

Biodegradation on the Removal of Dyes from Textile Effluent

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Abstract: Due to the emission of coloured and toxic effluents into water bodies, the textile industry is one of the most polluting sectors. One of the primary contaminants in textile effluent is dye. Alternative approaches, like biodegradation, are being investigated since standard treatment procedures fall short of totally removing colours from textile wastewater. An approach that has shown promise for dye removal is biodegradation. Biodegradation is an economical, environmentally responsible, and long-lasting technique for dye removal from textile effluent. The scope of the study is to remove the dye from textile effluent. The review focuses mostly on bacteria (*Pseudomonas aeruginosa*, a common bacterium found in soil and water) to eliminate two synthetic commercial colours. According to the findings, *P. aeruginosa* could effectively remove the maximum number of colours from wastewater after five days of aerobic growth. The presence of carbon and nitrogen sources significantly improved the degradation efficiency. According to the study, *P. aeruginosa* may be employed in the bioremediation of textile wastewater contaminated with synthetic colours. To optimize the procedure for use in large-scale applications, more research is required. Textile wastewater should be carefully treated before being discharged into water bodies or the environment on land since colours are the most noticeable pollutant and are immediately recognisable in textile wastewater. Numerous microorganisms, including bacteria, fungi, yeast, and algae, are employed to remove dyes. In this review, the primary focus is on bacteria that remove colour from textile effluent. The review focuses on the removal of two synthetic dyes, RO16 and RB5. Because of the enormous water pollution caused by textile effluent, human health is at risk and the environment is harmed.

Keywords: Biodegradation, Decolourization, Textile dyes, *Pseudomonas aeruginosa*

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