

Isolation and Characterisation of Novel Mercury Resistant Bacteria with scope for Bioremediation and Mercury Sensing Application

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Mercury (Hg²⁺) is a toxic heavy metal with third toxicity rank set by the World Health Organisation (WHO). However the importance of mercury towards industrial and agricultural perspectives makes this metal unavoidable to use. Two mercury resistant facultatively anaerobic novel bacteria were isolated from pond and wastewater and their proliferation in mercury spiked water were monitored. The higher concentration of mercury contaminated water didnot show any effect on their growth and proliferation which was further confirmed electrochemically with well resolved oxidation and reduction peaks. Further their salt tolerance capacity was also evaluated with a finding of marginal halophyte origin and the Chemical Oxygen Demand (COD) reduction efficiency was found to be 52%. The 16srRNA sequencing of both the strains confirmed of genus enterobacter and the different electrochemical studies of the organisms in mercury spiked growth medium left a scope for bioremediation as well as probable biosensor application.

Keywords: Mercury, Enterobacter, Bioremediation, Biosensor