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Microbial removal of toxic metals from a heavily polluted soil

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Samples of a leached cinnamonic forest soil heavily polluted with uranium and some toxic heavy metals (mainly copper, zinc and cadmium) were subjected to cleaning by means of bioleaching with acidophilic chemolithotrophic bacteria. The treatment was carried out in a green house in which several plots containing 150 kg of soil each were constructed. The effect of some essential environmental factors such as pH, humidity, temperature and contents of nutrients on the cleaning process was studied. It was found that under optimal conditions the content of pollutants were decreased below the relevant permissible levels within a period of 170 days. The soil cleaned in this way was characterized by a much higher production of biomass of different plants (alfalfa, clover, red fescue, vetch) than the untreated polluted soil.