ABSTRACT

Plant growth promoting rhizobacteria improves soil fertility by fixing atmospheric nitrogen and reducing fertilizere pressure. For rice crop production water is used in large amount. There is a practice is used that industrial waste water is used for rice crop cultivation. Different industries release different heavy metals in their effluents. Plants absorbs Heavy metals by vascular system and eventually made their way into the food chain. It had an impact on soil microbiology, which promotes fertility. This study focuses on the molecular characterisation of Plant Growth-Promoting Rhizobacteria (PGPR) isolated from the rhizospheric soil of Oryza sativa L. (rice) and the tolerance of PGPR to varied Cd, Pb, and Ni concentrations. Taxonomic identification is accomplished by using 16S rRNA gene sequencing and functional genes relevant to plant growth enhancement are identified using PCR methods. *Enterobacter hormachaei* is recorded in gene bank and it accession number(OQ534044) The genotoxicity effect is calculated using Cd dilutions of 25ppm, 50ppm, 75ppm, and 100ppm. The most prominent genotoxic effect was noted in *Enterobacter hormachaei* by cadmium. And it was also noted that *Bacillus thuringensis* is more resistance to heavy metals genotoxicity. From this evaluation helps to the safety of environment.