



Isolation and Characterization of phenol degrading bacteria and fungi used for bioremediation

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Abstract : Phenol is a major pollutant of environment, especially waste water discarded from many industries. The present study was carried out to isolate phenol degrading bacterial and fungal strains from various sources. Samples used for the isolation of bacterial strains were cow dung and cow dung polluted soil while oil polluted soil was used for fungal strains. The isolated bacterial strains were screened for its phenol degradation ability in phenol broth. Total of six different bacterial strains were isolated out of which two most potential phenol degrading bacterial strains (SIV, SV) were

selected. A comparative study was performed between bacterial and fungal strain on the basis of their ability to tolerate phenol and it was concluded that bacterial strains have more phenol tolerance than fungal strains. The isolated organisms were then subjected to biochemical tests for further identification and results showed that bacterial strains may be *Staphylococcus intermedius* and *Bacillus carboniphilus* whereas fungal strains may be *Aspergillus flavus* and *Aspergillus niger*. *Staphylococcus intermedius* and *Bacillus carboniphilus* showed 76.70% and 76.60% of phenol degradation at pH 7.5 and 6.5 respectively, within one week. The maximum degradation of phenol was observed in optimized condition. With the increase in NaCl concentration, rate of phenol degradation decreases.

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