

Bioconversion of Different Agro-Residues into Edible Protein by *Pleurotus sajor-caju*

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ABSTRACT

Pleurotus sajor-caju, an edible mushroom, is a source of protein-rich food. *Pleurotus sajor-caju* has broad temperature (15–25°C) and pH (4–6) optima for its growth, thus making it suitable for village-level applications, where it can be cultivated in a generally artificially uncontrolled environment. In the present investigations, the following agro-residues have been used for cultivation of this mushroom: paddy straw, wheat straw, bagasse, *Cyamopsis tetragonoloba*, *Sorghum vulgare*, *Pennisetum typhoideum*, mango leaves, banana leaves, *Zea mays*, etc. and some residues mixed with other materials such as cotton seeds, ficus fruits, *Azadirachta indica* leaves, etc. All the substrates (400 g) were pasteurized at 60°C, soaked in water, packed in polythene bags, and inoculated with 8% wheat spawn on a dry weight basis. The cultivation was carried out for 2 months, during which four crops were harvested. The temperature was 10–25°C and relative humidity was maintained at 80–90%. The maximum yields in percent of fruit bodies obtained were as follows: banana leaves, 125 (91.8), paddy straw, 124.2 (90.6), wheat straw, 111.7 (90), *Sorghum vulgare*, 108.8 (92.9), *Cyamopsis tetragonoloba*, 108.3 (91.5), followed by others. The maximum yields in percent of fruit bodies obtained in combinations of some substrates were as follows: paddy straw + cotton seeds, 148.3 (91.3), *Cyamopsis tetragonoloba* + *Azadirachta indica* leaves, 105.8 (91.5), *Sorghum vulgare* + *Azadirachta indica* leaves, 103.8 (91.8); the figures in parentheses represent the percent moisture content.

The biochemical changes effected as a result of mushroom growth in terms of utilization of cellulose, hemicellulose, and lignin were presented.