



DOCTORAL RESEARCH TOPIC:

The effects of environmentally friendly biological additives on the efficiency of phytoremediation of metal-contaminated soil and recovery of the health of soils

RESEARCH FIELD:

Environmental Engineering (T 004)

BRIEF DESCRIPTION OF RESEARCH TOPIC:

Heavy metals soil pollution has become a serious threat to the environment and human health. Soil contamination by heavy metals alter soil functioning and health impairing the provision of ecosystem services. Globally there are more than 10 million sites contaminated with heavy metals, In Europe, more than 2.8 million potentially contaminated sites are estimated, of which ~342,000 requiring remediation and most of these sites are contaminated with heavy metals.

Variety of different technologies are used for the remediation of heavy metals contaminated sites including chemical, physical and biological methods. The success of remediation encompasses heavy metal removal from the soil and the recovery of soil health, defined as the ability of the soil to perform its functions. Therefore, sustainable contaminated soil remediation management should contribute to EU soil strategy for 2030 and are critical to achieving SDGs.

The main aim of this research will be to determine the possibilities and regularities of using various environmentally friendly additives to increase the efficiency of phytoremediation of metal-contaminated soil and restore soil health.

The main objectives:

- Investigate the effects of various environmentally friendly additives on phytoremediators and soil;
- Determine the effect of various environmentally friendly additives on the efficiency of heavy metal remediation;
- Evaluate the impact of various environmentally friendly additives on soil health during the phytoremediation process. Soil health assessment will be based on physico-chemical and ecotoxicological indicators

SCIENTIFIC SUPERVISOR:

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