



Methods to ensure the quality of excavated soil material from geogenically metalliferous sites

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Soils at geogenically metalliferous sites might exceed heavy metal threshold levels with respect to agricultural use, apart from anthropogenic contamination sources. As a fundamental substrate for green plants and green plant production, soil is not easily renewable, its formation needs long time (e.g. 500 years for 20 mm). In Austria, about 10ha of soil get sealed every day, resulting in complete loss of its biological functions. Excavated soil material has been classified as waste from a legal point of view, which made 33 mill. tons resp. 48% of total waste in Austria in 2010. Recycling of excavated soil material for agricultural use will be an important task to reduce future waste and to enlarge agricultural substrate volumes, but methods to ensure proper qualities are needed to improve regulations.

Within this investigation, the transfer of various metals from geogenically metalliferous soils to various crop plants will be investigated, and correlated with various simple soil test methods. Four excavated soil materials from the metalliferous schist zone within the Austrian province of Styria (Kraubath/Mur, Übelbach) and a low-metal reference sample have been taken as substrates to grow raygrass (*lolium multiflorum*) as a green cover, salad (*Lactuca sativa*) as a vegetable food item, oats (*Avena sativa*), maize (*Zea mais*) and stinging nettle (*Urtica dioica*) as a hyperaccumulating species. Results and recommendations will be presented.