**Objective**: Determine ‘degradative potential’ of pore waters from different sized pores using select species of fungi and bacteria.

**Approach**:

* Inoculate pore water with various strains of common soil microbes and incubate.
* Measure CO2 throughout incubation
* Measure C content (DOC/DON) and C profile (FTICR) pre and post incubation.

**Methods:**

**Site Description and Sampling**

**Pore water extractions**

Pore waters were diluted 1:5 using pure, deionized water.

**Inoculations**

Pure cultures of Streptomyces (

**CO2 measurements**

1. Identify pore water samples from “organic samples” (0-90cm depth)? with enough volume to be incubated with up to 2 bacteria, 1 fungi, + control (4 vials, or ‘incubations’).
2. Dilute pore water (1:5? ) and place into new, sterile 20ml vial with septa screw cap.
3. Inoculate with 200ul of microbial inoculant batches. Preliminary work showed that Cellvibrio batches are most active during 12-36 hours following placement into new pore water-based media , whereas Streptomyces don’t reach optimal growth phase until 2-3 weeks following culturing. Trichoderma should remain in DI (and in conidial form) until incoluation due to mycelial mat production. Cellvibrio and Streptomyces were normalized to the same OD600 and Trichodermal cells were quantified using a haemocytometer (in EMSL 1326) – which was also compared to their OD600 turbidity values and normalized to represent similar OD/cell count numbers as the bacterial cultures.
4. Measure CO2 via syringe extraction of headspace. Sterile needles were 6 ml samples of Sterile syringe needles were connected to 0.2um filters and 6ml syringes.
5. Mix headspace air and extract 6 ml/cc of headspace. Store syringe (or inject into vacu-tainers) until ready for injection into gas analyzer.
6. Extract CO2 at times 0, 2, 4, 8, 16, 24, 48, 72 and 144 and every 24 hours thereafter for a week. Use EMG-4, set at static sampling to measure CO2 ppm.
7. At the end of the incubation, collect aliquots for FTICR/DOC.

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| Microbe | Classification | Species | ATCC number |
| Bacteria |
| Actinobacteria (Gram-positive) | Streptomyces cellulosae | 25439 |
| Proteobacteria (Gram-negative) | Cellvibrio japonicus | 16015 (DSMz) |
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| Fungi | Ascomycota (div) | Trichoderma reesei | QM6a |