

We thank the referee for his/her valuable suggestions, which will further improve the quality of our manuscript. At this stage, we would like to give a short reply to the reviewers' main comments. We will post a final response with answers to all comments along with the revision of our manuscript after having seen the comments of all referees.

Referee comments are in blue.

Abstract:

Page 1 lines 8-10: The application of CSIA is not restricted only to freshwater systems, as many studies from marine environment (For eg., Canuel et al., 1997; Limnol Oceanol, 42, 1570) also show its importance

Yes, for sure, we did not meant to imply this. In fact, application of CSIA was earlier and is already more advanced in marine systems. We will add a sentence referring to marine systems and knowledge in the revised manuscript.

Introduction:

Page 2 line 16: Huang et al. (1997) Punctuation- please remove comma here and many other places
Page 2 line 28: I feel it should be 'fresh plant material with organic matter to the organic horizons and upper mineral soil horizon'

We will correct the formatting and also restructure the sentence.

Carbon preference Index of alkanes can also be given in addition to average chain length.

CPI values were in support of our finding of general odd over even predominance in long-chain *n*-alkanes through all the degradation stages, which we have mentioned in results and discussion on Page 5 line 5. We will add a bit more on CPI values to enhance this result in the manuscript.

2. Materials and methods

Page 3, line 13: It is better to define Oi-Oe-Oa horizons to the readers at the first time

Line 15: 'moder' type spelling correction

2.4 Page 4 line 7: Please define OM at the first usage Line 5: please remove the bracket for reference Schmidt et al., 1999

Thank you for pointing out improvements here, we will add the relevant information in materials and methods section.

Section 3.2 summarizes that bulk $\delta^{13}\text{C}$ values should not be relied for sediment source attribution compared to compound specific isotope values. However the issues/reasons (other than enrichment) while considering bulk isotope values are not discussed in detail.

Our aim of this study is to test if isotopic signatures of tracers used for sediment source attribution are stable which requires non-fractionation during detachment and transport. Our assumption is that if they are stable during degradation, they will also be stable during detachment and transport. Thus, the continuous enrichment in bulk $\delta^{13}\text{C}$ values through the degradation stages is *the* reason of concluding that they are not suitable as sediment tracers. We do not know of any other major reason to reject bulk isotope analysis for sediment source attribution. Sorry, if this was not clear enough, we will have a critical look at the formulation of our aims and assumptions. We would like to add, that source apportionment with differences in C_3 - and C_4 - vegetation sources has been done successfully, because differences in bulk isotopic signals of sources are bigger, thus small deviations by fractionation might not substantially alter the results.

The manuscript is written well, but the novelty and importance of present study need to be highlighted in the manuscript.

Thank you and also for pointing out, that we should highlight our results more. We will add more information on the novelty and uniqueness of the study; especially as the results are from different forest types. We will also emphasize the importance of our study for research questions beyond sediment source attribution.

Citation of references in the text is given alphabetical order. Normally it is cited in chronological order (ascending). Anyway please follow the journal format and modify accordingly.

Publication house states that the in-text citations can be written in alphabetical or chronological order, but as generally the order is chronological, we will change it as suggested.

We are also happy to add Upadhayay et al. 2017 mentioning it in an appropriate section in the manuscript.