Potential Uses of Phytoremediation Technology for Nickel-Polluted Soils

The use of plants to remove toxic heavy metals from soils (phytoremediation) is being developed as a method for cost-effective and environmentally sound way of remediation of contaminated soils. A study was carried out to assess the potential of phytoremediation to reduce the nickel concentration of contaminated soils. This study evaluates plant growth and nickel uptake from the soil under greenhouse conditions. For each plant two set of experiments were performed: 1) untreated soil as control, 2) treated soil with a 1 mM solution of Ni(NO$_3$)$_2$. The results for the various species of Brassicaceae indicate that, the Ni accumulation in the roots and aerial parts of Brassica rapa, Eruca sativa and Alyssum strigosum are 88.15, 39.38 and 54.8 mg/kg dry weight respectively, after 6 weeks for growing time. The results indicated that phytoremediation is perhaps most applicable to low to moderately contaminated sites where restoration of a clean soil may have additional benefits.

Keywords:
phytoremediation, Nickel, contaminated soils.

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