

## **Mushroom Spawn Production**

The word spawn in the mushroom industry means the planting material, which consists of the vegetative body (mycelium) and its substrate. In other words, spawn could be regarded as analogous to the seeds of the higher plants. Quality spawn is having high demand and is vital for successful mushroom cultivation. Thus, Mushroom spawn production is gaining momentum as a profitable enterprise.

### **Steps in Spawn production**

#### **a) Preparation of PDA media**

- Potato dextrose agar media is prepared by using 20g Agar, 20g Dextrose, 200g Potato and 1L
- Cook the sliced potatoes in 500 ml water for 30 minutes and simultaneously mix 20g agar in 500 ml of water and boil for 30 minutes
- Collect the potato extract after filtering it and add 20g dextrose to potato extract
- Mix thoroughly the molten agar with potato-dextrose mixture and make up the volume to 1 litre
- It was dispensed in sterilized test tubes and bottles
- The prepared slant was sterilized in autoclave at 15 pounds pressure and 121°C temperature for 2 hours

#### **b) Raising of Pure Culture**

There are two ways of raising pure culture:

- *Tissue isolation technique*

Well grown young mushroom is selected and cleaned. Split the mushroom lengthwise and take out small pieces from portion where gill plate joins the stipe. Surface sterilize the tissue and inoculate to PDA media slants. Incubate the slants at 25+1°C for 2-3 weeks. It is more reliable for mushroom culture.



Collecting tissues



Inoculation in PDA media



PDA slants kept for incubation

- *Spore culture technique*

Well-developed fruiting body is selected and it is cut and stalk is removed. The mushroom is laid with gills down on glass or typing paper. The spores are collected after 12 hours. It is then inoculated in PDA slants.



Collection of fruiting bodies



Spore print

#### d) Preparation of mother spawn and bed spawn

- 1) The substrate used for mother spawn production can be seeds of barley, sorghum, bajra, rice etc.
- 2) The seeds are soaked in water for 18 hours
- 3) It is then collected next day and water is drained
- 4) The grains are then boiled for an hour in sufficient water
- 5) It is spread on a flat surface after draining off the water
- 6) The grains are then mixed with  $\text{CaCO}_3$  at the rate of 30-40g per kg of grain
- 7) These mixture is then filled in polypropylene bags
- 8) This bags are then sterilized in autoclave
- 9) The mother culture is then inoculated to this medium under aseptic conditions
- 10) These packets are stapled and packed properly
- 11) Inoculated bags are incubated for 2-3 weeks and fully colonized mother spawn was obtained





### e) Preparation of bed spawn

- The substrate (boiled grain mixed with  $\text{CaCO}_3$ ) is filled in polypropylene bags and sterilized in autoclave
- 10-15g of mother spawn is inoculated per bag under aseptic conditions and well mixed with substrate.
- The inoculated bags are kept for incubation room for 10-12 days.
- After incubation, the grains are covered with white mycelia growth and it is used



for mushroom cultivation.

Inoculation of bed spawn



Bed spawn

### Care to be taken

- Always keep the inoculation chamber and its surroundings very clean.
- Switch on UV tube in the inoculation chamber for 30 minutes before inoculation by keeping sterilized substrate, forceps, and cultures inside the chamber.
- Inoculation is always done near the spirit the spirit lamp flame to avoid contamination.
- The working person should swab his hands and inoculation chamber using alcohol.

- Spawn should grow fast in the bottles, should be silky white in colour and should never show fluffy growth.
- All grains should be covered by the mycelial growth and fresh spawn should have mushroom odour.
- Mother spawn should not be used beyond 3-4 generations as it starts degeneration. Fresh spawn gives higher yield; therefore spawn should never be stored for more than a month.
- All the bottles must be labeled indicating firm's name, species, date of inoculation to know the age and type of spawn.

### **References**

- <http://agropedia.iitk.ac.in/content/mushroom-spawn-production-technology>
- [http://agridaksh.iasri.res.in/html\\_file/mushroom/05Mush\\_spawn\\_Prod.html](http://agridaksh.iasri.res.in/html_file/mushroom/05Mush_spawn_Prod.html)
- [http://agritech.tnau.ac.in/farm\\_enterprises/Farm%20enterprises\\_%20Mushroom\\_Mother%20spawn.html](http://agritech.tnau.ac.in/farm_enterprises/Farm%20enterprises_%20Mushroom_Mother%20spawn.html)

### **videos**

- <http://www.kau.in/video/10532>