

TITLE: CULTIVATION OF BLACK OYSTER MUSHROOM IN DIFFERENT PROPORTIONS OF COFFEE GROUNDS

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ABSTRACT:

The cultivation of the edible mushroom *Pleurotus ostreatus* (black oyster mushroom) has gained prominence in recent years, due to its wide adaptation to different substrates such as coffee grounds, an urban solid waste, which, currently, has become a promising substrate for mushroom cultivation, being an alternative in generating employment and income. Thus, we aimed to evaluate the productivity of *P. ostreatus* cultivation using coffee grounds as substrate in different proportions. The experiment was carried out under a completely randomized design consisting of 5 treatments with 5 repetitions each. Coffee grounds (%C = 45.22; %Lignin = 36.42) were used in decreasing proportions (100, 75, 50, 25 and 0%) with sugarcane bagasse (%C = 45.19; %Lignin = 62.36). The substrates were collected in Areia-PB, which were mixed, moistened to 68%, bagged, sterilized and inoculated at a 5% rate of *P. ostreatus* inoculum. The bags were incubated for 3 weeks, then fruiting was induced with 4 cm cuts on the surface of the bags until harvests were obtained. The variables analyzed were: mycelial growth (cm/day), biological efficiency (BE), daily productive capacity and organic matter loss, which were submitted to ANOVA and Tukey test at a 5% level of significance. We observed that with increasing proportions of coffee grounds, mycelial growth is significantly reduced, but with a significant increase in biological efficiency, with emphasis on the treatment with 25% of coffee grounds, which reached a higher value of fresh mushrooms per kilogram of substrate (BE= 44.63%) regarding the control treatment (BE= 28.24%). Likewise, the higher concentrations of coffee grounds reduced the organic matter loss, which may be associated with the chemical composition of the substrate that has phenolic compounds such as caffeine and other substances that can affect the enzymatic action of fungi. On the other hand, regarding the daily productive capacity, although there were no differences among the treatments, we were able to verify that the use of 100% coffee grounds could produce, on average, more than 400 g of fresh mushrooms per day in a productive period of 80 days. We conclude that the use of 25% of coffee grounds favors greater biological efficiency in the production of fresh basidiocarps, as well as greater organic matter loss. Regardless of the proportion of coffee grounds used as substrate in the cultivation of this mushroom, it allows harvesting, but it is suggested that the coffee grounds be mixed with another type of lignocellulosic substrate such as sugarcane bagasse.

Keywords: Edible mushrooms. Bioconversion. *Pleurotus ostreatus*.

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