

## DISCOLORATION AND DETOXIFICATION POTENTIALS OF FUNGI ISOLATED FROM SEWAGE TREATMENT PLANT OF A TEXTILE INDUSTRY

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The textile effluent is one of the most harmful pollutant of water. Current treatment methods are inefficient to removing some types of dyes. Thus, new techniques have been developed for treatment. Several authors have shown that microbes can discolor different textile dyes. The aim of this study was to select fungi that possess the ability to decolorize and reduce the toxicity of textile dyes. The fungi were isolated from a textile industry effluent by serial dilution technique. Dilutions of  $10^{-2}$  to  $10^{-4}$  were added to culture medium in triplicate and incubated at 28°C during 7 days. The media used were: Sabouraud Dextrose Agar (SDA), Potato Dextrose Agar (PDA) and Malt Extract Broth (MEB). After the incubation, three fungi (called FG1, FD4 and DF19) which showed the highest growth rates were isolated and screened for discoloration and detoxification potentials. A disc of 0.5mm of the border of the fungi culture was added to Erlenmeyer flasks containing 50µml of SDB medium and 200µL of yellow reactive dye Novacrom at concentration of 1% and previously filtered through a membrane with 0.22µm pore. The experiment was performed in triplicate with an abiotic control (medium + dye, without fungus) and a biotic control (fungus + medium, without dye). After 7 days of incubation at 28°C the culture was centrifuged at 3000rpm during 30 minutes and the supernatant was removed for reading spectrophotometer at 410nm. To test the detoxification, an aliquot of 2ml of the supernatant was added to filter papers containing 20 lettuce (*Lactuca sativa*) seeds. Plates containing only filters soaked in distilled water were regarded as negative control. After 96 hours at 22°C, the number of germinated seeds was determined. The results showed that the three tested fungi reduced staining of the medium containing the Yellow Novacrom dye at rates of 82.6%, 28.5% and 15% for the FG1, FD4 and FD19 fungi, respectively. The fungus FD4 was more effective in reducing the toxicity of the dye, while the fungus FD19 promoted the increase of the toxicity after the incubation time. We concluded that the FG1 and FD4 fungi have potential for use in wastewater treatment process containing this dye.

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