



Monitoring the alkane monooxygenase gene *alkB* in different soil interfaces during plant litter degradation of C3 and C4 plants

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Hydrocarbons like n-alkanes are ubiquitous in the environment as a result of anthropogenic contamination (e.g. oil spills) as well as a part of an ecosystem's biomass. For example n-alkanes become released during plant litter degradation; consequently they become a high abundant carbon source for microorganism. One possibility for the prokaryotic hydrocarbon metabolism is an aerobic degradation pathway where the initial step is catalysed by the membrane bound alkane monooxygenase *alkB*.

We analysed the influence of alkanes on the abundance of the *alkB* gene in different interfaces of the litter-soil system during the degradation of maize and pea litter. Therefore soil samples of a sandy and a loamy soil have been incubated with straw of maize and pea plants up to 30 weeks with constant soil moisture and temperature. Using quantitative real-time PCR we were able to monitor the changes of the abundance and the expression rates of *alkB*. In our experiments we focused on the straw layer, the litter/soil interface and the soil 1 cm below this interface (bulk soil). Our results clearly demonstrate time and space dependent abundance patterns of *alkB* genes and transcripts in the different layers studied, which are additionally shaped by the soil type used.