



Effect of ryegrass (*Lolium perenne* L.) roots inoculation using different arbuscular mycorrhizal fungi (AMF) species on sorption of iron-cyanide (Fe-CN) complexes

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Soils and groundwater on sites of the former Manufactured Gas Plants (MGPs) are contaminated with various complex iron-cyanides (Fe-CN). Phytoremediation is a promising tool in stabilization and remediation of Fe-CN affected soils, however, it can be a challenging task due to extreme adverse and toxic conditions.

Phytoremediation may be enhanced via rhizosphere microbial activity, which can cooperate on the degradation, transformation and uptake of the contaminants. Recently, increasing number of scientist reports improved plants performance in the removal of toxic compounds with the support of arbuscular mycorrhizae fungi (AMF). Series of batch experiments using potassium hexacyanoferrate (II) solutions, in varying concentrations, were used to study the effect of ryegrass roots (*Lolium perenne* L.) inoculation with *Rhizophagus irregularis* and a mixture of *Rhizophagus irregularis*, *Funneliformis mosseae*, *Rhizophagus aggregatus*, and *Claroideoglossum etunicatum* on Fe-CN sorption. Results indicated significantly higher colonization of *R. irregularis* than for the mixture of AMF species on ryegrass roots. Sorption experiments revealed significantly higher reduction of total CN and free CN content in the mycorrhizal roots, indicating greater cyanide decrease in the treatment inoculated with *R. irregularis*. Our study indicates contribution of AM fungi in phytoremediation of Fe-CN contaminated soil.