

MUSHROOM CULTIVATION PRACTICES IN THE PLAINS OF WEST BENGAL

To explore the possibilities of mushroom cultivation in West Bengal and to popularise the same among interested person, mushroom cultivation was initiated at the Rice Research Station, Chinsurah in the year 1973 and was reported in the Annual Report of Mycology Section, Directorate of Agriculture, West Bengal, in 1974—75. Results conclusively proved that the *Agaricus bisporus* (temperate variety) and *Volvariella volvacea* (tropical variety) can be grown economically and viably in the plains of West Bengal. The optimum period for tropical mushroom in the plains of West Bengal has been found to be between mid-March and mid-October, when the temperature ranges from 21° to 34°C with relative humidity varying between 64 to 89 percent. (Pal, 1979). The possibilities of growing temperate mushroom in the plains of West Bengal, has also been successfully explored. The optimum period being from November to February and proves the efficacy of rice straw compost as a substratum for this edible species as compared to wheat straw compost which is used as the normal substratum throughout the world (Pal and Mukherjee, 1978 ; 1979). The other newly introduced semi-temperate variety *Fleurotus sajor-caju* has been successfully domesticated in the year 1976 at Rice Research Station grown in a rather simple method on simple rice straw during the months or September to November and February to March in the plains of West Bengal.

The nature of each type is distinct as regards the growing condition and techniques. Each species is interdependent on temperature and relative humidity. Therefore, climatic parameters like temperature and relative humidity are the most important criteria for successful mushroom cultivation.

Mushroom represents one of the world's greatest untapped resources of nutrients and palatable. Only recently mushroom growing is gaining momentum gradually in all the developed countries of the world. Significant technological improvements in cultivation of edible mushrooms have resulted from effective experimentations by associated scientists and growers. The object of the present study was to cultivate the three species in one calender year according to congenial temperature required for cultivation of the particular species in a particular month. In order to study the feasibility of this new venture, the temperature and relative humidity for the last decade were taken into account.

Table 1. Extract of Maximum & Minimum Temperature ($^{\circ}\text{C}$) and Relative humidity (%) at Rice Research Station, Chinsura for 1970—1979

Month	Temperature ($^{\circ}\text{C}$) 1970—79			Relative humidity (%)		
	Maximum	Minimum	Mean	Morning	Afternoon	Mean
January	31.7	4.7	18.0	92	40	66
February	35.7	4.2	20.8	91	39	70
March	38.7	9.3	26.1	90	36	63
April	41.3	18.4	29.8	87	46	66.5
May	43.8	18.1	31.4	85	54	69.5
June	44.0	20.7	29.9	88	69	78.5
July	36.6	23.0	28.1	91	78	84.5
August	35.1	21.2	28.1	93	79	86
September	35.4	22.0	28.4	93	76	84.5
October	36.9	17.6	27.3	91	66	78.5
November	34.3	8.6	23.5	93	51	72
December	31.4	6.0	18.3	93	42	61.5

Climatological parameters (Table 1) clearly indicated that all the three species can easily be cultivated in the plains of West Bengal but selection site depends on the nature of species and agro-climatic conditions of the particular locality. About *A. bisporus* the optimum temperature of mycelial growth $22-25^{\circ}\text{C}$ (Singer 1961) and that for fructification is $14-19^{\circ}\text{C}$ (1972), while *P. sajor-caju* requires a temperature of $20-30^{\circ}\text{C}$ (Jandaik, 1977), *V. volvacea* though prefers higher temperature of above 24°C .

Suggested Programme

Choice of species for the year-round cultivation project

April	)			
May	)			
June	)	<i>V. volvacea</i>		
July	)			
August	)			
September	)			
October	)	Compositing	<i>A. bisporus</i>	
November	)			<i>P. sajor-caju</i>
December	)	Fructification		
January	)	of		
February	)			
March	)			
(<i>V. volvacea</i>	)			<i>P. sajor-caju</i>
from Mid-March)	)			

The data indicate that the three species may suitably be fitted according to the temperate & RH of the different months in a year. Cultivation of tropical mushroom may start from the Mid-March and continue till Mid-October. Yield of tropical variety are less in March and October as compared to others summer months from April to September due may be to fluctuating temperature (night and day) at that period.

The *P. sajor-caju* grows luxuriantly in the months of February & March and from September to November as normal prevailing temperature at that time are very congenial for its fructification. This species has an added advantage when other two species *A. bisporus* & *V. volvacea* do not grow profusely or completely fails, it performs alright. Moreover, it covers the months of October, November & February, when preparatory work of compost preparation starts for *A. bisporus* and *V. volvacea* so this species is a stop gap variety in between two well known commercial varieties, *A. bisporus* & *V. volvacea* cultivation period for *A. bisporus* extends from November to February, actual fructification starts from December and declines in the 2nd week of February. Preparation of compost for this variety starts from October.

With these useful research findings, three varieties of mushroom can be grown successfully throughout the year in the plains of West Bengal in a cyclic order, tropical mushroom followed by semi-temperate variety and next comes temperate variety.

Mushroom cultivation may be an enthusiastic gesture for the interested growers, to earn maximum per unit area provided market is assured.

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