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Isolation and screening of chromium reducing bacteria *Pseudomonas fluorescens* from textile dye industrial effluent contaminated ground water samples: A possible bioremediation approach

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Environmental pollution with toxic heavy metals is the major issue throughout the world in the past few decades. Ground water (GW) is the ultimate, most suitable fresh water resource with nearly balanced concentration of the salts for human consumption. GW is getting polluted day by day and is the main concerns of the world. Heavy metals play a large role in the industrial development including manufacture of textile dyes. Chromium (Cr) is one such heavy metal whose concentrations are increasing in the GW due to textile dye industrial processes. Bioremediation is the most promising and cost effective technology widely used now a days to clean up both soils and waste waters containing organic or inorganic contaminants. A variety of microorganisms have been known for their ability to degrade these heavy metals. Our study was aimed to isolate Cr reducing microorganisms in the textile dye industrial effluent contaminated ground water samples collected from in and around Nagari Town (Andhra Pradesh), India. A total of 22 bacteria were identified from all the groundwater samples. Among all isolated species *Pseudomonas fluorescens* strain exhibited high level of resistance to Cr salts. Isolated *Pseudomonas fluorescens* was cultured on nutrient specific medium (procured from Himedia, Mumbai) and tested with Cr at different concentrations i.e. 0.25 ppm, 0.5 ppm and 1 ppm for 5 days. Further, isolated *Pseudomonas fluorescens* was optimized by 16S rDNA sequencing and RAPD analysis. Results revealed that *Pseudomonas fluorescens* can effectively remove Cr and thus could be of better usage in industrial waste management.

Biography

Asupatri Usha Rani has completed her PhD from Sri Venkateswara University and Post-doctoral studies with award of Research Associate Fellowship from University Grants Commission (UGC) and Council of Scientific and Industrial Research (CSIR), New Delhi. She is a Senior Faculty of the Dept. of Zoology heading the Division of Environmental Biology and an active Researcher. She has published more than 53 research papers in reputed journals and presented her work at several national and international conferences in India and abroad. She is Fellow of the National Environmental Science Academy, New Delhi.

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