

TITLE: EFFECT OF DIFFERENT CARBON SOURCES ON THE GROWTH OF BASIDIOMYCETE FUNGUS *Pleurotus ostreatus* IN WOOD AND MALT RESIDUES

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ABSTRACT:

Pleurotus ostreatus represents one of the most economically important edible fungi worldwide because of its high consumption as food, nutritional and therapeutic properties. Due to the ability of this fungus to produce different enzymes capable of degrading long carbon chains, materials formed by cellulose and lignin can be used for their development and growth. Industries in the timber and agricultural sector generate byproducts and residues rich in carbon that can be used for the growth of this fungus, such as brewery residue and wood shavings, attributing an economic and energy value to these products and ecologically degrading them. In this study, the growth of *P. ostreatus* was analyzed using two distinct sugars (glucose and sucrose) and Vogel's Minimal Medium (VMM) to identify whether the fungus growth can or cannot/can't be optimized with the application of new carbon sources and enzymatic cofactors. The fungus used belongs to the mycotheca of the Mycology Laboratory at the State University of Londrina. *P. ostreatus* was inoculated in a Petri dish containing Saboraud Agar and incubated for seven days in a bacteriological incubator at 28 °C. Subsequently, the microorganism was used in solid-state fermentation, in polypropylene packages, corresponding to six different tests. As substrates, 30g of malt bagasse, 20g of wood shavings, and sterile distilled water were used, individually added with dextrose, sucrose, VMM, dextrose and VMM and, sucrose and VMM, as a control, a test was conducted without any additives. Following the preparation, the culture medium was submitted to sterilization in an autoclave at 121°C, for 15 minutes. After cooling, *P. ostreatus* was inoculated into the lower left end of each package by a 50mm² mycelial disk. The tests were done in quintuplicate; the development of the fungus was monitored daily for 15 days and the growth was measured in millimeters computed at the same time of each day. The fungus growth did not show a considerable difference with the different carbon sources and MMV, not being necessary a carbon supplementation for its development. This happens because the fungus is able to produce hydrolytic and oxidative enzymes capable of degrading the rich in essential nutrients substrate, using it as the main source for its metabolic activities.

Keywords: alternative substrate, mycelial race, edible mushrooms, Biotechnology

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