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Microbial Degradation of Phenols by "Bacillus Brevis"

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Abstract: *Industrial wastewater containing phenols causes significant environmental and ecological problems. Various methods such as chlorination, flocculation, adsorption etc. have been used for the degradation of phenol. But microbial degradation methods have proved to be the most effective and economical approach for the mineralization of toxic chemicals. A soil microbial strain* ***Bacillus brevis****, capable of utilizing phenol as a sole carbon source was isolated from the phenol bearing soil suspension of Briquetting and Carbonization Plant of NeyveliLignite Corporation Limited, (Tamil Nadu) and tested for its capacity to grow and degrade phenol. Based on it's morphological, physiological and biochemical characteristics, the organism was found to be a Gram-positive, motile, mesophilic and rod-shaped endospore bacterium. The results indicate that the growth of the organism decreases at very high concentration of phenol. The efficiency of the organism in the degradation of substituted phenols such as o & p chlorophenols and o & p nitrophenols were compared and discussed. The degradation was highly efficient in the pH range 8 – 10. The biocatalyst obtained by immobilizing the* ***Bacillus brevis*** *cells on alginate beads and lignite carbon are more effective in degrading phenols.*

Keywords: Bacillus Brevis, Immobilization, Phenol Degradation, Bacterial Growth and Degradation.

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