

Carbon traces from labeled litter into dissolved and microbial carbon pools

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We investigated the effect of litter composition and hence litter quality on its degradability and partitioning in various carbon pools in order to understand the effect of tree diversity on below ground processes. This work is part of the graduate school 1086 at the Georg-August-University Göttingen investigating the importance of biodiversity for cycles of matter and biotic interactions in temperate deciduous forests. To study the decomposition processes ^{13}C labeled and unlabeled leaf litter of beech (*Fagus sylvatica*) and ash (*Fraxinus excelsior*) were exposed in Nov 2008 at the National Park Hainich, Thuringia, Germany. Soil water was collected in 5 cm soil depth and pH, conductivity, TNb, TIC, TOC and anions determined. The ^{13}DOC and ^{13}DIC content was determined using high pressure liquid chromatography- isotope ratio mass spectrometry (HPLC-IRMS) using a newly developed method. Phospholipid fatty acids (PLFAs) will be extracted from soil samples of 0-5 cm depth to quantify and identify involved microorganisms and their ^{13}C content will allow to trace the labeled carbon flow. First results of conductivity and pH in the soil water demonstrate that litter of *Fagus sylvatica* (F.s. only) decomposes slower than litter of *Fraxinus excelsior* (F.e. only) or mixed (F.s.F.e.) treatments. Analyses of the $^{13}\text{DOC/DIC}$ and involved microorganisms will investigate if the microbial community structures and carbon partitioning are affected too.