resources Required:

- Lack of proper tools and implements.
- Sustainability of proper ambience to develop the culture.

Photo Gallery

Bag filling

Casing:

TITLE: PRODUCTION OF WINE FROM GRAPES

Learning Resource Developer: Department of Microbiology, TTWRDC (W), Suryapet

Objective: The objective of this laboratory procedure is to prepare wine by fermentation of grapes. Fermentation is an anaerobic respiratory process in which the sugars present in grapes are acted upon by anaerobic microorganisms like yeast. These microorganisms convert the sugars into ethanol or ethyl alcohol along with the production of carbon dioxide gas.

Students will learn the process of production of wine on a small scale.

Materials required:

Graduated cylinder

Test tubes

Glass container

Rubber stopper

Tygon tubing

Hydrometer

Balance

Ripened grape fruits

Sucrose

Active dry wine yeast, strains of saccharomyces ellipsoids

Procedure:

Preparation of starter culture:

Suspend 1gram dry wine yeast in 10 ml of warm water at about 35C and allow the yeast to grow in a loosely capped container at room temperature for 24 hours.

Primary fermentation:

Select fully ripened grapes with sweet taste and optimum flavour. Remove stalks of the berries since they contain tannin. Wash the grapes with clean water. Crush the cleaned grapes. Crushed juice is called Must, which has pH of 3 – 3.6. If the sweetness is low adjust the sugar content. Inoculate with 20ml of starter culture of the yeast. Plug the bottle with rubber stopper. Ferment at room temperature for 1 week

Secondary fermentation:

At the end of 1 week decant the juice from the bottle to the clean container and estimate the PA (Potential Alcohol scale) values with the hydrometer and alcohol content. Pour the juice back into the bottle, reassemble and continue the fermentation for another 4-6 weeks.

Composition of the wine

Particulars	**Percentage**
Total solids	2 – 3
Carbohydrates	0.03 – 0.5
Acids	0.5 – 1
Amino acids	Trace
Alcohol	8 – 13(volume)