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EVALUATION OF SOME AGRO-WASTE SUBSTRATES FOR COMMERCIAL PRODUCTION OF OYSTER MUSHROOM, *PLEUROTUS SAJOR-CAJU* (FR) SINGER.

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An experiment was conducted to evaluate the use of daav-grass *(Desmostachya bipinnata)* as a substrate alone or in combination with wheat and paddy straw for the cultivation of Oyster mushroom, *Pleurotus sajor-caju*. The production of this mushroom was 100% when grown on wheat straw alone. However, the yield was 95% only when grown on dry weight substrate of wheat straw in combination with daav-grass straw (1:1 w/w) and 93.3% on a mixture of paddy straw + daav-grass straw (1:1 w/w) in farm conditions. It is suggested that daav- grass has potential to serve as an ideal substrate as it is economical than other substrates.

Keywords : Daav- grass (*Desmostachya bipinnata*), Mushroom, *Pleurotus sajor - caju*.

For cultivation of mushrooms different types of agro-wastes, climatic conditions and raw materials provide stimulus. However, in India, oyster mushroom is cultivated on different substrates, commonly wheat [1,2] and paddy[3] straw, bajra and sorghum stalk[4]. However, daav-grass (*Desmostachya bipinnata)* has not been used us a substrate of which India is one of the largest producer[5].

Daav- grass contains huge amount of cellulose (approx. 48.91%) and lignin (10.35%)[6]. The oyster mushroom is known to grow well on cellulolytic and lignolytic substrates[7]. In the light of this, present study was conducted to use daav-grass, wheat and paddy straw in combination or alone for the cultivation of oyster mushroom, *Pleurotus sajor-Caju.*

Daav-grass, wheat and paddy straw were chopped in to 3-5 cm pieces and thoroughly washed in fresh water and thereafter chemically treated by soaking in a solution of bavistin (75 ppm) and formalin (500 ppm) for 18-20 hours[7]. It is covered with polythene sheet for 4-6 hours. Spawning was done in perforated polythene bags (24 X 36 inches) using 40 g spawn/Kg of wetted substrate. Soon after the spawn started to run, the polythene bags were removed. Total yield was recorded after 20-25 days. The cost of cultivation of this mushroom (% production and cost) on different substrates was also calculated by taking in consideration the cost of 1 Kg straw alone, while other expenditure were common to all.

The data in Table 1 shows that the production of *P.sajor-caju* was 100% on wheat straw, 96.6% on paddy straw, 95% wheat + daav grass straw (1:1 w/w), 93.3% on paddy + daav grass straw (1:1 w/w) and 86.6% on alone daav-grass straw. Previous studies have shown that paddy straw is better for the production of oyster mushroom as compared to that on wheat straw[8]. However, present study clearly shows that wheat straw (3.4%) is better than paddy straw.

Present study clearly indicates that the cost production of oyster mushroom on daav grass alone is lowest as compared to other substrates i.e. wheat and paddy straw (Table 1). However, cost of production of this mushroom on daav-grass is much lower as compared to other substrates. This is because one Kg substrate of wheat costs rupees four, while that of paddy rupees three and one Kg daav-grass costs only rupees two & paise fifty. The net profit by growing this mushroom on wheat is Rs. 5.25, on paddy it is 7.05 while the combination of wheat straw with daav-grass it is Rs. 6.30 and paddy straw in combination with daav-grass it is Rs. 7.45. It is interesting to note that use of daav-grass alone cost only

Table 1. Performance of P. *sajor-caju* on different substrate.

S. No.	Substrates	No. of days for spawn run	Mushroom yield/3kg substrate	Biological efficiency (%)	Total cost of production/ kg (Rs.)	Cost of produced mushroom*	Profit on/ Rupees
1.	Wheat straw (as control)	22-24	3	100	4.0	25	5.25
2.	Daav-grass	25-27	2.60	86.6	3.0	24.15	7.05
3.	Paddy straw	20-22	2.90	96.6	3.25	23.75	6.30
4.	Daav-grass +Wheat straw (1:1 w/w)	23-26	2.85	95	2.75	23.25	7.45
5.	Daav-grass +Paddy straw (1:1 w/w)	22-24	2.80	93.3	2.50	21.65	7.66

C.D. (0.0.5) : 2.97

*Rate of Mushroom Rs. 25/Kg

2.50 paise with a net profit Rs. 7.66 other expenditure are common for all the substrates (Table 1).

Based on the results of the present study it is suggested that although wheat straw is the best substrate for *P. sajor-caju* cultivation, but daav-grass can also be used as it is most economical as compared to other substrates including wheat.

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