Decolorization of synthetic textile effluent by laccase produced by Trametes villosa CCB176

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There is great commercial interest in the laccases because these enzymes are used in various industrial processes. Laccases produced by the fungus *T. villosa* degrade the class of reactive textile dyes and, so it becomes interesting in obtaining their commercial form. This study aimed to obtain enzyme preparation containing laccase and characterize it. The enzyme preparation was obtained by the growth of fungi in synthetic liquid medium for 15 days, the medium was isolated by filtration and 90% saturated with ammonium sulfate, the precipitate was isolated, ressuspended and dialysed. Laccases activity was determined using ABTS (420nm). Decolorization assays used synthetic textile effluent, which was composed by NaCl, commercial moister and two reactive dyes. Preparations were obtained with 3.5 U/mg (± 1.71) of specific activity of laccase and 2.3 (± 0.27) of factor of purification. There was stimulation of the activity of decolorization with addition of hydrogen peroxide, sodium chloride, calcium chloride, Tween 20 and 80, meanwhile copper sulfate and vegetable oil did not cause any changes in the decolorization activity. The enzyme preparation was submitted to a native electrophoresis (native PAGE) that was revealed with a solution of the substrate ABTS. This procedure showed a single band, demonstrating the obtaining of only one laccase from *T. villosa*. The results confirm the biotechnological potential of laccase produced by *T. villosa,* capable of degrading synthetic textile effluent formed by different dyes.

Key words: laccase, textile effluent, *Trametes villosa.*

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