

TITLE: MYCELIAL GROWTH OF *Pleurotus ostreatus* ON COFFEE GROUNDS WITH DIFFERENT MOISTURE LEVELS

AUTHORS: ZÁRATE-SALAZAR, J.R.; MONTEIRO, R.E.P.; SOUZA, H.A.N.; SILVA, S.A.; MARTINS, O.G.; FRAGA, V.S.; DIAS, B.O.

INSTITUTION: UNIVERSIDADE FEDERAL DA PARAÍBA (Grupo de Pesquisa & Produção de Cogumelos Comestíveis, Centro de Ciências Agrárias, Campus II, Rodovia PB-079, Areia – PB, 58397-000 AREIA - PB, BRASIL).

ABSTRACT:

The use of coffee grounds for the cultivation of edible mushrooms is a new way to recycle this urban waste from coffee consumption. However, due to its granulometry, it is often difficult to standardize the ideal moisture for the cultivation of *Pleurotus ostreatus*, which can vary between 60 to 80%. In this sense, we aimed to determine the ideal moisture content of coffee grounds for the mycelial growth of *P. ostreatus* in the incubation stage of cultivation. The experiment was conducted under a completely randomized design consisting of 6 treatments, 64, 66, 68, 70, 72 and 74% substrate moisture (% v/v) with 3 replications each. The coffee grounds (%C = 45.96, pH = 4.30; density = 2.93 g cm⁻³), collected from the Campus II - UFPB University's Restaurant, were moistened and then autoclaved for 45 minutes. The inoculated (30 g of inoculum per 1 kg of wet substrate) and bagged substrates were incubated for 20 days in total darkness at 25±1°C. We evaluated the colonization time (days), pH, organic carbon (mg g⁻¹) and density (g cm⁻³), which were submitted to ANOVA and Tukey test at a 5% level of significance. Contamination was qualitatively assessed and analyzed by the Kruskal-Wallis test at a 5% level of significance. We found that the coffee grounds with less than 68% moisture completed colonization in 13±2 days, presenting only moderate contamination as they managed to reach pH values close to 5 (ideal range value), in addition to increasing the density over 3 g cm⁻³ regarding the original density, which is understood as a greater contribution of biomass by mycelial growth in the substrate. Coffee grounds with moisture levels above 70% presented contamination between severe and very severe in less than 10 days, which is explained by the pH values ≤ 4.3, which favor the growth of other antagonistic anaerobic organisms. The absence of significant differences in organic carbon content among treatments may regard both to the effects of contamination and the lack of translocation of the biodegraded carbon from the residue to mushroom (basidiocarp) formation, as the experiment was only evaluated at the incubation stage. We conclude that moisture between 64 and 68% favors mycelial growth, maintains the pH close to the ideal range and prevents severe contamination.

Keywords: Black oyster mushroom. Mushroom cultivation. Alternative substrates.

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