

## SUMMARY

### **Effect of supplements on the enzymatic activity and yield of the wild fungus *Pleurotus albidus***

*Pleurotus albidus* is a functional food that has great potential to produce enzymes for wide application in the pharmaceutical, food and bioremediation industries. It is known that the production of extracellular enzymes can be improved by adding supplements, that induce an effect on the production of enzymes, which would be reflected in a higher yield. In this work, the effect of oat straw supplemented with sawdust (10 and 30%), wheat bran (10 and 20%) and rice flour (2 and 5%) on the enzymatic activity and yield of the wild strain *P. albidus* were evaluated. The straw was pasteurized by the hot water immersion method and the enzymatic activities and proteomic analyzes were quantified from the spent substrate. The performance and biological efficiency did not presented statistically significant differences between the treatments. In the production cycle (CP) and production rate (TP), the control and the 2 and 5% rice flour presented statistically similar CP and TP, while the sawdust treatment (30%) required more CP, which was reflected in a lower TP. All treatments presented a higher percentage of basidiomas between 0 to 4.9 cm, while the sawdust treatment (30%) presented a higher percentage of basidiomas size from 5 to 9.9 cm. The wheat bran presented a high percentage of contamination. Regarding the enzymatic activities, endoglucanase, cellulase and laccase activities were detected for all the treatments evaluated, while the  $\beta$ -glucosidase activity was only detected in the control and in the sawdust treatments (10%) and in rice flour (2 and 5%). In the proteomic profiles of laccase enzyme activity, two bands with different molecular weights were detected at 62 and 18 KDa for all treatments, while bands 30, 23, 21, 18, 15, 14 and 10 KDa differed in intensity and treatments. Finally, it was concluded that the supplements rice flour and sawdust in a treatment method by immersion in hot water, did not presented important effects for the yield of *P. albidus*, but they did influence the size of basidiomas and the production of endoglucanase enzymes, cellulase,  $\beta$ -glucosidase, laccase and the proteomic profiles by SDS-PAGE.

**Key words:** Cultivation, substrates, supplementation, production.