

FTIR Characterization of EPS Ligands from Mercury Resistant Bacterial Isolate, *Paenibacillus jamilae* PKR1

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Abstract : Mercury (Hg) is a highly toxic heavy metal released both from naturally occurring volcanoes and anthropogenic activities like alkali and mining industries as well as biomedical wastes. Exposure to mercury is known to affect the nervous, gastrointestinal and renal systems. In the present study, a bacterial isolate identified using 16S rRNA marker as *Paenibacillus jamilae* PKR1 isolated from India's largest sandstone-type uranium deposits, containing an average of 0.1% U₃O₈, was found to be resistance to Hg contamination under culture conditions. It showed strong hydrophobicity as revealed by SAT, MATH, PAT, SAA adherence assays. The Fourier Transform Infrared (FTIR) spectra showed the presence of hydroxyl, amino and carboxylic functional groups on the cell surface EPS which are known to contribute in the binding of metals. It is proposed that the characterized isolate tolerating up to 4.0mM of mercury provides scope for its application in bioremediation of mercury from contaminated sites.

Keywords : mercury, Domiasiat, uranium, *paenibacillus jamilae*, hydrophobicity, FTIR

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