Peer review history for:

Lee-Thorp J, Sponheimer M. The development of chemical approaches to fossil hominin ecology in South Africa. S Afr J Sci. 2025;121(1/2), Art. #18529. https://doi.org/10.17159/sajs.2025/18529

HOW TO CITE:
The development of chemical approaches to fossil hominin ecology in South Africa [peer review history]. S Afr J Sci. 2025;121(1/2), Art. #18529. https://doi.org/10.17159/sajs.2025/18529/peerreview

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Reviewer 1: Round 1
Date completed: 15 July 2024
Recommendation: Accept / Revisions required / **Resubmit for review** / Resubmit elsewhere / Decline / See comments
Conflicts of interest: None

Does the review fall within the scope of SAJS?
Yes/No
Is the review written in a style suitable for a non-specialist and is it of wider than only specialist interest?
Yes/No
Do the Title and Abstract clearly and accurately reflect the content of the review?
Yes/No
Does the review provide a significantly novel perspective or significant recent advances in the field?
Yes/**No**
Is the objective of the review concisely stated?
Yes/No
Is appropriate and adequate reference made to other work in the field?
Yes/**No**
Do current debates and points of contention receive appropriate coverage?
Yes/No/**Not applicable**
Are gaps in the literature adequately identified?
Yes/No/Not applicable
Does the review provide direction for future research?*
Yes/No/Not applicable
Are the methodology and statistical treatment appropriate?
Not applicable/Yes/No/Partly/Not qualified to judge
Are the interpretations and recommendations aligned with the objective?
Yes/Partly/No
Please rate the manuscript on overall contribution to the field
Excellent/**Good**/Average/Below average/Poor
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Is the manuscript concise and free of repetition and redundancies?
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Yes/No/**Not applicable**
Please rate the manuscript on overall quality
Excellent/**Good**/Average/Below average/Poor
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Yes/No

Are you willing to review a revision of this manuscript?

Yes/No

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Yes/No

Comments to the Author:

The present manuscript is very similar to an earlier paper (cited by the authors) published in 2013 titled: 'A brief update on developments in early hominin biogeochemistry' although the present manuscript states it will focus on 'the development of biogeochemical advances…in South Africa'. As such, it emphasizes the truly groundbreaking studies initiated at UCT by J. Lee Thorp, and other present and former UCT colleagues. These studies were game changers in demonstrating the viability of using stable carbon isotope analyses in the tooth enamel (rather than bone mineral) of fossils for determining diet. Stated simply here in the review, it was the work of decades, well-deserving of placement and emphasis in SAJS. The UCT lab is known worldwide for its work on both fossil and archaeological materials. The latter is not discussed in the present manuscript, which must explain the lack of any reference to the equally important work of J. Sealy in providing critical baseline data.

There are a few, but not many, references more recent than the 2013 review (perhaps by different authors?) however. References 88 and 89 relate specifically to South Africa but most of the more recent papers refer to east Africa. In terms of east Africa, the work by Ambrose is not included even though it reported data from 'well-characterised African landscapes, plants and fauna…' (page 10 of manuscript) that the manuscript deems critical (and with which this reviewer agrees).

The manuscript is somewhat haphazard in its overview of the history of the development of biogeochemical advances underpinning applications to fossil hominins. Understandably, not all publications can be cited, and the emphasis is on South African scientists; but surely the original experimental study demonstrating that carbon isotope signals in animal tissues reflect those in their diets (DeNiro and Epstein 1978) needs to be included. In addition, on lines 200-201, the manuscript states 'carbon isotope data…not a trophic level indicator per se…', without giving the reference that conclusively demonstrated minimal relationship between the two variables across a wide range of animals (Schoeninger and DeNiro 1984). Other work, e.g., establishing the tooth/diet offset, isn't covered presumably because it took place in other laboratories.

Space is probably limited; yet it would be helpful to have a graph or something that illustrates the data produced by the UCT lab and those connected with it over the years. The group there has truly changed our perspective of the early hominins in South Africa and across Africa as a whole and having it summarized would be of great service moving forward.

Author response to Reviewer 1: Round 1

"present manuscript is very similar to an earlier paper"

AUTHOR: Title changed, the thrust of this manuscript has been made more explicit, rewritten & new section and discussion added to distinguish from earlier paper (so different in content and purpose).

"…archaeological materials. The latter is not discussed in the present manuscript, which must explain the lack of any reference to the equally important work of J. Sealy in providing critical baseline data"

AUTHOR: Done, and the issue of environmental baselines emphasized.

"…work of Ambrose not considered"

AUTHOR: Work of Ambrose now explicitly mentioned. Though we do point out that one of our difficulties was sticking to the hominin research work

"…work of DeNiro & Epstein"

AUTHOR: Done. But again hard to know where to draw the line

"on lines 200-201, the manuscript states 'carbon isotope data…not a trophic level indicator per se…', without giving the reference …. (Schoeninger and DeNiro 1984).

AUTHOR: We have removed the reference to "trophic level indicator" since that was not really the point. The point is that carbon isotopes are passed from prey to predator tissues. That is explicit in the ref supplied and was at all dealt with in the Schoeninger & DeNiro paper

"…be helpful to have a graph or something that illustrates the data produced by the UCT lab and those connected with it over the years"

AUTHOR: Great idea. But we could not manage to do it, it's a big undertaking, esp wrt deciding what should and should not be included. The field is vast, where to begin and where to stop?

"present manuscript is very similar to an earlier paper"

AUTHOR: Title changed, the thrust of this manuscript has been made more explicit, rewritten & new section and discussion added to distinguish from earlier paper (so different in content and purpose).

"…archaeological materials. The latter is not discussed in the present manuscript, which must explain the lack of any reference to the equally important work of J. Sealy in providing critical baseline data"

Reviewer 1: Round 2

Date completed: 18 November 2024

Recommendation: Accept / Revisions required / Resubmit for review / Resubmit elsewhere / Decline / See comments

Conflicts of interest: None

Comments to the Author:

I am very impressed by the obvious detailed effort taken by these authors in addressing both my and the other reviewer's comments. Both general and specific comments are considered and in the cases where suggested changes were not made, the authors give clear, reasoned explanations for why they did not make the change. The review is clear and as concise as possible (in my opinion) in terms of both the body of the manuscript and the references cited. it masterfully reviews the outstanding contributions made by the South African labs and shows the detailed work they have done over the decades. Although I've been aware of their work for a long time, this timely review gave me an even broader sense of what they've accomplished. Although the final decision is up to the Associate Editor, my recommendation is to publish as quickly as possible so as to make it available to the wide range of readers who will find it interesting.

Reviewer 2: Round 1

Not openly accessible