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BIOSORPTION OF MALACHITE GREEN FROM AQUEOUS SOLUTIONS ONTO BIOMATERIALS

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Abstract

The use of biomaterials as biosorbents for treatment of wastewaters will provide as a potential alternate to the conventional treatment methods. The main advantages of biosorption are high selectivity , cost effectiveness and good removal performance. World wide numerous low cost bio materials have tried for biosorption of dyes. In this present investigation, the dead biomass of *Penicillium* sp. fungus and wood sawdust was used as biosorbents and their capacity to removed malachite green was evaluated. Batch experiments were conducted to study the biosorption characteristics. A series of assays were undertaken to assess the effect of system variables, i.e., initial dye concentration, solution pH and temperature. The optimum initial pH and temperature value for both biosorbents used were found to be pH = 6.0 and 20^0C, respectively. Maximum removal efficiency of 81.9% was reached for wood sawdust, while for *Penicillium* dead biomass a maximum removal efficiency of 61.8% was obtained. The equilibrium data were analyzed using the Langmuir and the Freundlich isotherms. The results of non-linear regressive analysis are that the Langmuir isotherm is better fit than the Freundlich isotherm at different temperature according to the values of determined coefficients.

Key words: biosorption, dead biomass of fungus, equilibrium isotherm, malachite green, wood sawdust

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