Screening of different grains substrates for quality spawn production and morphology of *Pleurotus florida*

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Abstract: The evaluation of different grains substrates for production of spawn. The study was conducted with the object to most suitable rain substrate, experiment comprise different grains, namely wheat, bajra, sorghum and maize alone and in their different combination. The study revealed that the period for complete spawn preparation varied from 12 to 20 days. Minimum period of 12 days was taken for spawn preparation when sorghum was used alone followed by wheat grain alone which took 15 days. However the spawn prepared with jowar grain lost there viability early. The experiment concluded that the sorghum grain substrate suitable for spawn production of *Pleurotus florida*.

**Key words:** *Pleurotus florida*, Grains, Wheat, Bajra, Sorghum and maize, Spawn production

**Introduction**

Mushrooms also called as “White vegetables or boneless vegetarian meat” contain ample amounts of protein, vitamins and fiber apart from having certain medicinal properties, mushroom contains 20-35% protein (dry weight basis) which is higher than those of vegetables and fruits and is of superior quality. Mushroom are now getting significant importance due to their nutritional and medicinal value and today their cultivation is being done in about 100 countries. Mushroom is a group of fleshy macroscopic fungi, which belong to plant kingdom and do not have chlorophyll. It was well known from the ancient time and is closely related to the history of mankind. The Romans knew and distinguished various edible and poisonus mushroom. Reference to occurrence and utilization of mushroom are being found in classical religious writings of the babylonians, Greek, Romans, and among the oyster mushroom, *Pleurotus florida* (fr.) Singer is a well known edible fungus. It is being taken up for commerical cultivation in different part of the world. There is great potential for increasing mushroom production in the country, because of favourable climatic conditions. Unemployment and abundant supply of cheap labour and availability a wide rang of substrates considerably reduced the production cost. The great advantage is that they are easy to cultivate and have fast rate of growth and also have the capacity to convert nutritionally valueless substrate in to high protein food. In a country like India where vegetarian dominate every attempt should be made to popularize a vegetable protein source like this mushroom.

**Materials and Methods**

The culture of *Pleurotus florida* was prepared from a young fruit body of *Pleurotus florida* obtained from Mushroom Research Laboratory, Department of Plant Pathology, Chandra Shekhar Azad University of Agriculture and Technology, Kanpur. Scientifically accurate and precies experimental traits were conducted during the year 2011-2013 at Mushroom Research and Development center Department of Plant Pathology, Chandra Shekhar Azad University and Technology, Kanpur (U.P.). To find out the suitable grain for quality spawn production of *Pleurotus florida*, the grains of different crops were used alone and in different combinations as given below by using the standard methodology suggested by Gareha (1994). Healthy and unerupted grains were washed and hold (Grain: Water 1:25 w/v) to tender without rupturing the seed coat. Extra water was drained off and the grain were allowed to dry on sieve. Commercial grade gypsum and calcium carbonate in the ratio of 1:1 (w/w) were mixed with boiled grains at the rate of 2 percent (w/w) of grain. The 200 gm grain were filled in clean glass bottles and the bottles were plugged with non observant cotton and sterilized at 15 lbs/psi for 2.0 hours. Sterilized bottles were taken out from the autoclave. While still hot and were shaken to avoid clumping of the grains. Next day the bottles were inoculated with bits of potato dextrose Agar medium colonized with mycelium of pure culture (7-10 days old).

Inoculated bottles were incubated at 25°C. After seven days and ten days the inoculated bottles were shaken vigorously so that mycelia threads were broken and become well mixed with the grains. Entire grains get covered with fine mycelial growth after 15 days of inoculation. The best grain/substrate was used for further studies. This spawn is known as master spawn. The spawn prepared for experimental use was on wheat grains in polypropylene bags inoculated with mother spawn.

**Results and Discussion**

To find out the most suitable grain for early and quality spawn production of *Pleurotus florida*, different grain like wheat,
jowar, maize and wheat alone and in their different combination were tried. The period for complete spawn preparation varied from 12 to 20 days. Minimum period of 12 days was taken for spawn preparation when sorghum was used alone followed by wheat grain alone which took 15 days. Chandrawanshi (2007) also used different grains for spawn development of *H. ulmarius* and found early spawn development on maize grains. Asghar et al. (2007) found full mycelial growth was obtained in 7.83 days on sorghum grains followed by 11.83 days on wheat grains and 13.167 days on oat grains for full mycelial growth. However the spawn prepared with jowar grain lost their viability early. It may be due to very small size of jowar grain which losses its nutrients earlier than wheat grain. Bajra alone, wheat + Bajra (1:1) (Treat. 1,5), wheat + jowar (1:1) and wheat + maize (1:1) (treat. 6,7) took 18 days. The maximum 20 days was taken with maize grain alone may be due to its hard seed coat. The study corroborated with the findings of earlier researchers, Narh et al. 2011, Sahu et al. 2014 and Rizal et al. 2014.

The mushroom fungi *Pleurotus florida* was grown on seven different natural and synthetic media and the observation were taken after 15 days incubation at room temperature (25±2°C). The average data of diameter fungal colonies are recorded and given in table 2. It is evident from the above table 2 its corresponding bar diagram (Fig.1) that the fungus *Pleurotus florida* grows almost on all the media tested. The maximum linear growth occurred on potato dextrose agar medium followed by Czapek’s (Dox) medium. Lowest growth of the fungus was found on wheat straw extract agar medium. Where as paddy extra agar medium wheat grain dextrose agar medium and oat meal agar medium were statistically at par with each other.

**References**


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