

Partial Purification and Characterization of Laccases from *Psilocybe castanella*

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Laccases belong to the multi-cooper oxidases group and they are synthesized by several different organisms like plants, insects, bacteria and filamentous fungi. These enzymes have been studied for many applications such as in textile, food and cosmetics industries and also in bioremediation. Their commercial importance justifies the need to know such enzymes. This work presents the partial purification and the characterization of laccases from *Psilocybe castanella* CCB444, saprophytic fungus isolated from basidioma obtained in São Vicente, Baixada Santista. This fungus degrades recalcitrant xenobiotics. The microorganism was inoculated in a synthetic liquid medium and, after 5 days, the culture medium was isolated by filtration and 90% saturated with ammonium sulphate; the precipitate was isolated, resuspended and dialysed. Laccase activity was determined by oxidation of ABTS (420nm). The enzymatic preparation was used in the artificial effluent decolorization assays, which was composed by NaCl, commercial moister and two reactive dyes. Additions of Tween 80 and sodium chloride increased the decolorization activity; cooper sulphate and hydrogen peroxide caused inhibition, meanwhile Tween 20, calcium chloride and vegetable oil did not cause any changes in the decolorization activity. The enzymatic preparation was submitted to a native electrophoresis (native PAGE) and revealed by ABTS solution. It was observed the appearance of a majority band and at least two minorities bands, which suggests the presence of isoenzymes.

Key words: basidiomycetes fungi, laccase, *Psilocybe castanella*, textile effluent.

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