

## Aerobic Pollution Abatement of Pulp mill Effluent with the White Rot fungus *Phanerochaete chrysosporium* in Three-phase Fluidized Bed Bioreactor

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### Abstract

The ligninolytic fungus *Phanerochaete chrysosporium* was used to treat the pulp and paper-mill effluent. It was pelletized and used for batch and continuous experiments in a two-litre fluidized bed bioreactor. The continuous experiment was initiated with concentrated effluent without any extra carbon source and the average removal of color was 3.8%. Then, it was fed with 50% diluted effluent which was enriched with glucose. At first, the glucose was consumed by the fungus, which is indicated by a COD removal of 38.5% and a 26.5% removal of color. This indicates the need for an extra carbon source for the fungal treatment. Using the mycelial mass in suspension, two experiments were carried out. The best results were obtained with 20% fungus and shaking of the effluent. During the last three days of the experiment using the mycelium mass the average removal of color, COD and BOD was 86.4%, 78.8% and 70.5%, respectively. The result indicates the potential of *Phanerochaete chrysosporium* for use in the treatment of pulp and paper-mill effluent.

Keywords: Pulp and paper-mill effluent, fungal treatment, *Phanerochaete chrysosporium*.

DOI = 10.3329/cerb.v13i1.2613

*Chemical Engineering Research Bulletin* 13 (2009) 13-16

### References

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*Chemical Engineering Research Bulletin* ISSN Print: 0379-7678 Online: 2072-9510

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