

Theme 5: Conservation, restoration and management of ecosystem

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POTENTIAL OF CHROMIUM RESISTANT PLANT GROWTH-PROMOTING BACTERIA ISOLATED FROM AN ELECTROPLATING INDUSTRY POLLUTED SOILS FOR THE PRODUCTION OF INDOLE ACETIC ACID IN THE PRESENCE OF TRYPTOPHAN

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In this study, the chromium resistant-plant growth promoting bacteria (PGPB) of *Pseudomonas* sp. was isolated from an electroplating industry soil samples at Coimbatore, Tamil Nadu, India, that tolerated chromium concentrations up to 500 mg Cr⁶⁺/L in Luria-Bertani medium (LB) and their ability for the production of IAA was assessed. IAA production by PGPB was believed to play an important role in plant-bacterial interactions and further, it promotes root growth by directly stimulating the plant cell elongation or cell division and may indirectly promote metal accumulation by increasing the plant biomass in metal contaminated soils. The growth of chromium resistant *Pseudomonas* sp. in Dworkin and Foster (DF) salts minimal medium supplemented with (NH₄)₂SO₄ to provide N source revealed the intrinsic ability of the strain for plant growth promoting activities. Production of IAA by *Pseudomonas* sp. was estimated in LB medium amended with tryptophan at definite time intervals. The growth and IAA production increased simultaneously and a maximum IAA production was 105.7 µg/mL at 120 h. Thus, the innate capability of this chromium resistant *Pseudomonas* sp. for the production of IAA could be exploited as a bacterial inoculum for the improvement of plant growth in metal contaminated soils for the management of environmental problems.

Keywords: PGPB, Chromium, IAA, Tryptophan, *Pseudomonas*, Plant growth promotion