

Comment on soil-2020-81

Anonymous Referee #1

Referee comment on "The effect of soil properties on zinc lability and solubility in soils of Ethiopia – an isotopic dilution study" by Abdul-Wahab Mossa et al., SOIL Discuss.,
<https://doi.org/10.5194/soil-2020-81-RC1>, 2021

This study entitled: *Zinc lability and solubility in soils of Ethiopia—an isotopic dilution study*, aimed at assessing Zn lability in soils from a large part of the Amhara Region of Ethiopia and understanding the factors controlling the phyto-availability of Zn in these soils, characterised by diffuse Zn deficiency. The topic fits the scope of the journal, the experimental section provides enough details on sampling and analytical procedures, the discussion of the results is quite clear, and the conclusions are logical. The literature cited in the text seems to be recent and appropriate. However, to improve paper quality and scientific relevance, I invite the authors to make the following revisions:

- Introduction (page 1, lines 39-41): this section, describing the quality and fertility of agricultural soils in the sub-Saharan Africa, needs to be widened with a focus on Zn geochemistry.
- Although readers are referred to Gashu et al. (2020) for details on field sampling, I suggest providing a map of sampling area, at least as possible supplementary material.
- The overall methodology has to be better defined, analysing advantages and possible limitations as well.
- Did authors analyse any certified reference materials? Please provide more details on quality control and quality assurance of soil extractions.
- If possible, gather and show the main operating parameters of the ICP-OES and ICP-MS instruments in a table in the supplementary section.
- 3.1 section: classification of study soils according to World Reference Base for Soil Resources could be useful for potential readers.
- 3.1 section: in the PCA figure 2, it seems evident as DTPA-extractable concentrations are significantly and positively correlated with total concentrations of Zn in soil, while $\text{Ca}(\text{NO}_3)_2$ -extractable concentrations are not. Can you try to explain this erratic behaviour?
- 3.4 section (line 341-343): consider adding this recent reference <https://doi.org/10.3390/agronomy10091440>
- Conclusions (line 402): use both/and. Alternatively, either/or.

Once the authors will revise the manuscript accordingly, I recommend it for publication.

