

**TITLE:** TEXTILE EFFLUENT DISCOLORATION BY AGARICOMYCETES FUNGUS SPECIES ISOLATED FROM THE CAATINGA, PERNAMBUCO-BRAZIL.

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#### **ABSTRACT**

Currently, fungal bioremediation of waste waters coming from industrial washing procedures to customize jean is an advance-guard biotechnological treatment. This technology provides promising and more efficient outcomes in the discoloring and remediating of xenobiotic containing effluents. This is possible due to the activity of ligninolytic enzymes, which degrade this kind of compounds until they are no more harmful for living organisms. The aim of this study is to evaluate the discoloring efficiency of 7 Agaricomycetes species from the Pernambucan Caatinga in a textile effluent, and maintaining non sterilization conditions. The fungus species *Hjortstamia crassa* (2221), *Loweporus tephroporus* (2923), *Lentinus* sp.(2925), *Poroide ressupinado* (2926), *Schizophyllum commune* (3213), *Lentinus besteroi* (3217) and *Polyporus phylipinensis* (3236) were allowed to grow in Sabouraud agar medium throughout 20 days. After that time frame, they were also subjected to nutritional stress in Kirk medium in order to limit the nitrogen source and stimulating ligninolytic enzymatic production. Three reaction time experiments were conducted, named T1, T2 and T3, corresponding to 1, 4 and 7 days, respectively, at 30°C in light absence and agitation of 150 rpm. During that time, spectrophotometric measurements (665nm) were made periodically, every 3 days. The fungus species that caused more than 55% of effluent discoloration were selected, in at least one of the three time experiments. T1 displayed effluent discoloration percentages of 68.07% for 3213, 64.92% for 2923, 58.25% for 2221 and 47.02% for 3217. The percentual values with carmine indigo for the four fungus species were 44.33%, 51.93%, 63.58% and 45.16%, respectively. The nitrogen restriction brought on the fungus species which was expected to rise the ligninolytic enzymatic production, and the presence of other microorganisms in the non-sterile medium, caused the decrease of enzyme synthesis in the experiments where the stress was induced during longer periods (T2 and T3). The fungus 3217 was an exception, accomplishing 60.35% in T3. Finally, it was possible to conclude that under these conditions, the experimentation time T1 was the most efficient when it came to the effluent discoloring.

**Acknowledgements:** CNPq, CAPES, FACEPE, LAMAI and LABB.

**Keywords:** water, non sterile treatment, ligninolytic enzymes, efficiency.

**Development Agency:** Laboratório de Microbiologia Ambiental e Industrial (LAMAI) del Departamento de Antibióticos de la UFPE.