

MICROBIAL DEGRADATION OF TEXTILE DYE BY BACILLUS

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ABSTRACT

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Dyes are discharged as colored effluent to the environment from dyeing process and finishing treatment and they are regarded as a pollutant. They may be can give negative impact to human health and a toxic to aquatic life. The physic and chemical method of industrial effluent treatment are have many drawbacks which will lead to secondary pollution. Hence, the ability of microorganisms to degrade the dye has been identified as an alternative method because of eco-friendly and inexpensive nature under certain conditions. Furthermore, bacteria capable growth and degrade the dye by both aerobic and anaerobic metabolism. In current research work, an azo dye, Congo red, was used as a model textile effluent for treatment by the bacteria, *Bacillus* under aerobic conditions. *Bacillus* was able to degrade Congo red dye with the efficiency of 83.12% at a concentration of 25 ppm within 5 days. The temperature and pH were reported as pH 7.55 and temperature 30°C considered to be the optimum degradation conditions because in these conditions only the maximum degraded was found. The metabolic product of Congo red degradation by this bacteria was identified by UV-Vis Spectrophotometer. The percentage of degradation was measured using Spectrophotometer at 497 nm. The above results show the degradation potential suggests the applicability of this bacteria, *Bacillus* to be used as the biological treatment in the effluent from textile industries.

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