DIRECT DETECTION AND IDENTIFICATION OF *PSEUDOMONAS AERUGINOSA* IN INDUSTRIAL EFFLUENT FOR BIOREMEDIATION

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Pseudomonas aeruginosa is a gram-negative, aerobic, coccobacillus bacterium with unipolar motility and is an opportunistic human pathogen. Past studies have shown that isolates of *P. aeruginosa* have the ability to biodegrade a wide range of environmental pollutants including crude oil, dyes, insecticides and biosorption of heavy metals. Identification of *P. aeruginosa* in industrial effluent is valuable because such indigenous populations can be utilized for economically viable bio augmentation of the waste effluent. Indigenous populations also act as valuable sources in selecting the most efficient isolates for the bioremediation of specific pollutants, and can be introduced to bioremediate similar industrial effluents. The objective of this study was screening of *P. aeruginosa* in different industrial effluents for bioremediation. Wastewater sample was collected from effluent of a glass factory, Makandura industrial zone, Sri Lanka. DNA was directly extracted from the wastewater sample using modified direct DNA extraction protocol. PCR amplification was carried out with *P. aeruginosa* specific primers. Agarose gel electrophoresis of amplified PCR products showed the presence of 162 bp amplicon which is specific to *P. aeruginosa*. PCR product was sequenced for the further confirmation of this finding. Sequence analysis showed that the amplified PCR product had 94% homology to *P. aeruginosa* sequences available in GenBank database. Sequence analysis confirmed the presence of *P. aeruginosa* in the industrial effluent. Presence of this organism in industrial effluent implies the potential to use it in bioremediation.

Keywords: Bioremediation, Industrial effluent, *Pseudomonas aeruginosa*