



Research Article

Bacterial Response as Determinant of Oxidative Stress by Heavy Metals and Antibiotic

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Abstract

The present study deals with Bacterial response as determinant of heavy metals stress and antibiotics by isolation, identification and characterization of heavy metal resistant bacteria which was isolated from sewage effluent collected in three different places of Ganga river in Allahabad, The two isolates were selected based on high concentration of heavy metal and antibiotic resistances. Morphological and biochemical analysis revealed that, the isolates were identified as *Escherichia coli* (Isolate-1), *Pseudomonas* (Isolate-2). The identify isolates were resistant to Cadmium (Cd), Tin (Sn), Chromium (Cr), Mercury (Hg), Arsenium (As) and Lead (Pb). The minimum inhibitory Concentration (MIC) of Sewage effluent isolates against Pb, Cd, As, Sn, Cr, and Hg was determined in broth isolates showed high resistance to heavy metals with Minimum Inhibitor Concentration (MIC) for heavy metals ranging at 10ppm to 150ppm. Both resistant isolates showed tolerances to heavy metals. Isolates showed antibiotic resistances of which were 50% resistant to *E. coli* and 10% resistant to *Pseudomonas*. Heavy metal tolerance test showed maximum microbial tolerance to chromium and minimum tolerance to mercury in mixed broth sample. The identified heavy metal resistant bacteria could be useful for the bioremediation of heavy metal contamination.

Key words: Heavy metals, resistant bacteria, Antibiotic resistance.

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