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Influential of the fungal inoculum in the degradation of an azo dye under solid-state fermentation conditions

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Azo dyes are widely used in textile and food industries. Their presence, even at low concentrations generates a high environmental impact for both, the visual pollution and their toxicity. Solid-State Fermentation SSF, using white-rot fungi has demonstrated to be an efficient methodology for the degradation of these compounds. In this work, the influence of two carbon sources present in the fungal inoculum obtained from *Trametes versicolor* culture, used for the Red 40 dye, R40, degradation adsorbed onto corncob, were evaluated. Two solid media were prepared; the main composition of the first was malt extract 20 $g.L^{-1}$, and the second was wheat bran extract supplemented with nutrients. Both media were inoculated with a circle of fresh mycelia (d=1 cm), obtained from the exponential growth area of the fungus on PDA agar, and incubated at 28°C for at least 15 days. After 20 days, the degradation of R40 was quantified. Such SSF process was carried out in Erlenmeyer flasks of 50 mL, with 500 mg of corncorb-R40; carbon: nitrogen ratio of 40:1; moisture content of 80%; temperature of 25°C and 0.2 mL of malt extract 10 $g.L^{-1}$ as available carbon source was added. The degradation percentages obtained were 31.36% for the fungal inoculum supplemented with malt extract, and 93.19% for the inoculum with wheat bran extract. These results indicate that the media composition in which the inoculum grows is highly influential on the R40 dye degradation by SSF.

Biography

Sara Jiménez is pursuing Biological Engineering at the Universidad Nacional de Colombia - Medellín. She is a Member of the "Synthesis, Reactivity and Transformation of Organic Compounds" research group. Her researching experience in the environmental field, specifically in biological degradation processes by solid state fermentation, has improved her to participate in Master projects and her expertise in high-tech equipment. She has published papers in an indexed national review and participated in international congresses.

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