



# Decomposability of Soil Samples towards Aerobic Decomposition

Which chemical characteristics of soil organic matter (SOM) are persistent towards aerobic microbial degradation?

## Incubation

- aerobic
- 20°C
- High resolution CO<sub>2</sub> flux measurements

## Methods

Soil samples were taken from a peat bog and adjacent Histosol and Podzol in Siikaneva II, Finland. General physico-chemical characteristics (bulk density, TOC, TN,  $\delta^{13}\text{C}$ ) are measured according to established methods. To quantify SOM degradability/ recalcitrance we want to compare the hexane-soluble fraction of soil samples with gas chromatography- mass spectrometry (GC-MS) *before and after* 60 days of aerobic incubation.

## Chemical analysis

Can we find indicators for organic matter degradability?

- Accelerated solvent extraction (ASE)
- Hexane soluble fraction
- separated with MPLC
- detected with GC-MS.

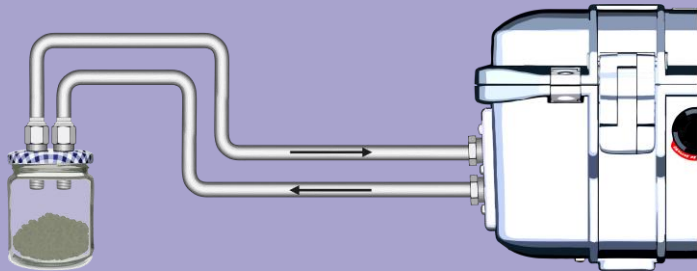


Fig. 2.: Experimental set up to measure CO<sub>2</sub> fluxes instantaneously with Cavity ring down spectrometry (LI-COR).

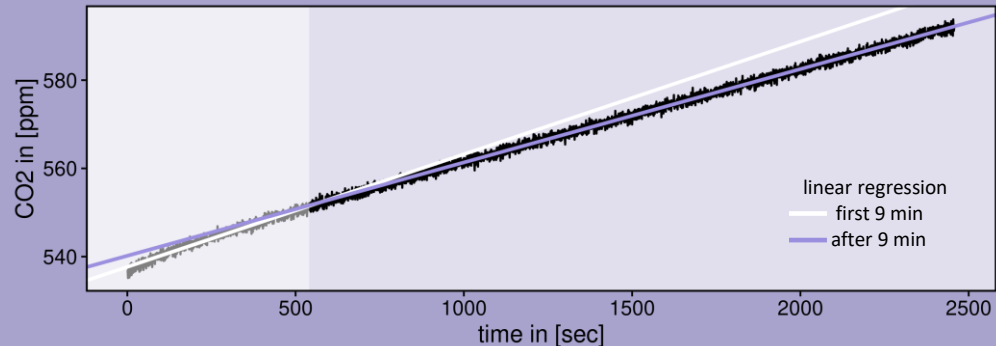


Fig. 3.: Single measurement: CO<sub>2</sub> concentration with fitted linear regression for the first 9 minutes and after 9 minutes of CO<sub>2</sub> measurement.

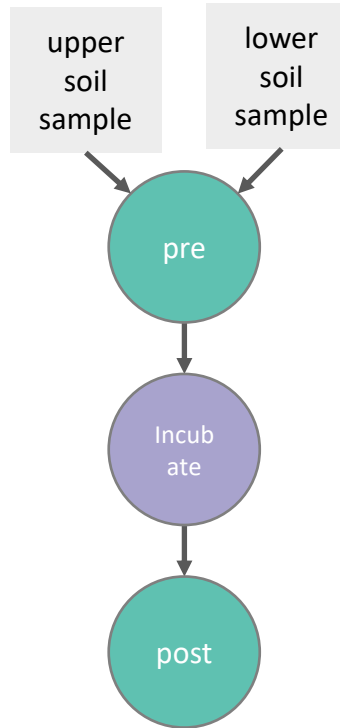


Fig. 1.: Workflow

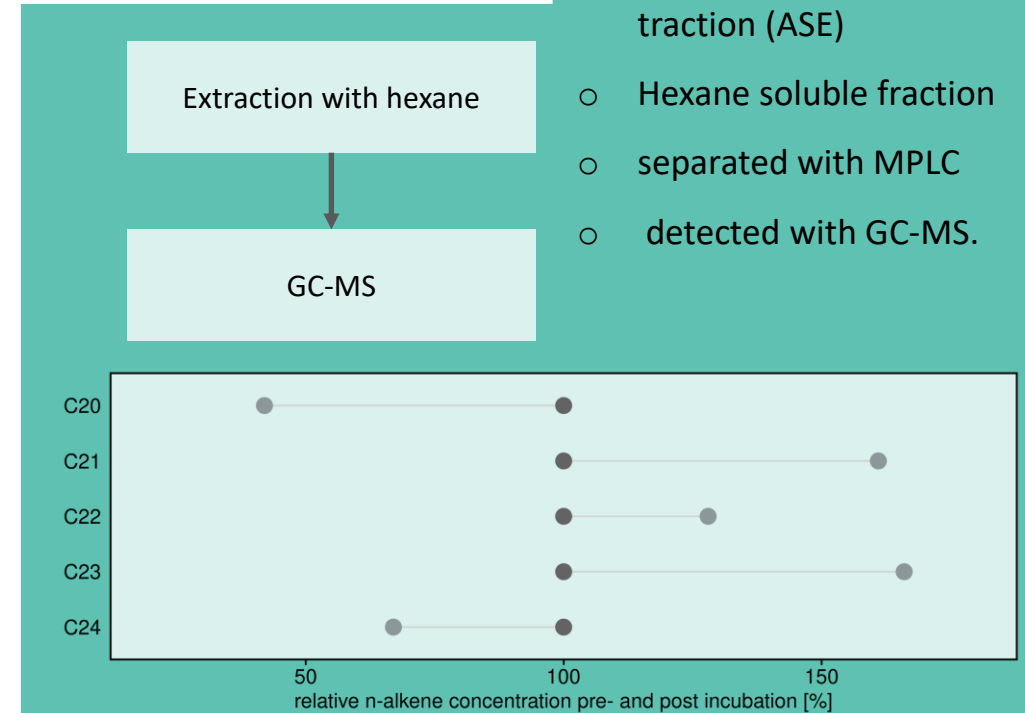


Fig. 4.: We expect to see different n-alkane concentrations after the incubation.