

I read Ruiz-Giralt et al.'s work with much pleasure. It is a well-written and comprehensive paper, also respectful of the work already done in this area of extraordinary environmental interest. According to an original methodology, the authors have skillfully declined cross-cultural modelling, ethnoarchaeology and phytolith analysis to propose and test hypotheses about past agricultural practices, mainly focused on finger millet and sorghum agriculture, in the northern Horn of Africa region during the Aksumite Kingdom.

They produce an excellent paper highly relevant to Aksumite archaeology that will be much cited in the future. The text is well written, the methodology is well presented, and the results are of great interest, also given the poor environmental data available for this region and chronology that luckily are expanding considerably in recent years.

The structure of the paper (Introduction, Study area, Study case, Materials and methods, Results, Discussion, and Concluding remarks) is formally correct. The figures and tables are correct, as well as the Supplementary materials.

I suggest revising the list of references and some inline references. The following inline references are missing in the reference list at the end of the paper:

- line 77: Lucarini et al. 2016
- line 154: D'Andrea et al. 2008
- line 171: Breton 2018;
- lines 172-173: Schmidt et al. 2008b
- line 281: Harrower et al. 2019
- González-Rabanal et al. 2022

The following papers are listed in the reference list at the end but their inline references are missing:

- Cantor, S.B., Sun, C.C., Tortolero-Luna, G., Richards-Kortum, R., Follen, M., 1999. A Comparison of C/B Ratios from Studies Using Receiver Operating Characteristic Curve Analysis. *Journal of Clinical Epidemiology* 52, 885–892. [https://doi.org/10.1016/S0895-4356\(99\)00075-X](https://doi.org/10.1016/S0895-4356(99)00075-X)
- Fick, S.E., Hijmans, R.J., 2017. WorldClim 2: new 1-km spatial resolution climate surfaces for global land areas. *Int. J. Climatol* 37, 4302–4315. <https://doi.org/10.1002/joc.5086>
- Lancelotti, C., Biagetti, S., Zerboni, A., Usai, D., Madella, M., 2019. The archaeology and ethnoarchaeology of rain-fed cultivation in arid and hyper-arid North Africa. *Antiquity* 93, 1026–1039. <https://doi.org/10.15184/aqy.2019.109>
- Manel, S., Williams, H.C., Ormerod, S.J., 2001. Evaluating presence-absence models in ecology: the need to account for prevalence: Presence-absence modelling. *Journal of Applied Ecology* 38, 921–931. <https://doi.org/10.1046/j.1365-2664.2001.00647.x>
- Oliver, J.E., 1980. Monthly Precipitation Distribution: A Comparative Index. *The Professional Geographer* 32, 300–309. <https://doi.org/10.1111/j.0033-0124.1980.00300.x>
- Shangquan, W., Dai, Y., Duan, Q., Liu, B., Yuan, H., 2014. A global soil data set for earth system modeling. *Journal of Advances in Modeling Earth Systems* 6, 249–263. <https://doi.org/10.1002/2013MS000293>

If the cited papers have to be listed in alphabetical order and from the more recent to the older in the reference list at the end, as it seems to me, you should move:

- Schmidt, P.R., Curtis, M.C., Teka, Z., 2008. *The Archaeology of Ancient Eritrea*. The Red Sea Press, Asmara.

after

- Schmidt, P.R., 2009. Variability in Eritrea and the Archaeology of the Northern Horn During the First Millennium BC: Subsistence, Ritual, and Gold Production. *Afr Archaeol Rev* 26, 305–325. <https://doi.org/10.1007/s10437-009-9061-5>

Some typos are present:

- Line 52: (Vavilov 1925) is “Vavilov, N.I., 1926. Studies on the origin of cultivated plants. *Bulletin of Applied Botany and Plant Breeding*, Leningrad.” in the reference list;

- Line 56: (Winchell et al. 2018) is Winchell, F., Stevens, C.J., Murphy, C., Champion, L., Fuller, Dorian Q., 2017. in the reference list;
- Line 120: (Hagos et al. 2019) is “Hagos, H., Abrha, H., Hadgu, M., 2021. Agroclimatic zonation of Tigray region of Ethiopia based on aridity index and traditional agro-climatic zones. *J. Agrometeorol.* 21, 176–181. <https://doi.org/10.54386/jam.v21i2.229>”, in the reference list
- (R Core Team 2022) is “R Core Team, 2021. *R: A Language and Environment for Statistical Computing*. R Foundation for Statistical Computing, Vienna, Austria”. in the reference list.
- Line 132 Tierney and de Menocal in 2013. Erase “in”
- Line 195: According to Sulas (2009, 2014). Is the first (et al. 2009)?
- Vavilov, N.I., 1951. The Origin, Variation, Immunity and Breeding of Cultivated Plants. *Chronica Botanica* 13, 1–366. <https://doi.org/10.2134/agronj1952.00021962004400020016x>  
I think you can erase the doi, it links to a review of the work of Vavilov.

Please revise these. Some other useful references should be added:

- D’Andrea et al. 2011, Stable isotopic analysis of human and animal diets from two pre-Aksumite/Proto-Aksumite archaeological sites in northern Ethiopia. *Journal of Archaeological Science* 38 (2011) 367e374.
- Delle Donne 2021, Cereal ears on Aksumite coins: Reflections between numismatics and archaeobotany. *Rassegna di Studi Etiopici*, 3° serie, 5 (LII): 269-311.

In my opinion this paper can be published, provided the author solves the formal problems in the inline references and the References at the end.