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## Isolation and Characterization of Bacteria Able to Grow with Phenol at High Concentrations for Bioremediation

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Phenols are pollutants found in wastewater from oil refineries, chemical plants, explosives, resin and coke manufacture, coal conversion, pesticide and textile industries. Wastewater containing phenol in the range of 5-500 ppm are considered suitable for treatment by biological process. However, Wastewater from above industries naturally contain high levels of phenols. Therefore, the treatment of wastewater containing high concentration of phenol is important. For the biological treatment of industrial wastewater containing high concentration of phenol, isolation and characterization of phenol-degrading bacterium were carried out. A bacterial strain P2 capable of degrading phenol was isolated from contaminated soils by enrichment culture technique. The optimal medium composition and cultural conditions for the growth and degradation of phenol by the strain P2 were 0.1% of  $(\text{NH}_4)_2\text{SO}_4$ , 0.2% of  $\text{KH}_2\text{PO}_4$ , 0.25% of  $\text{Na}_2\text{HPO}_4 \cdot 12\text{H}_2\text{O}$ , 0.2% of  $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ , and 0.008% of  $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$  along with initial pH 8.5 at 30°C. The strain P2 could grow with phenol as the sole carbon source up to 1800 ppm in batch cultures, but did not grow in medium containing above 2000 ppm of phenol. When 800 ppm phenol was given in the optimal media, the strain P2 completely degraded it within 24 h, although 1800 ppm degraded within 9 days.