

Enzymatic activity of extra- and intracellular extract from yeast isolated from textile wastewater

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Textile industry generates a large amount of effluents, mostly composed by synthetic dyes, that are discharged in the environment [1]. Although wastewaters are usually treated before discharge some dyes are not properly degraded and can cause serious problems in aquatic ecosystems [2]. The existent chemical treatments are very costly and generate large quantities of sludge [3]. Thus it is important to find alternatives such as biological treatments to aid the decolorization of dyes in textile wastewaters.

This work aims to detect the activity of specific enzymes from a yeast previously isolated from a textile wastewater that is capable of decolorization of dyes. The enzyme activity assays were chosen regarding the enzymes described as capable of dye decolorization such as laccase, tyrosinase and oxidoreductase [4]. The intracellular extraction was achieved by cellular disruption of the pellet using glass beads, whereas the extracellular extract was the supernatant resulting from 1 day of growth in liquid media. The enzymatic activities were determined spectrophotometrically and protein and molecular weights were also evaluated by Bradford and FPLC respectively.

The results show that the intracellular extract presented activity for oxidoreductase and tyrosinase. Extracellular enzyme activities were not detected. This work might suggest the involvement of these enzymes in the decolorization capacity of the yeast. The application of this yeast in the bioremediation of textile wastewaters is promising when used along with established methods, being environmentally friendly and cost-effective.

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