

Interactive comment on “Stable isotope ratio ($^{13}\text{C}/^{12}\text{C}$) mass spectrometry to evaluate carbon sources and sinks: changes and trends during the decomposition of vegetal debris from eucalyptus clone plantations (NW Spain)” by I. Fernandez and A. Cabaneiro

Anonymous Referee #2

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In this paper, a litter decay experiment was designed to examine what difference in biodegradability exist between leaf litter of two eucalyptus clones grown at two parent-material sites. During the period litter decomposition, the C:N ratios, weight-loss rates, and $\delta^{13}\text{C}$ of remained matter, etc., were measured for leaf litter from two sites, and the difference in these traits was illustrated. This study deals with an important topic in term of biogeochemistry, and the data display important implications for eucalyptus plantation management. However, current status of this paper is not suitable to publication in BG

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due to problems as follows.

First, the title of paper did not reflect main results obtained in this experiment. In fact, the patterns of variation in litter $\delta^{13}\text{C}$ during the decomposition and the significance is only a minor fraction of all data in the paper. Carbon isotope technology is a good approach to illustrate the processes of litter decay, however, its role was not manifested in this study due to some issues in experimental design. For instance, there usually is a distinct difference in $\delta^{13}\text{C}$ between fresh leaf-litter and semi-decomposed litter because of difference in mobility of ^{12}C and ^{13}C . But, in this study, the sample litter consists of organic matter at different stages of decomposition, resulting in little change in litter $\delta^{13}\text{C}$ during the period of decomposition.

Second, in this study, I think, there were very good data (e.g. Table 1-3, Fig. 1-3) for characterizing the processes of litter decomposition for two clones, but the meaning of these data are not well explained in indicating litter decay, e.g., litter C:N ratio.

Third, the results and discussion are presented in one section (third section) in this study, and this limits to some extent interactive explanations of different results. If the third section, Results and discussion, is divided into two sections, Results and Discussion, and more references are cited in the Discussion, the presentation of the paper will be greatly improved.

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