

EFFECT OF SOME PHYSICAL FACTORS ON THE CULTIVATION OF *VOLVARIELLA DIPLASIA* IN WEST BENGAL

BY

C. K. SUR AND N. SAMAJPATI

*Mushroom Research Centre, Mycology Laboratory,
Department of Botany, Calcutta University, Calcutta-700019*

The optimum temperature for the maximum yield of *V. diplasia* is 35°C. The optimum pH of the substratum for the maximum yield of *V. diplasia* is 5.5.

INTRODUCTION

In India Bose (1921) has first pointed out about the cultivation of mushrooms. Later Su and Seth (1940) and Thomas *et al.* (1943) have first cultivated the paddy straw mushroom at Coimbatore, South India. Since then its cultivation has been done in several places of India (Asthana, 1947; Rath, 1961; Gupta *et al.* 1970; Munjal, 1975). In West Bengal Samajpati *et al.* (1977) and Sur *et al.* (1980) have reported about the cultivation of paddy straw mushrooms.

In the present investigation, the cultivation of *V. diplasia* has been tried under different temperature and pH of the bed in order to find out the optimum temperature and pH for the cultivation of the fungus.

MATERIALS AND METHODS

The culture of *V. diplasia* used in this experiment was obtained from stock culture of the Mushroom Research Centre, Department of Botany, Calcutta University, Calcutta-700 019. Grain spawns were used as inoculum. The beds were prepared in a room (6 x 5 x 2 m). The ventilation arrangement was provided at top to reduce direct contact between the air current and the beds. The beds were prepared as 50 x 50 x 100 cm, in four rows side by side and five in chain. The different temperature used in the experiment was 30°, 31°, 32°, 33°, 34°, 35°, 36°, 37° and 38°C. The temperature was controlled by a thermocouple arrangements which was connected with an automatic electronic monitoring device. One pair of thermocouple was used in heating the beds. The efficacy of the controlling device was found to be $\pm 0.5^\circ\text{C}$. The different pH used in the experiment was 5.0, 5.25, 5.5, 5.75 and 6.0. The pH of the beds was maintained by buffering arrangements. The buffering was done by mixing calcium carbonate and calcium sulphate in appropriate amount with

the compost to bring the desire pH. Other experimental procedures were already described in Samajpati *et al.* (1977) and Sur *et al.* (1980).

RESULTS AND DISCUSSION

The data obtained during the experimental period are given in Tables 1-2.

Table 1. *Effect of different temperature of bed on the yield of V. diplasia*

Temperature of bed (°C)	Yield* (Kg/m ²)
30	2.00
31	2.36
32	2.86
33	3.10
34	3.50
35	3.81
36	3.00
37	2.10
38	1.92

*Data are average of 20 different experimental beds.

Table 2. *Effect of different hydrogen-ion concentration of bed on the yield of V. diplasia*

pH of the bed	Yield* (Kg/m ²)
5.0	2.37
5.25	3.91
5.5	4.16
5.75	3.87
6.0	2.10

*Data are average of 20 different experimental beds.

The data in Table 1 reveal that 35°C is the optimum temperature for the maximum yield of mushroom. The data also reveal that higher temperature than 35°C is not good for the yield in comparison to lower temperature than

35°C. The data in Table 2 reveal that pH 5.5 is the optimum for the yield of *V. diplasia* which is closely followed by pH 5.25, 5.75, 5.0 and 6.0. Gupta *et al.* (1970) have reported 30°-40°C as the good temperature range for the cultivation of *V. diplasia* and *V. volvacea*. Rangaswami (1978) has also mentioned that 30°C-40°C and pH 5.0-6.0 are the best for cultivation of *Volvariella*.

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