

EFFECT OF DIFFERENT SPAWNS AND BED AMMENDEMENTS ON THE
CULTIVATION OF *VOLVARIELLA DIPLASIA* IN WEST BENGAL

BY

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The different substrates as spawn were tried for cultivation of *V. diplasia*. Of these paddy straw ammended with horse gram powder and rice chaff and rice bran were found to be good as spawn substrates. The effect of NPK ammendements in bed showed that phosphorus and potassium were good for the yield but nitrogen was found to have a detrimental effect.

INTRODUCTION

Spawn plays an important role in mushroom cultivation. Chung and Chang (1972) have expressed that the crop failure will be inevitable if the spawn quality is poor. Several workers have investigated to find out a suitable substrate for the production of good spawn (Thomas *et al.*, 1943 ; Son Antonio and Fordyce, 1972 ; Hu *et al.*, 1976 ; Ramaswamy and Kandaswamy, 1978).

MATERIAL AND METHODS

The culture of *V. diplasia* was obtained from the stock of Mushroom Research Centre, Department of Botany, University of Calcutta, Calcutta-700 019. The other experimental procedure were already described in Sur and Samajpati (1981).

Straw spawn was prepared in 650 ml capacity bottles following the method of Thomas *et al.* (1943). Two of the different ammendements were incorporated in the straw based spawn. The granular spawn was prepared as per Hu *et al.* (1976). The different substrates used are wheat grains, barley grains, jowar, bajra, oats, wheat bran, rice bran, rice chaff, saw dust, horse manure compost, farm yard, manure compost, wheat straw and paddy straw.

For the estimation of carbon, nitrogen and starch, samples were drawn from the spawn bottles before sterilization. Carbon, nitrogen and starch were determined following the methods of Muller (1967).

To study the effect of NPK ammendment in beds on the production of mushrooms, urea, superphosphate and murate of potash were given as 10g/sq. m of bed.

RESULTS AND DISCUSSION

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

Table 1. *Effect of different spawn substrate on the yield of V. diplasia*

Spawn substrates	C/N Ratio (A)	Starch (B)	A/B	Yield* (Kg/m ²)
Wheat grains				2.90
Barley grains				1.97
Jowar				2.10
Bajra				2.18
Oats				2.00
Wheat bran				1.98
Rice bran	29.6	6.0	4.90	2.86
Rice chaff	41.2	4.8	8.50	3.00
Saw dust				1.96
Horse manure compost	21.0	2.5	8.40	2.10
Farm yard manure compost				2.00
Rice bran+Rice chaff (1:1)	32.6	6.8	4.60	3.87
Rice bran+Straw	42.6	3.1	13.70	3.10
Wheat straw				1.74
Paddy straw				1.98
Paddy straw ammended with red gram powder				2.14
Paddy straw ammended with oat meal	52.0	2.9	17.90	2.83
Paddy straw ammended with Horse gram powder	58.6	1.0	58.60	3.81
Granular spawn	36.0	4.7	7.60	3.10

*Data are mean of 20 different experimental beds.

Table 2. *Effect of NPK on the production of V. diplasia*

Treatments	Yield* (Kg/m ²)
Urea	3.1
Superphosphate	3.8
Muriate of potash	3.7
Control	3.6

*Data are mean of 20 different experimental beds.

The data in Table 1 indicate that rice bran and rice chaff mixture (1 : 1) is the best spawn substrate for the maximum yield of *V. diplasia*. It is being closely followed by paddy straw ammended with horse gram powder, granular spawn and paddy straw ammended with oat meal. The data also indicate that due to low high C/N by starch ratio, the rice bran and rice chaff (1 : 1) have been found to be the best source of spawn substrates. The data further reveal that spawn substrates with higher C : N ratios are more suitable for the yield of *V. diplasia*. Similar observation have been reported by Ramaswamy and Kandaswamy (1978).

The data in Table 2 indicate that nitrogen ammendment in bed is not suitable for production of *V. diplasia*. But phosphorus and potassium ammendments in beds are beneficial for production.

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