

Initial growth of sunflower in soils with high concentrations of boron and heavy metals

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ABSTRACT

Phytoremediation studies have been conducted in an area contaminated by heavy metals, located in Piracicaba - SP, Brazil. This area was contaminated accidentally by the addition of auto scrap shredding to the soil and was limed later to reduce heavy metal mobility in the environment. Previous characterization showed that it also presents high concentration of boron, which has limited the initial plant development of some species. As sunflower plants require a high boron supply and the literature describes its use in the phytoremediation of soils contaminated with heavy metals under some conditions, the aim of this work was to evaluate its potential for the remediation of this area. In the present study, the results of preliminary tests are presented, aiming at the evaluation of sunflower plant germination and its initial development when cultivated in the contaminated soil described. Two sunflower hybrids were sown in soils treated with different rates of boron and in the soil from the contaminated area in study. The results showed that sunflower plants had a normal initial development, even in the soil from the contaminated area. Therefore, sunflower is a promising crop and further studies will be developed to evaluate the sunflower efficiency in phytoextraction or phytostabilization of heavy metals in areas where boron contamination also occurs, as is the case in the study area.

Key words: boron - contamination - *Helianthus annuus* L. - phytoremediation - phytotoxicity.