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Accumulation of heavy metals by certain plants developed on mine spoils of the Bandalamottu lead mining area, Andhra Pradesh, India

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Mining activities generate large amounts of rock waste and tailings. These are often unstable and dusty becoming a source of pollution. This article reveals the data on Pb, Cu, Zn and As accumulation by twigs and leaves of plants growing on lead mine dumps at Bandalamottu in India. Lead and copper ores occur at Bandalmottu, Dhukonda and Nallakonda in the Agnigundala area of Vinukonda mandal in the Guntur district, Andhra Pradesh, India. The area forms the eastern margin of the Cuddapah basin, and the rock types belong to the Nallamalai Series of Upper Cuddapah age. Soils were analysed for the same elements. Chemical analytical data show that these plants can accumulate huge amounts of lead and arsenic in both leaves and twigs. The metal accumulation varies between species. The highest concentration in pb (1780 mg/kg) was found in the twigs of *Wrightia tinctoria*. For As 5360 μg/l were accumulated in the leaves of *Calotropis gigantea*. *W. tinctori*a accumulated the highest amounts of Pb and Cu in both twigs and leaves. Our results suggest that the plant species analysed could be pioneers in the reclamation of lead mining areas and can be used as model plants for investigation into plant tolerance mechanisms.

It is proposed that the plant species *Wrightia tinctoria, Calotropis gigantea, Helecteres isora* and *Azadirachta indica* can be used for reclaiming tailings in the lead mining area of Bandalamottu, for the purpose of stabilizing the area. The most successful populations at each site, were those with highest tolerance to the metals occurring on the waste, provided the species was appropriately adapted to the other soil conditions. In higher plants, the ability to accumulate the elements and survive on mine spoils containing toxic quantities of various heavy metals occurs sporadically throughout different genera