## SUPPLEMENTATION OF SAWDUST FOR PRODUCTION OF LENTINULA EDODES

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## Abstract

The edible fungus Lentinula edodes, also known as shiitake, is mainly cultivated in Asia and widely consumed in local dishes. In addition to its taste and flavor, various medicinal properties have been attributed to this fungus. L. edodes degrades cellulose and lignin and, in nature, it is grows mainly on hard woods. Recent developments have allowed indoor cultivation of this fungus by sterilizing sawdust substrates in heat resistant plastic bags. Higher and consistent yields have been reported and cultivation has become more efficient and therefore extended to new latitudes. Diverse formulations for preparation of substrates have been reported in the last 10 years. Though sawdust has remained the main component, its proportion has been reduced and various supplements have been increasingly used. Therefore, in this study, hard wood sawdust from a large local mill was used in combination with local agro industrial by products following the trend observed in the literature, i.e. decreasing proportion of sawdust, use of cereal based supplements like wheat, millet, sorghum, either whole or milled. Two commercial L. edodes strains were used (L5 y L9) and 6 replicas were prepared for each substrate and strain. Substrates were prepared by wetting sawdust and supplements in separate containers overnight. Thereafter, ingredients were weighted and thoroughly mixed. To prepare each replica, 3000 g substrate were packed in polypropylene-ethylene heat resistant bags with a micropore filter. Bags were sterilized for 2 h at 121°C and then allowed to cool overnight. Bags were inoculated with 5% grain spawn and then incubated at 24°C for 10 weeks in darkness. Fruiting was induced by transferring full grown bags to the production room with a high humidity (85-90%), continuous ventilation with fresh air supply and 12 h light per day. Mushrooms were copped at maturity and weight, size and number were registered. Statistical analysis of yields obtained for each substrate and strain at each cropping week allowed to identify optimum cropping time for each condition. With these values, a second statistical analysis was performed to identify optimum substrate formulation for each strain. Similarly, the effect of substrate formulation and strains on average weight of mushrooms was determined