

## **Thallium distribution in vegetation impacted by sphalerite weathering**

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The work focused on Tl uptake by white mustard (*Sinapis alba* L.) grown on two Tl-rich sphalerite contaminated soils with different characteristics. White mustard was chosen as the tested plant species because of its high biomass yield and potential capability of extracting significant amounts of Tl. Rhizospheric conditions were simulated to assess the risk associated with sulfide microparticles entering agricultural (top)soils.

A mass of 100 g of soil mixture, homogeneously spiked with ZnS (1 wt.%), was put into 150 mL PP pots. Then 20 seeds of mustard in each pot were sown. Plants were harvested after 28 days: roots, stems and leaves were collected separately. The residual solutions after acid digestion of the biomass were analyzed for Tl and Zn concentrations, by ICP-MS.

Maximum Tl amounts were detected in biomass grown on the acidic Cambisol. The maximum Tl content was found in the leaf, followed by stem and root, demonstrating its substantial translocation. In our experiment, Tl was highly bioavailable, and was taken up by white mustard. Considering the Tl content in plant biomass and its content in the soils, cultivation of Tl-accumulating plants in mining-affected areas should be monitored, or alternatively excluded from growing for human nutrition (if Tl is present).

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