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Effect of Different Types of Spawn on Sporophore Production of Pleurotus Sajor-Caju (Fr) Singer

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In order to find out the best medium for the spawn production, different types of spawn were tried. Maximum yields were obtained with the use of sorghum and *bajra* grain spawns followed by maize spawn. *Varagu* was found to be inferior for spawn preparation among the grains tested. The results clearly showed that the sorghum or bajra grains are the ideal spawn substrates.

Pleurotus sajor-caju (Fr.) Singer, oyster mushroom is a well known edible fungus. The success of mushroom cultivation and its yield depends to a large extent on the quality of the spawn used. Aiming at good yield, different materials were tested as the spawn base by several workers (Angle and Tamhane, 1974, Jong, 1975, Kumar, 1976; Rangad and Janadaik, 1977). The present paper reports the effect of different types of spawn on sporophore production of *P. sajor-eaju*.

MATERIAL AND METHODS

A pure culture of *P. Sajor-caju* was isolated from fresh fruiting body by hyphal tip method and maintained on oat meal agar slants.

Grain spawn

Grains were partially cooked with water for 20 minutes. After draining excess water, the grains were mixed with Calcium carbonate at 2 per cent to prevent adhesion of the grains and maintain optimum pH for the mushroom. They were filled three-fourth volume in 750 ml glass bottles plugged with cotton wool and sterilized at 1.4 Kg/cm^2 for two hours.

Spawn from other substrates

The following dried substrates viz., straw and hulled cobs of maize (*Zea mays* L.); straw and ears of sorghum (*Sorghum vulgare* (L.) Moench) and *ragi* (*Eleusine coracana* Gaertn.); straw of *bajra* (*Pennisetum typhoides* Stapf and Hubb.); straw, husk and bran of rice (*Oryza sativa* L.) and *thippi* of tapioca (*Manihot utilissima* Pohl) (industrial waste of sago industry) were tested as substrates for spawn production. These substrates were soaked in water for 8-12 hours. Straw and ears were first chopped into 3 cm pieces. The substrate pieces were stuffed three-fourth volume in 750 ml glass bottles, plugged with cotton wool and sterilized at 1.4 kg/cm^2 for one hour.

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RT's signature

The bottles were inoculated with the pure culture of the fungus and incubated at laboratory temperature (28±4°C) for 30 days. Thirty day-old spawn was used. Tray method of cultivation using paddy straw as bedding material was followed with different spawn materials as per the method described (Sivaprakasam, 1980) The mushroom yield in each treatment was recorded.

RESULTS AND DISCUSSION

The maize grain spawn which was the only grain spawn tested yielded more number of crops followed by the rice straw spawn, The number of sporophores and weight of sporophores were also maximum in the maize grain spawn (Table 1.)

Since grain spawn was found to be superior to other spawn substrates, experiments were designed to assess the efficacy of different grains as spawn substrates. Spawns were prepared from seven grains namely sorghum *bajra*, maize, *panivaragu* (*Panicum miliaceum* L.), *Kudiraivali* (*Echinochloa frumentacea* L.), *tenai* (*Setaria italica* Beauv.) and *varagu* (*Paspalum scrobiculatum* L.) and tested for sporophore production (Table 2.) When the spawns prepared with sorghum, *bajra* and maize were used, the first crop appeared earlier and the number of sporophores was found to be more than with spawns of other grains Maximum yields were obtained with the use of sorghum and *bajra* grain spawns followed by maize spawn.

Sorghum and *bajra* grain spawns were found to give significantly higher yield than spawn from other grains and other substrates. The use of sorghum and *bajra* grains for spawn production has an added advantage from the economic point of view. These two grains are cheaper than maize and give larges number of spawn bottles per unit weight. Rangad and Jandaik (1977) tested grains of wheat, barley, sorghum, *bajra* and oats as spawn substrates for *P. cornucopiae*, *P. eryngii* and *P. ostreatus* and found that sorghum and *bajra* spawns gave 193 and 180 per cent increased yields respectively over oats spawn. Present investigation revealed that wood shavings, saw dust, bran and husk of rice. grains of *varagu*, *tenair Kudiraivali*, and *panivaragu* were poor spawn bases for *P. saior-caju*. Similarly straws. saw dust + wheat bran, grains of barley and oats have been reported to be inferior as spawn bases for *pleaurotus* spp. (Rangad and Jandaik. 1977) However, a mixture of saw dust and rice straw was found suitable as spawn base for *P. cystidiosus* (Jong. 1975).

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TABLE I Effect of different types of spawn on sporophore production

Spawn substrates	Days taken for the crop to appear	No. of crops	No. of sporophores	Weight of sporophores bed (g)
Maize grain	24.00	3.00	36.33	165.67
Rice straw	24.67	2.33	15.67	74.67
Rice husk	24.67	1.00	6.33	17.33
Sorghum ears	27.00	1.33	6.00	14.33
Rice bran	24.33	1.67	3.67	11.67
Wood shavings	24.33	1.00	5.67	7.00
Tapica *thippi*	25.00	1.00	4.00	6.67
Maize straw	26.00	1.33	2.33	4.67
Hulled maize cobs	26.67	1.00	1.67	3.33
Ragi straw	24.67	1.00	1.33	2.67
Ragi ears	24.67	1.00	1.33	2.33
Sorghum straw	27.00	1.00	1.67	2.00
Bajra straw	26.00	1.00	1.33	1.67
C. D. (P=0.05)	N. S.	0.68	2.16	2.56

Mean of three replications

TABLE 2 Effect of spawns form different grains on sporophore production

Grains	Days taken for the crop to appear	No. of crops	No. of sporophores	Weight of sporophores bed (g)
Sorghum	17.00	2.33	32.67	192.33
Bajra	17.67	2.67	29.00	188.33
Maize	17.67	3.00	26.00	164.00
Panivaragu	19.00	2.67	23.00	125.00
Kudiraivali	19.00	2.00	20.00	98.00
Tenai	18.33	1.67	12.33	72.67
Varagu	21.00	1.67	14.00	59.33
C. D. (P=0.05)	1.41	NS	7.82	10.87

Mean of three replications