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Utilization of white-rot fungi to degrade an azo dye of high industrial use

Sara Jiménez Correa, Ana Jaramillo, Andrés Merino and Angelina Hormaza
Universidad Nacional de Colombia, Colombia

The release of dyes into aquatic ecosystems represents a serious environmental problem, since even at low concentrations affects negatively both, its aesthetic and functionality. White-Rot Fungi (WRF) have been widely studied because of their ability to produce extracellular enzymes, which are involved in the dyes degradation. As fungal species represent a fundamental parameter in the bioremediation processes, in this work the degradation percentages achieved by three species of WRF: *Trametes versicolor*, *Pleurotus ostreatus* and *Pleurotus pulmonarius*, were evaluated. First of all, a qualitative analysis to compare the Red 40 dye (100 mgL⁻¹) degradation in two mediums with different carbon source, PDA and Malt Extract-Agar, was carried out by monitoring each day the degradation halo. The observations made during the incubation time (12 days), allowed to establish that the Malt Extract was the most suitable medium because it contributed to the apparently complete degradation of the dye. Afterwards, a quantitative analysis to compare the degradation percentages of Red 40 generated by the three species of WRF was performed. This was made after 15 days of growing under agitation (120 rpm) at 28°C, in the medium previously selected in liquid state and supplemented with nutrients. The degradation percentages found for *T. versicolor*, *P. ostreatus* and *P. pulmonarius* were in the order of 97.85%, 97.51% and 69.53% respectively. The results indicate that *T. versicolor* and *P. ostreatus* are promising microorganisms in processes oriented to degrade synthetic azo dyes such as Red 40.

Biography

Sara Jiménez Correa is in her fourth year of Biological Engineering at National University of Colombia. 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 thanks to her participation in Master Projects and her expertise in high-tech equipment. She has attended several worldwide congresses.

sjimenezc@unal.edu.co