

## Heavy Metal Ionmobilisation with use of *Aspergillus* Species

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Laboratory experiments were carried out in order to determine the effect of organic acids synthesized by *Aspergillus* species on the mobility of heavy metal ions in contaminated soils. The experiments were performed as part of a project to establish the usefulness of that *Aspergillus* species for *ex situ* remediation of highly polluted soils. Soil samples originated from A and B-horizons of a cambisol (Gyöngyösoroszi, Hungary) and from A horizon of a chernozem soil (Dombóvár, Hungary). Fermented solutions contained *Aspergillus foetidus* or *Aspergillus niger* species were added to the soils in a column experiment in 6 parts and the different fractions were examined separately. In the leachate Zn, Pb, Cd, Cr, Ni and Cu ion concentrations were determined by Varian SpectrAA10 atomic adsorption spectrometer. For presenting substance balance the soils were analyzed before and after the column study. The variability in the agent conditions resulted in high levels of deviation in the experimental results therefore a statistical procedures were used to estimate the specific effect of fermented solution. We supposed that the sulfide ores would be dissolved by the fermented solution, which contains reducing components. In Gyöngyösoroszi soil the HNO<sub>3</sub> soluble amount of Ni, Pb and Cd and in the Dombóvár soil the HNO<sub>3</sub> soluble amount of Cr were increased after the treatment with fermented solution. The Ni ion indicates any hardly solute iron sulfide existence in the soil and the Pb and Cd refer to galena or zinc blende content of soils. The *Aspergillus niger* solution dissolved higher amount of Zn and Cu ions from the soils despite the higher pH of this fermented solution. In acid soils this is true also for the Cd accompanying the Zn. Specific effects of *Aspergillus niger* was found for Zn, Cd and Ni ions and less for Cu ions. *Aspergillus foetidus* is specific for Zn.