

The review article titled “Possible source of ancient carbon in phytolith concentrates from harvested grasses” brings a very interesting point, on the source of carbon included in silicated phytoliths, and the reliability of C-14 dating from phytoliths. Silicon uptake from the soil may be done together with the old soil organic materials, and this may explain the old dates. As for the implication to plant bio-silicification the soil organic materials may increase the soluble fraction of the soil silicon, and by these means the silicon may be more available for the plant.

1. Does the paper address relevant scientific questions within the scope of BG?

The article discusses the interaction between plants and soils, and thus addresses a scientific question within the scope of the journal.

2. Does the paper present novel concepts, ideas, tools, or data?

The paper discusses the source of carbon included in silicated phytoliths, and the reliability of C-14 dating from phytoliths. The concept raised in the article is relevant to both plant physiology and archaeology fields.

3. Are substantial conclusions reached?

As a review article a working hypothesis is suggested, that the silicon absorbed by the plant is associated with soil organic matter. The hypothesis is fairly supported by findings published already. A research direction is suggested. I would recommend to add to a future research growing plants in hydroponic solution containing isotopic tags or radioactive carbon, to see the incorporation of carbon specifically from the roots.

4. Are the scientific methods and assumptions valid and clearly outlined?

In this respect my main concern is the tables presentation, which is very difficult to understand. In both tables I suggest to start the caption with a title announcing the silica source analyzed (soil or plant). Also, the important data is hidden in the legend. I suggest instead to prepare a flow-chart that will describe the processing of the samples, and to indicate on this diagram the stages in which each sample was taken.

5. Are the results sufficient to support the interpretations and conclusions?

See question 3.

6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

See question 3.

7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

Yes.

8. Does the title clearly reflect the contents of the paper?

Yes.

9. Does the abstract provide a concise and complete summary?

Yes.

10. Is the overall presentation well structured and clear?

Yes.

11. Is the language fluent and precise?

The last two sentences in the last paragraph of part 3 should be shortened and rephrased.

There are some typo mistakes. For example:

- Page 9 part 4, maize should not be in italics. At the same line: tracer-C **and N** ...
- I suggest to mention only the year of publication for references in which the authors' names are part of the main text. For example: Paungfoo-Lonhienne and coworkers (2008)....

- last paragraph on part 4: correct to: Na_2CO_3
- Third paragraph of the discussion: ...a very high fraction of the extracted C would have **BEEN** derived from **A** refractory old SOM...
- Figure 1: It is not clear whether you use the ratio of Si/C or C/Si. Please use the same convention in the legend and insets.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

The text contains acronyms which are not explained at all, or explained after their first appearance:

- AMS, OM, ON, SOM, MN.

13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

See question 4

14. Are the number and quality of references appropriate?

Yes.

15. Is the amount and quality of supplementary material appropriate?

Not relevant

Principal Criteria **Excellent** (1) **Good** (2) **Fair** (3) **Poor** (4)

Scientific Significance:

Does the manuscript represent a substantial contribution to scientific progress within the scope of Biogeosciences (substantial new concepts, ideas, methods, or data)? 1

Scientific Quality:

Are the scientific approach and applied methods valid? Are the results discussed in an appropriate and balanced way (consideration of related work, including appropriate references)? 1

Presentation Quality:

Are the scientific results and conclusions presented in a clear, concise, and well-structured way (number and quality of figures/tables, appropriate use of English language)? 3