B-69: Spawn production and cultivation of *Schizophyllum commune* mushroom

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Schizophyllum commune is an edible mushroom, which grows on decaying barks under natural conditions. However, there is no record of artificial cultivation of this mushroom. Therefore, a study on possible methods of spawn production and cultivation using available waste materials as substrate is of some importance. The objectives of this study were, to obtain a pure culture of mycelium by spore germination and growing a small piece of fruit body aseptically to produce spawn, using available waste materials and to cultivate mushroom using a cheap substrate. The crude protein content of the mushroom was analysed to determine the food value.

A small piece of mushroom was grown on Potato-Dextrose-Agar (PDA) medium. In spore culture, basidiospores were allowed to germinate and grow on PDA medium.

Used tea leaves, saw dust, rice straw, Ipil Ipil leaves and cow-dung mixed separately with rice bran at a concentration of 15% w/w and paddy grain were used to produce the spawn. To investigate the effect of temperature on spawn production, mycelium was allowed to grow at different temperatures. In the cultivation of the mushroom, the substrate had 400 g saw dust, 10 g $CaCO_3$, 1 g/ $MgSO_4$, and 600 g water as the basic ingredients. To investigate the effect of certain additives on the yield of mushroom, rice bran, cow-dung, dried Ipil Ipil leaves and used tea leaves were mixed separately with the basic ingredients in the ratio 1:10 w/w. The control bags had only the basic ingredients. To find the effect of rice bran on the yield of mushrooms, rice bran in increasing amounts was mixed with the basic ingredients, so that, the

ratio of saw dust to rice bran ranged from 1:1 - 6.6 : 1 w/w in the substrate. In all the above treatments, wet weight of mushrooms harvested from each bag, up to the 5th flush was recorded. Total nitrogen and crude protein contents were analysed using standard methods.

Both spores and small pieces of fruit body produced pure cultures of the mycelium on PDA plates. Growth of the mycelium was best on both paddy and used tea leaves, whil on Ipil Ipil leaves and cow-dung there was moderate growth. The growth was poor on saw dust. The best temperature for the production of spawn, on paddy was 35°C, while 30°C was the best temperature when tea leaves were used.

Rice bran and used tea leaves when used as additives, showed significant difference in yield of fruits bodies when compareds with the control. Ipil Ipil and cow dung gave low yields and were similar to the control. When the ratio of saw dust to rice bran increased, the yield per bag also increased. The control which had no rice bran, showed poor mycelial growth and eventually there were no well formed fruit bodies. *Shizophyllum* had 23.4% crude protein and 3.74% total nitrogen on dry weight basis and had 71.4% moisture content.

A pure culture of *Schizophyllum* fungus can be obtained by growing a piece of mushroom or by germinating spores on potato-dextrose-agar medium.

Paddy grain, used tea leaves, rice straw, Ipil Ipil leaves and cow-dung can be used as substrate for spawn production. 35°C is the best temperature for the growth of *Schizophyllum* mycelium.

In mushroom cultivation, rice bran was found to be the best additive for the growth of the fruit bodies. The highest yield per bag was obtained when the saw dust to rice bran ratio was 1:1.

Schizophyllum could be used as an inexpensive source of protein supplement in our diet.