

**Low cost treatment for the removal of Cd (II) & Sn (II) From Cottage industry effluents**

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***Abstract***

India's per capita water availability had declined 70% since 1951 and the rate of decline is expected to increase rapidly due to the population rise linked with the lifestyle changes and climate change consequences. India's sustainable future lies in the efficient water management systems, more particularly with treatment and recycling of wastewaters. This paper presents a community friendly treatment practice for removal of Cd (II) and Sn (II) from wastewaters generated from electroplating and jewellers' workshops, where water contamination by these two toxic metals are high. Through a screening study to find inexpensive adsorbents of heavy metals, Ground nutshell was found to be effective for different metals at varying efficiencies. In case of Cd (II) and Sn (II) the material found to be very efficient and the efficiency found to be varying with the particle size of the bio sorbent. Maximum adsorption was recorded with 0.21 mm particle size. Investigations revealed that the rates of removal of Cd (II)

and Sn (II) from aqueous solutions are dependent on contact time, pH, adsorbent dosage, and initial concentration of metal ion (adsorbate). Maximum adsorption of Cd (II) and Sn (II) occurred at pH 6.0 and pH 2.0, respectively. Among the different sets of experimentation, maximum adsorption of Cd (II) and Sn (II) was recorded at 0.210 mm of particle size, 50 mg/ml of adsorbent concentration at pH 6.0 and 2.0, respectively. Field studies indicated 57% of Cd (II) and 82.5% of Sn (II) are removed from electroplating industry wastewater. The results of the study reveal that Ground nut can be effectively used for Cd (II) & Sn (II) removal from the electroplating effluent waters, by optimizing the technique in the field trials.

***Biography :***

Prof. P. V. V. Prasada Rao worked on Pollution Analysis, Remediation of wastes, Microbial ecology, Vegetation studies and on

Environmental Impact Assessment. At present he is involved in the Apportioning of Particulate Matter in ambient air of Visakhapatnam, an important city in South India. He developed low cost methodologies for the removal of Heavy metals from Industrial effluents. He also worked on bio degradation of plastics, bio removal of Fluoride in ground water, Climate change studies and on development of Silver Nano

particles for addressing metal pollutants in aqueous solutions. Good number of students are benefitted by the research studies of Prof. P. V. V. Prasada Rao. Dr. Rao published more than 85 scientific papers in both National and International Journals. He is at present working as a Professor & Head of the Dept. of Environmental Sciences, Andhra University, Visakhapatnam, India