

Actual tasks on bioremediation

Augmentation vs. stimulation

Consortium dilemma

Metabolic power

Fermentation


Enhancement

New view on praxis

R&D

# Alternative approaches in bioremediation engineering

Contaminated Sites in Bratislava, 2013



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Bioaugmentation or biostimulation?  
Microbial consortiums or an unique superstrain?  
Enhancement of which processes in contaminated environment?



Actual tasks on bioremediation

Doom & gloom?

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R&D

- + unique properties of some strains
- + perfect description of metabolism
- + promising diagnostic and monitoring
- ability to survive under real conditon
- process deficiencies – supporting
- weak evidences of recolonisation
- ? ecological competition operating
- ? holistic markers



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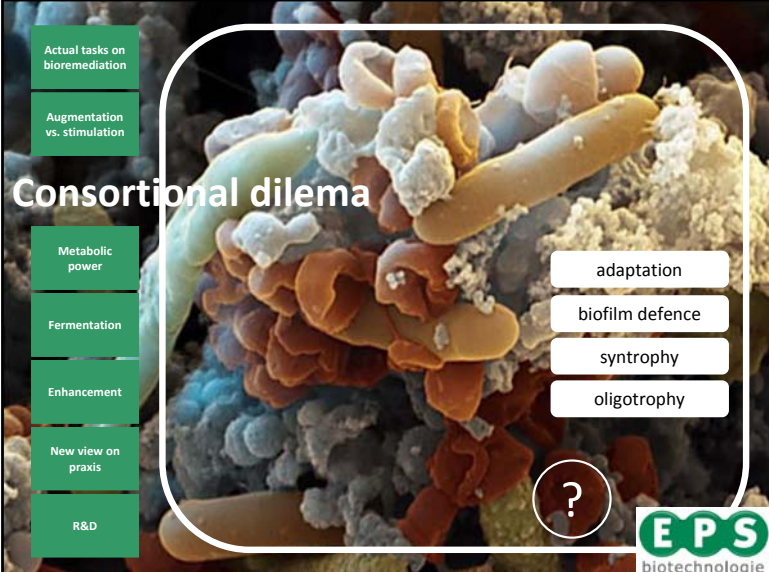
Enhancement

New view on praxis

R&D

## Consortional dilemma

- adaptation
- biofilm defence
- syntrophy
- oligotrophy



Lorem  
 Ipsum  
 Dolor  
 Amet  
 Consectetur  
 Adipisci  
 Elit

Sources of **reducing potential** (electrons)  
 Chemotr  
 ophic  
 source of  
 energy  
 Sources of **energy**  
**FERMENTATION**  
**SYNTROPHY**  
**OLIGOTROPHY**  
**VFA**  
 carbon  
 dioxid  
 hydrogen  
 pH  
**TEA**  
 Redox magic  
 OXYGEN  
 NITRATE  
 IRON  
 MANGANESE  
 SULFATE  
 CARBON  
 DIOXID  
 HUMIC ACID  
 CHROMIUM  
 PCE TCE DCE...  
 Carbon sources and the supply of  
 other building compounds

**Metabolic power**

**EPS**  
biotechnologie

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**Fermentation**

**EPS**  
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diagnostic  
 technological  
 tools  
 markers  
 anaerobic  
 microbiology  
 complex  
 interpretation

**Enhancement**

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**New view on praxis**

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New view on praxis

Syntrophic complexity

Functional scale

Modern methods

Microbial geography

**research & development**

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