



Contaminated Land Management

Environmental Biotechnology
IFA-TULLN / BOKU



Research Activities

The occurrence and behaviour of hazardous organic chemicals in the environment is investigated to establish and improve risk assessment and management procedures for contaminated sites. Innovative analytical methods both physical-chemical and biological are employed to study sorption to soil constituents, and to investigate potential limitations of microbial pollutant degradation.

Present work concentrates on the interaction between the soil matrix and the pollutant. Changes in pollutant availability affect the toxicity of contaminated soil and thus have crucial consequences on risk assessment and risk management activities. Furthermore, *in situ* and *on site* remediation techniques are developed to constitute an efficient, cost effective and timesaving remediation strategy.

Pollutant Behaviour

- Bioavailability of Organic Pollutants
- Influence of the Soil Architecture on Retention and Release of Contaminants
- Influence of the Soil Organic Matter Structure on the Sorption / Desorption of Hydrophobic Organic Contaminants
- Degradation of Persistent Organic Chemicals in Complex Matrices like Soil

Pollutants

- BTEX, PAHs
- Petroleum Hydrocarbons
- Chlorinated Hydrocarbons



Heterocypris incongruens



Oil degrading bacteria

Ecological Risk Assessment

- Ecotoxicological Evaluation of Contaminated Soil
- Assessment of Acute, Chronic and Genotoxic Effects of Contaminants
- Toxicity Monitoring of Remediation Measures



Eisenia foetida



Rye grass exposed to pollutants

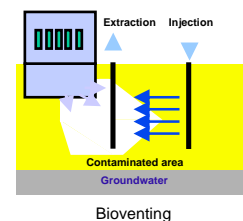
Remediation Technologies

In Situ and *On Site* Remediation Technologies

- Vadose Zone: Bioventing
- Saturated Zone: Biosparging, Groundwater Circulation Wells
- Alternative Electron Acceptor Processes
- *On Site*: Biopile Remediation
- Feasibility Studies in the Laboratory



Bioremediation of oil contamination



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