2nd INTERNATIONAL CONFERENCE ON

ENVIRONMENTAL SCIENCE AND TECHNOLOGY

ABSTRACT BOOK

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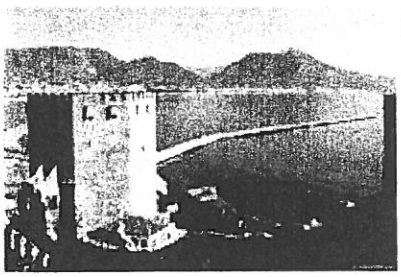

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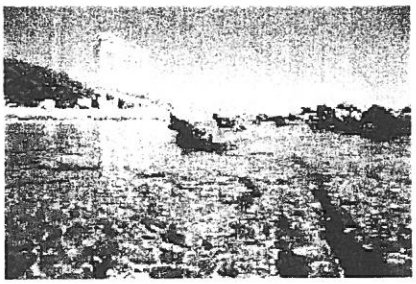

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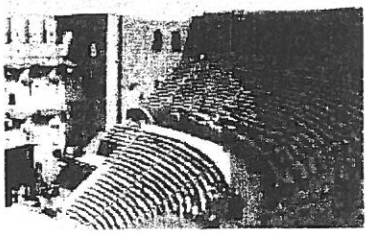

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Decolorization of Reactive Blue and Ostazin Yellow by Mixed Filamentous Fungal Cultures in Membrane Bioreactor Unit

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ABSTRACT

The aim of this study was to examine the decolorization capability of mixed fungal biomasses of *R. arrhizus* and *A. versicolor* under non-sterile conditions with the inherent advantages of Membrane Bioreactor Unit (MBR).

The Lab/Pilot Scale MBR had a working volume of 170 L and was equipped with a coarse and fine air bubble creation mechanism for membrane and biological aeration, respectively. The mixture of filamentous fungal strains (*Aspergillus versicolor* and *Rhizopus arrhizus*) were used to decolorize reactive dyes (Reactive Blue and Ostazin Yellow) in MBR unit. The fungal strains were incubated in yeast-peptone-dextrose (YPD) medium and inoculated into MBR unit. The MBR system worked with synthetic textile wastewater. In order to determine decolorization rate, the initial and final concentrations of Reactive Blue and Ostazin Yellow were measured spectrophotometrically.

Organic removal efficiency was defined as the difference between influent COD and effluent COD. The influent and effluent COD were 1500 and 236 mg/L during experimental studies in the presence of Reactive Blue and the COD removal efficiency was 84.26%. The amount of COD was reduced from 1303 to 381 mg/L in the presence of Ostazin Yellow with an efficiency of 70%. The MBR system decolorized 90.71% of Reactive Blue (Co: 103.7 mg/L)at an HRT of 2d. The maximum removal rate of Ostazin Yellow (Co: 95.49 mg/L) was 51.15% during non-sterile operation at an HRT of 5 d. The results obtained from this study showed that textile dyes can be effectively decolorize by mixed fungal strains in MBR. Decolorization technology by using mixed fungal strains in MBR is a feasible approach to remove textile dyes from textile dye containing wastewaters.

Keywords: Decolorization, Fungi, Membrane Bioreactor (MBR), Textile dye

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