



Soil inoculation with microbial communities – can this become a useful tool in soil remediation?

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We artificially loaded different type of agricultural soils with model ¹⁴C-labelled chemicals, and we inoculated such soils with different microbial communities as well as isolated strains to enhance the mineralization of such chemicals. Inocula were introduced by different approaches: (i) soil inocula, (ii) application of isolated strain as well as microbial community via media, (iii) isolated strain as well as microbial community attached to a carrier material. Most of the inoculation experiments were conducted in laboratory but we also tested one of these approaches under real environmental conditions in lysimeters and we could show that the approach was successful.

We already could show that inoculating soils with microbial communities attached on a specific carrier material shows the highest mineralization effectiveness and also the highest sustainability. Microbes attached on clay particles preserved their function over a long time period even if the specific microbial substrate was already degraded or at least not detectable any more. Additionally we already could show that in specific cases some soil parameters might reduce the effectiveness of such an approach.

Results on isoproturon as a model for phenylurea-herbicides and 1,2,4-trichlorobenzene as an example for an industrially used chemical as well as the corresponding chemicals' degrading microbial communities and isolated strain will be presented.