TITLE: *Pleurotus ostreatus* cultivated in agroindustrial residues with addition of selenium: Production, morphological changes and concentration of selenium.

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ABSTRACT:
Selenium (Se) is an essential micronutrient for human, and its deficiency can lead to the incidence of some diseases. Thus, the enrichment of mushrooms with Se has been probes to be a strategy for obtaining healthy food and more accessible Se source. Studies show that the mushroom *Pleurotus ostreatus* is an edible species be able to growth in several residues. The objective of this work was the production of Se-enriched mushrooms in different agroindustrial residues (of coffee husk-CH, banana leaf-BL, sugarcane bagasse-SB and sisal residue-SR), as well as to analyze the morphological changes and the concentration of Se in its composition. Each residues was treated by lime immersion and 300 g of each residue were packed. To this substrate 5 mL of sodium selenite solution (25 mg of Se kg^{-1}) was added, and as control, 5 mL of autoclaved distilled water was used. Each pack was inoculated with 100 g inoculum of *P. ostreatus* spawn and incubated at room temperature. After the first primordia have appeared, the packages were transferred to fruiting room, with average temperature of 20 °C and air humidity of 90%, performing the harvest when the mushrooms had the maximum development. The analysis of the morphological alterations was performed comparing the mushrooms produced in the substrates enriched or not with Se. The biological efficiency {E.B (%) = 100x (fresh mushroom mass / dry substrate mass)} and Se content (inductively coupled plasma spectrophotometry) were determined. The experiment was carried out in a completely randomized design in factorial 4x2 with five repetitions. The data were submitted to ANOVA and the average compared by Tukey test ($p < 0.05$). Sodium selenite did not cause any morphological change in the mushrooms. Se-enriched BL substrate resulted in the highest E.B (80.87%), and those produced in the SR presented higher concentration of Se (1836 µg g^{-1}). When the final production was analyzed, the mushrooms grown on the CH substrates were that absorb the highest amount of Se (7265 µg) of the substrate, corresponding to 96,87% of added Se while when in others substrates the absorption were 84.61%, 57.78% and 55.16%, respectively for BL, SR and SB. We can conclude that solution of 25 mg kg^{-1} of Se (sodium selenite) can be recommended for the production of Se-enriched mushrooms, without any morphological change in the mushroom morphology, and each substrate results in different EB and Se concentration and efficiency absorption.

Keywords: sodium selenite, biological efficiency, agroindustrial residues.

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