

Studies on Dye Removal by *Aspergillus niger* Strain

Authors : M. S. Mahmoud, Samah A. Mohamed, Neama A. Sobhy

Abstract : For color removal from wastewater containing organic contaminants, biological treatment systems have been widely used such as physical and chemical methods of flocculation, coagulation. Fungal decolorization of dye containing wastewater is one of important goal in industrial wastewater treatment. This work was aimed to characterize *Aspergillus niger* strain for dye removal from aqueous solution and from raw textile wastewater. Batch experiments were studied for removal of color using fungal isolate biomass under different conditions. Environmental conditions like pH, contact time, adsorbent dose and initial dye concentration were studied. Influence of the pH on the removal of azo dye by *Aspergillus niger* was carried out between pH 1.0 and pH 11.0. The optimum pH for red dye decolonization was 9.0. Results showed the decolorization of dye was decreased with the increase of its initial dye concentration. The adsorption data was analyzed based on the models of equilibrium isotherm (Freundlich model and Langmuir model). During the adsorption isotherm studies; dye removal was better fitted to Freundlich model. The isolated fungal biomass was characterized according to its surface area both pre and post the decolorization process by Scanning Electron Microscope (SEM) analysis. Results indicate that the isolated fungal biomass showed higher affinity for dye in decolorization process.

Keywords : biomass, biosorption, dye, isotherms

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