عنوان مقاله:

Optimization of physico-chemical conditions for Mycodecolorization of Widely Used Textile Industry Azo Dyes

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

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خلاصه مقاله:

In recent years the mycodecolorization of textile wastewater has received much attention due to the environmental persistence and toxicity of these pollutants. White-rot fungi are able to degrade a wide range of pollutants because of their non-specific ligninolytic enzymes. In this paper, the effect of culture conditions on the production of ligninolytic enzymes of Phanerocheate chrysosporium RP78 was investigated using Taguchi design of experiments. Two factors viz., type of buffer and temperature each at two levels and one factor i.e. nitrogen source at four levels were considered and an orthogonal array layout of L8 performed. The proposed condition for lignin peroxidase production was succinate buffer 20 mM, ammonium tartrate 1.2 mM as nitrogen source and culture temperature of 37°C. Under these conditions, lignin peroxidase and manganese peroxidase activities of 182±2.5 U/l and 850±41 U/l were obtained, respectively. The results showed that the type of buffer was prominent factor and had interaction with the others. The mycodecolorization of about 100% after 24 h were obtained for two most widely used groups of azo dyes in textile industry consisting reactive and acidic ones under the optimal conditions.

کلمات کلیدی:

Azo, Lignin peroxidase, Manganese peroxidase, Mycodecolorization, Phanerochaete chrysosporium RP78