S.D.M. COLLEGE OF ENGG. AND TECH.

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A PROJECT REPORT ON

Kinetic Studies for Biodegradation of Lignin and Chlorophenols by using *Rhizopus aarhizus*

-Sponsored by KSCST Bangalore

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Abstract

Pulp and paper industry is considered as one of the 17 most polluting sectors as per Central Pollution Control Board. The waste water generated from production processes of this industry contains high organic content, dark brown coloration, lignin, Absorbable Organic Halide (AOX), toxic pollutants, etc. Lignin is the component responsible for the color of wastewater whereas chlorophenol compounds pose a potential concern as they resist breaking down in the environment. Upon discharge, these effluents are very harmful to agricultural crops, aquatic life and human beings.

To remove lignin and reduce chlorophenol content, we have implemented mycotic system (biological method) of single fungus. The fungus which feeds on lignin and chlorophenols was isolated from effluent of pulp and paper industry and it was cultured. The fungus was identified to be *Rhizopus arrhizus*. The effluent was treated with the isolated *Rhizopus arrhizus.* It delignified and reduced chlorophenols from the effluent to the percentage up to 70% and up to 30% respectively.