

BIOSORPTION OF A TEXTILE DYE BY BIOMASS OF FUNGUS ISOLATED FROM TEXTILE INDUSTRY EFFLUENT

Authors: Diniz, G.F.D.¹, Cury, J.C.¹

Institution: ¹Laboratório de Microbiologia Molecular - Departamento de Ciências Exatas e Biológicas (DECEB) - Universidade Federal de São João del-Rei (UFSJ), *Campus* de Sete Lagoas, Rua Sétimo Moreira Martins, 188, Itapoã II, CEP:35702031, Sete Lagoas, Minas Gerais - Brazil

The textile effluent is one of the most harmful pollutant of water. Several authors have shown that microbes can discolor different textile dyes. The aim of this study was to evaluate the ability of fungal biomass to adsorb the reactive dye Yellow Novacron. The fungus utilized was selected in a previous study where a fungus called FG1, isolated from the effluent of an textile industry, showed fast growing and the capacity of discolor the culture medium containing the textile dye Yellow Novacron. To obtain the FG1 biomass it was grown in SDB medium, dried and macerated. There were performed three assays with the objective to test the capacity of the biomass to adsorb the dye Yellow Novacron. In the first assay we tested the minimum contact time between biomass at concentration of 0.01% (w:v) and dye solution at concentration of 0.002% (w:v). The solution containing macerated biomass was incubated for 2, 4, 6 and 8 hours. In the second assay we tested the minimum amount of biomass to be added. Dye solutions at concentration of 0.002% (w:v) were incubated during two hours with macerated biomass in three concentrations: 0.02%, 0.04% and 0.06% (w:v). In the third assay we tested the maximum concentration of dye that can be adsorbed by biomass. Dye solutions at concentrations of 0.002%, 0.004%, 0.006% and 0.008% (w:v) were incubated during two hours with biomass at concentration of 0.01% (w:v). All assays were performed in triplicate at 28°C under agitation of 120rpm and contained a negative control represented by the dye solution without the addition of biomass. At the end of each assay the solutions were centrifuged for 30min at 4000rpm and the supernatant was used for determination of absorbance at 410nm. The results showed that the maximum removal of the dye occurred between 4 and 6 hours of contact, promoting a mean reduction of 76% of absorbance. The maximum removal was observed using a smaller dose of biomass (0.02%, w:v), promoting a mean reduction of 89% of absorbance. The biomass at the concentration of 0.01% (w:v) promoting mean absorbance reduction of 81.29% at dye concentration of 0.002% (w:v), 60.73% at dye concentration of 0.004% (w:v), 54.17% at dye concentration of 0.006% and 46.68 % at dye concentration of 0.008%. We conclude that the isolated fungus called for now as FG1 is promising in the development of textile wastewater treatment processes containing Yellow Novacron dye.

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