

Effect of Inoculum levels, Seasons and Temperature on the Sporophore Production of *Pleurotus sajor-caju*. (Fr.) Singer*

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The effect of inoculum during north-east monsoon (October-November) and summer (May-June) on the yield of *pleurotus sajor-caju* (Fr.) Singer was studied. The yield of sporophore during the north-east monsoon period was more than that obtained during the summer season. It was interesting that the maximum yield of sporophore obtained with 300 g of spawn during summer was obtained with just 100 g of spawn during north-east monsoon. Increase in inoculum level resulted in an increase of higher yield of sporophores.

In recent years mushrooms as a food item has occupied a very important place in our dietary. *Pleurotus sajor-caju* (Fr.) Singer, oyster mushroom is a well known edible fungus. Ecological factors and amount of inoculum has been reported to influence the yield of *pleurotus spp* (Zadrazil, 1978; Zakia, 1967). The present study was therefore undertaken with the objective of finding the optimum quantity of spawn and effect of season on maximum production of sporophores.

MATERIAL AND METHODS

The experiments were conducted during north-east monsoon (October-November) and summer (April-May). Tray method of cultivation (Sivaprakasam *et al.* 1979) was adopted. The substrate used was one kg of dried rice straw with 14 levels of inoculum viz.

10, 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300 and 345 g.

To study the effect of temperature of incubation on the yield of sporophore, the trays were incubated in cold rooms at different temperatures viz., $7.5 \pm 1^\circ$, $10 \pm 1^\circ$, $13 \pm 1^\circ$, $15 \pm 1^\circ$ and $24 \pm 1^\circ\text{C}$ and room temperature ($28 \pm 4^\circ\text{C}$).

RESULTS AND DISCUSSION

The maximum yield of sporophores was obtained when 250 g and 300 g spawn were used during north-east monsoon and Summer respectively. It was interesting that the maximum yield of sporophore obtained with 300 g of spawn during summer was obtained with just 100 g of spawn during north-east monsoon indicating the necessity of optimum environmental conditions. Increase in inoculum level in general increased the number of sporophores.

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Increase in the quantity of inoculum resulted in an increase in the number of crops during north-east monsoon and not so during summer (Table 1). The sporophores failed to develop when the trays were incubated below $15 \pm 1^\circ\text{C}$. Sporophores appeared earlier in the tray kept at $24 \pm 1^\circ\text{C}$ than in room temperature. There were no differences in the number of crops produced between the trays at $24 \pm 1^\circ\text{C}$ and at room temperature. However, maximum yield was recorded when the trays were kept at $24 \pm 1^\circ\text{C}$ (Table 2). Block *et al.* (1959) obtained long stemmed and larger sporophores in a saturated atmosphere while at low humidity the sporophores were stunted with slow growth. Increase in the quantity of inoculum resulted in an increase in the yield of sporophores of *P.sajor-caju*. Amount of inoculum is the major determining factor in increasing the yield (Zakia, 1967). The sporophore production was high at an incubation temperature of $24 \pm 1^\circ\text{C}$ which is in accordance with the observations of Jandaik and Kapoor (1975). The other

species of *pleuratus* (*p.ostreatus*-*p.flabellatus*) had similar temperature optima (Block *et al.*, 1959; Srivastava and Zakia, 1970).

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TABLE 1. Effect of quantity of grain spawn during north-east monsoon and summer on sporophore production.

Quantity of spawn (g)	North-east monsoon					Summer		
	Days taken for the crop to appear	No of crops	No. of sporophores	Weight of sporophores (g)	Days taken for the crop to appear	No. of crops	No. of sporophores	Weight of sporophores (g)
10	21.6	1.0	5.0	27.0	25.0	1.0	2.0	5.6
25	20.8	1.0	4.6	23.3	24.6	1.0	4.0	9.3
50	21.0	2.0	23.6	131.6	25.0	2.3	18.0	40.6
75	20.0	3.3	18.0	105.0	23.0	2.0	6.0	16.6
100	19.6	4.0	27.3	171.6	24.0	1.6	14.3	35.0
125	19.6	3.6	27.6	170.0	24.0	2.6	34.3	73.3
150	20.0	4.0	33.3	190.0	23.6	2.0	20.6	70.0
175	19.6	4.0	40.3	241.6	23.6	3.0	28.6	124.0
200	19.6	4.3	41.3	238.3	23.6	3.3	38.0	113.2
225	19.3	4.0	59.0	340.9	20.3	3.0	42.6	131.6
250	19.6	4.0	80.0	513.3	20.3	3.3	51.3	126.6
275	19.6	4.0	68.0	440.0	19.6	4.0	46.0	125.0
300	19.3	4.0	85.6	406.6	20.3	3.6	47.6	159.6
325	19.3	4.0	88.0	508.3	19.0	4.0	55.0	166.6
C.D. (P=0.05)	NS.	0.9	6.2	35.8	1.2	NS	9.2	21.1

TABLE 2. Effect of temperature of incubation on sporophore production

Temperature °C	Days taken for the crop to appear	No. of crops	No. of sporophores	Weight of sporophores (g)
24 ± 1	19.0	3.5	52.25	325
Room temperature (28 ± 4)	21.5	3.5	41.25	190