

Role of Manganese Peroxidases and Lignin Peroxidases of *Phanerochaete chrysosporium* in the degradation of the colourants present in a sugar refinery effluent

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Anion-exchange resins are used in sugar refinery to decolourise sugar liquor. The pre-regeneration of these resins is made with 50 g/l NaCl, giving rise to an effluent containing different types of colourants, the most important being: (1) phenolic compounds, coming from the cane plant, (2) caramels, which are produced by thermal degradation and condensation reactions of sugars, (3) melanoidins, formed from sugar-amino acid reactions via the Maillard reaction and (4) hexoses's alkaline degradation products (HADPs).

Previous studies made in our laboratory demonstrated that *Phanerochaete chrysosporium* was able to degrade all these colourants.

Phanerochaete chrysosporium, when cultured under nitrogen-limited conditions, is known to produce two families of extracellular glycosylated heme proteins, designated lignin peroxidases (LIPs) and manganese peroxidases (MNPs), along with an H₂O₂-generating system as the major components of its lignin-degrading system.

In this paper, the involvement of these peroxidases in the degradation of the four types of colourants, present in the sugar refinery effluent, is discussed.