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Interactive comment on "Direct uptake of organic carbon by grass roots and allocation in leaves and phytoliths: ^{13}C labeling evidence" *by* A. Alexandre et al.

Anonymous Referee #1

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This study examined direct uptake of organic carbon by grass roots and allocations to leaves and phytoliths with 13C- and 15N-labeled amino acids in a hydroponic experiment. This study provides interesting results regarding organic C transportation from roots to shoots and phytoliths, but there also are obvious shortcomings in methods. First, this study only set up two replicates. This makes this study suffer from great uncertainties for estimations of C allocation to shoots and phytoliths. Second, although 13C- and 15N-labeled amino acids were used in this study, uptake of intact amino acids was not quantified. Based on the observation in this study, AA-13C/AA-15N ratio is 0.8, far lower than C/N ratios of added AA, indicating most of 13C in phytolins could not be derived from uptake of intact amino acids. Third, this study used a hydroponic experi-

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ment, resulting in a completely different rhizospheric environments. The uncertainties caused by this approach should be clearly mentioned in discussion.

Interactive comment on Biogeosciences Discuss., 12, 19751, 2015.