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Molecular mechanisms underlying heavy metal uptake, translocation and tolerance in hyperaccumulators-an analysis: Heavy metal tolerance in hyperaccumulators

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Abstract

Phytoremediation is an economically viable green technology that utilizes hyperaccumulator plants to remove heavy metals (HM) from the soil. Hyperaccumulators are adept at sequestering high concentrations of HM in aerial parts and intracellular detoxification of HM through cell wall binding, organic acids, chelation and sequestration. Excess HM activate oxidative stress defense mechanisms and initiate synthesis of stress-related proteins in plants. Plethora of studies have assessed the feasibility of phytoextraction and demonstrated that high biomass and metal hyperaccumulation are the two basic requirements for making the process efficient.