



Efficacy of different grains on spawn development of *Pleurotus sajarcaju*

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ABSTRACT

Efficacy of different grains viz, wheat, sorghum, Gram, Pearlmillet, Fingermillet was studied in plant pathology laboratory of Shri Shivaji College of Agricultural Biotechnology, Amravati. The major constraint in mushroom production is non availability of spawn. *Pleurotus sajarcaju* spawn has been recognized as a highly potential converter of cheap cellulosic material into the valuable protein at a very nominal cost. The various grains were tested for production of spawn of *Pleurotus* sp. For each replicate of the various grains, the days from inoculation of the bottles till total colonization was recorded. The result obtained during present investigation, wheat grains were found to be the best grain for speedy development of spawn of *Pleurotus sajarcaju* with sorghum and gram.

Keywords : *Pleurotus sajarcaju*, grain spawn, spawn run, millet, sorghum, wheat.

INTRODUCTION :

Spawn is pure culture of mycelium growing on a solid substrate such as grain. Mushroom spawn has important role in production of mushroom. Its production has not been adopted by the farmers due to insufficient knowledge of techniques needed for spawn production and mushroom cultivation.

This report seeks to compose the efficiency of different grains viz, wheat, sorghum, gram pearl millet and finger millet for spawn production of *Pleurotus sajarcaju*. For the successful cultivation of any plant species one of the most important requirements is the seed of that plant species. This is also true for all the cultivated mushrooms. What we call a seed in higher plants is a microscopic spore in mushroom which cannot be used for cultivation of that species because these spores germinate only when very specific conditions are provided. The vegetative mycelium instead offers a greater scope for propagation of mushroom. But this mycelium cannot be mixed into the substratum and needs to be carried on a proper carrier which will not provide nutrition to the growing mushroom mycelium but also help in its proper distribution in the substratum. Thus seed of a mushroom species is its mycelium grown on a suitable substrate this seed is popularly known as 'SPAWN'.

It essentially involves preparation of pure culture of mushroom from tissues/ spores that is generally maintained on any agar medium, followed by culturing on sterilized grains and further multiplied on grains. The spawn thus comprises of mycelium of the mushroom and a supporting medium which provides nutrition to the fungus during its growth. Before the advent of grain spawn, different kinds of spawn used were natural or Virgin spawn (from the pastures and

meadows), Flake spawn (breaking of beds through which mushroom mycelium has run), Milltrack spawn (bricks dried and made from mixture of horse dung, cow dung and loam soil) and manure spawn (on sterilized horse manure or compost manure).

The first pure culture spawn was produced in France in 1894 on horse manure compost. Costantin and Matruchot (1894) -the two Frenchmen from Pasteur Institute, France germinated spores, made culture and used it for making spawn after sterilizing horse manure (Manure Spawn).

In 1902 Ferguson - an American, published about method of spore germination to make pure culture and the technique was no more a secret. In 1905 Duggar, an American made mycelial culture from tissue of mushroom caps. By 1907 Lambert's American spawn company was marketing seven pure strains of button mushroom. In 1926 a single cluster of white mushroom in a bed of brown mushroom observed by Mr. Downing from which culture was made by Mr. L.F. Lambert.

MATERIALS AND METHODS :

The spawns were prepared by using the method of spawn preparation outlined by Stameis and Chilton (1983). The cereal grains used were Wheat, Sorghum, Gram, Pearlmillet and Finger millet obtained from the local market of Amravati. The grains were evaluated to see their effect on spawn development of *Pleurotus Sajarcaju*. Spawns were prepared in poly propylene bags using grains as substrates. The grains were processed and filled in poly propylene bags, then sterilized at 20Lbs PSI for 2 hours incubated at 25±2°C and observations were recorded when the mycelium covered the entire grains. Three replications were placed for observation.

RESULT AND DISCUSSION :

Different grain substrates were studied for spawn development of *Pleurotus sajarcaju*.The data is presented in table graph and photo.

Evaluation of different grain substrates for spawn development of *Pleurotus sajarcaju*.

Sr. No.	Grain Substract	Span development (days)	Mycelia character
1.	Wheat	9.5	White cottony threadlike mycelium Covered all grains but grains were tightly held with each other.
2.	Sorghum	12.0	Whitish compact my growth all grains completely covered by mycelium and tightly held with each other.
3.	Gram	16.2	Whitish mycelia growth but grains were not fully covered.
4.	Pea millet	19.6	Poor mycelia growth did grain were not fully covered.
5.	Finger millet	19.5	Poor mycelia growth did grain were not fully covered.

There was significant difference in spawn development of *Pleurotus sajarcaju* on different grains.Among the tested grains,minimum (13days)period for spawn development of *Pleurotus sajarcaju* was recorded in wheat grains with white cottony thread like mycelium covered all grains but grains were tightly held with each other followed by Sorghum grains (16.2days)with mycelia character whitish compact all grains were

completely covered and tightly held with each other ,gram grains (18.9days)with whitish mycelia growth but grains were not fully covered,Pearl millet grains(19.6 days),finger millet grains(19.5 days)took maximum period with poor mycelia growth and grains were not fully covered. (Chandrawanshi 2007)

Graph showing the time (days) required for spawn development.

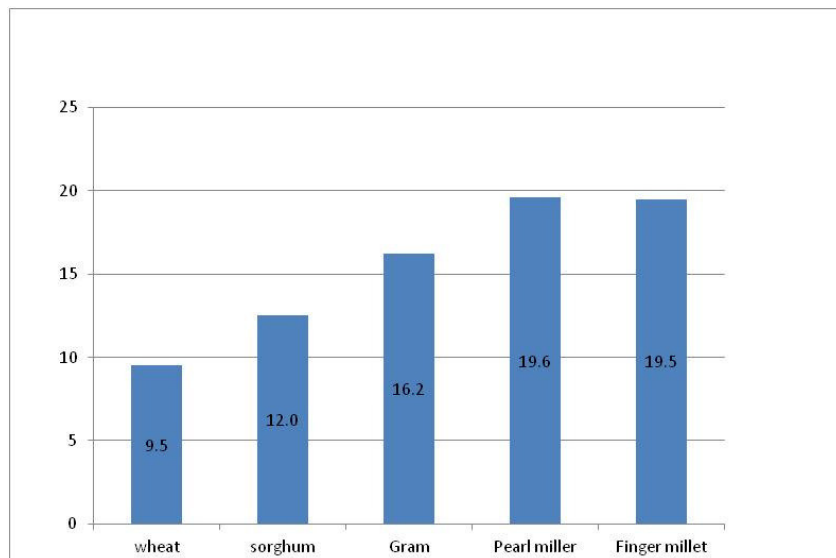


Photo graphs showing the spawn of various grains



Wheat Sorghum Gram



Pearl millet Finger millet
(Bajra) (Ragi)

CONCLUSION : Wheat grains are the best substrate for production of spawn of *Pleurotus sajor-caju* followed by sorghum grains as compared to gram, pearl millet and finger millet.

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