

Interactive
Comment

Interactive comment on “Dynamics of microbial communities during decomposition of litter from pioneering plants in initial soil ecosystems” by J. Esperschütz et al.

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The only remark I have are the potential effects of the two different pioneering plants on the composition of microbial community in the initial (nutrients poor) soil ecosystems which should be discussed. From that aspect the two plants have been well chosen (Fabaceae vs. Poaceae) Thankx for the praise related to our experimental design, which has been indeed developed in a way to compare plants with two contrasting strategies for nutrient uptake and consequently different C/N ratios in the litter. We made this a little bit clearer now in the introduction. We also pointed out that both plant species typically occur at postmining sites. If and how the obtained data can

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be transferred to other plants of the same plant family was beyond the scope of this study, which was more focused on the response of “young” soils to different substrates, than to a generalization of response pattern to other plant species. “As these two plant species belong to two different plant families (Fabaceae respectively Poaceae) with different acquiring strategies for nutrients, differences in litter quality have been well described. Furthermore both plant species have been detected as dominant members of the plant communities in post-mining areas (Pawlowska et al., 1997; Süß et al., 2004; Gerwin et al., 2009)”.

Specific comments: Additional information on soil substrate characteristics would be beneficial. Soil nutrient status (e.g. available N, P, K), more detailed soil texture (% of sand, silt, clay), carbonates (as soil pH is relatively high), soil water status during experiment (range, constant or fluctuating conditions?). The related data has been included in the revised version: Soil texture was characterised as sands to loamy sands (sand 85 % silt 9 % clay 6 %). Soil nutrient contents (e.g. for available nitrogen and phosphorous) were below or close to the detection limit ($< 0.01 \mu\text{g/g}$ soil). Soil carbonates were measured in another sampling campaign and were in the range of 0.2 %. As the data is not directly linked to our study, we did not include this value. The changing water conditions in soil are indeed of prime importance for the interpretation of the data. Thus figure S1 has been already included in the original submission. We linked the humidity levels in soil now to the % of the max. water holding capacity (which was around 20 %), which makes more clear that in autumn the conditions in soil were quite unfavorable for microbial activities. “Mainly at the end of the incubation period (starting 21 weeks after addition of the plant litter material) temperature dropped significantly and soil moisture contents were lower than 30 % of the maximum water holding capacity. These . . .”

Typing errors: 14983 / 24: of highly important has been changed to “of high importance”
14984 / 26 considered corrected

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- 14986 / 18 Soil texture “texture” has been added

14992 / 5 significant degradation rates (improve sentence) Both plant litter types were degraded during the experimental period of 30-week (Fig. 2); faster degradation rates were observed for litter material of *L. corniculatus* over the whole experimental period

14992 / 8 undegraded degraded "degraded" has been deleted

14998 / 12 incorporation corrected

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/9/C9435/2013/bgd-9-C9435-2013-supplement.pdf>

Interactive comment on Biogeosciences Discuss., 9, 14981, 2012.

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