

## Bio-Remediation of Toxic Soil Left Over from Uranium and Other Mining Activities in Portugal, Tunisia and Morocco

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Plants that can grow on the polluted spoil left over from the mining activities are scarce. It is known that these plants have become resistant to toxicity by attracting metal resistant bacteria that contain active genetic elements breaking down the toxic salts, heavy metals and radioactive elements to less toxic molecules. These bacteria colonise the root system of the plants creating a soil environment healthy enough for the microorganisms and plants to survive.

This project is aiming at isolating such metal resistant bacteria, characterising their metal resistant genetic elements and using them to make new plants resistant to toxicity. The efficiency of new plants to grow on contaminated mine areas, to stabilise heavy metals and to reduce the soil toxicity will be evaluated in laboratories and in field trials. The overall goal is to enlarge the population of plants that can live on the polluted soil and transfer them to local authorities and mine owners for reforestation and remediation of the polluted soil in Portugal, Tunisia and Morocco.

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In situ ecotoxicological evaluation of mine soils.



Mines where iron and copper were extracted.

(Images courtesy of Ruth Perreria, University of Aveiro, Portugal.)