

Abstract

Unplanned industrial and metropolitan development is the main reason of environmental pollution that abandon the significance of healthy environment. These types of activities encouraged heavy metal pollution which highly disturb the natural balance. Phytoremediation is also known as green remediation, agro-remediation or botano-remediation. Phytoremediation is a green approach and sustainable way for soil reclamation as compared to other conventional soil remediation techniques. Phytoremediation is also known as green remediation, agro-remediation or botanoremediation.

Phytoremediation is a green approach and sustainable way for soil reclamation as compared to other conventional soil remediation techniques. A novel bacterium *Pararhizobium herbae* was used in this study. The purpose of this research was to assess the remediation potential of *P. herbae* and phytoremediation potential of *Pisum sativum*. *P. herbae* and *P. sativum* were exposed to five different concentration of Cr i.e., 0 mg/kg, 200 mg/kg, 400 mg/kg, 600 mg/kg, 800 mg/kg. The experimentation was done in the Botanical Garden of Government College University (GCU) Lahore under greenhouse environment. Plant growth promoting rhizobacteria induced positive increase on plant length, leaf number, leaf surface area, root and shoot biomass. However, as chlorophyll(a,b) decrease within concentration increase. Cr content was highly absorbed by roots and low concentration was observed in shoot followed by leaf. Maximum chromium content absorbed by roots in *P. sativum* was in dose dependent manner 225 mg/kg at 600 mg/kg of chromium. Contrastingly absorption of chromium content in shoots was low i.e., 110 mg/kg for 800 mg/kg of Cr. *Pararhizobium herbae* exhibited a considerable increase in percentage removal of Cr i.e., 63 % as compare to uninoculated plants with 38 % at 600 mg/kg. Moreover, *Pararhizobium herbae* can effectively improve the rhizoremediation of Cr by pea plant.