

Bacillus licheniformis sp. nov. PS-6, an Arsenic Tolerance Bacterium with Biotransforming Potential Isolated from Sediments of Pichavaram Mangroves of South India

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Abstract : The purpose of the study is to investigate arsenic resistance ability of indigenous microflora and its ability to utilize arsenic species from containing water source. PS-6 potential arsenic tolerance bacterium was screened from thirty isolates from Pichavaram Mangroves of India having tolerance to grow up to 1000 mg/l of As (V) and 800 mg/l of As (III) and arsenic utilization ability of 98 % of As (V) and 97% of As (III) with initial concentration of 3-5 mg/l within 48 hrs. Optimum pH and temperature was found to be ~7-7.4 and 37°C. Active growth of PS-6 in minimal salt media (MSB) helps in cost effective biomass production. Dry weight analysis of PS-6 has shown significant difference in biomass when exposed to As (III) and As (V). Protein level study of PS-6 after exposing to As (V) and As (III) shown modification in total protein concentration and variation in SDS-PAGE pattern. PS-6 was identified as *Bacillus licheniformis* based on partially sequenced of 16S rRNA using NCBI Blast. Further investigation will help in using this potential bacterium as a well-grounded source for urgency.

Keywords : arsenite, arsenate, *Bacillus licheniformis*, utilization

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