

## Reply to recommender

We would like to thank the editor and the reviewer for their time and thoughtful comments. We appreciate the constructive feedback, which has helped us improve the clarity and depth of the manuscript. We have carefully considered all the comments raised and provide below a point-by-point response detailing how each has been addressed.

The new version of the manuscript can be found on bioRxiv (<https://www.biorxiv.org/content/10.1101/2025.02.21.639487v2>). A version with tracked changes will be submitted as part of this revision process.

### **Modification of the data tables (mostly new references added):**

One of the main comments concerned the absence of several relevant references in our literature review, which we had initially not included due to difficulties in accessing the original sources. We are grateful to the editor, the first reviewer and other colleagues, for helping us to access **key references** during the revision process, which allowed us to retrieve new information and update our database accordingly. **Eleven sites were added, corresponding to 14 entries** (details provided below). As a result, we have revised the relevant sections of the text (with tracked changes) and updated the associated figures.

The version originally submitted to *bioRxiv* and *PCI Archaeology* was **Version 1.0** of the database. The present manuscript is based on an updated version, referred to as **Version 1.1**, which incorporates additional entries. To reflect these updates and to support transparent versioning, we have added two new columns to both the main and radiocarbon tables that can be explored in the Data Tables tab of the web app: *Inclusion* (indicating the version in which each entry was added) and *Modification* (flagging changes made to pre-existing entries). This versioning system ensures clarity and reproducibility in the evolution of the dataset. Both new inclusions and modification of entries are detailed below and also in the *Versioning* tab on the website.

Here are the details of the new additions to the main table (which can be tracked in the data table, with the *Inclusion* column stating “V1.1”):

- **Mohenjo-Daro, Pakistan (ID 145)**
  - Marshall, J. (Ed.). (1931). Mohenjo-Daro and the Indus civilization: Vol. Volume I. Arthur Probsthain.
    - Describes date palm remains and thus was added in the database and reference list
  - Mackay, E. J. H. (Ed.). (1937). Further excavations at Mohenjo-Daro: Vol. Volume II. Government of India Press.

- Solely mentions the finds described in Marshall (1931), and the other evidence are iconographic, no new archaeobotanical remains described, so the reference was not included
- **Tell Yelkhi, Iraq (ID 144)**
  - Costantini, L., & Costantini Biasini, L. (1985). Le piante di Yelkhi. In *Terra Tra i Due Fiumi. Venti Anni Di Archeologia Italiana in Medio Oriente*. La Mesopotamia Dei Tesori (Vol. 57, p. 472). Torino: Il Quadrante Edizioni.
    - Describes date palm remains and thus was added in the database and reference list
- **Tappeh Yahyā (Tepe Yahya), Iran (ID 146)**
  - Costantini L., Costantini Biasini L., (in press) Palaeoethnobotanical Research of Protohistoric Settlements in the Dowlatabad and Soghun Valleys, Iran.
    - This paper, which we could not access in the original version of our article, appears to have never been formally published according to Claudia Moricca who has reviewed our manuscript. This prompted us to include date palm remains found at this site using the information from Costantini (1985). Although we had initially refrained from doing so, as we prefer to rely on original and verifiable sources, we judged it appropriate to include them given that the details in question were likely never published elsewhere.
- **Tepe Gaz Tavila (R37), Iran (ID 147)**
  - Same as for Tappeh Yahyā (Tepe Yahya).
- **Harappa, Pakistan (IDs 148, 149, 150)**
  - Vats, M. S. (1940). Excavations at Harappa. L. (English). Government of India Press.
    - Mentions that “*No actual date seeds have been found at Harappa, but familiarity with this Date palm, fruit is proved by two tiny faience sealings from Mound F which are shaped like a date seed.*” The reference was thus not included in this version, but we keep it for a later version of the database gathering figurative representations.
  - Weber, S. A. (1999). Seeds of urbanism: Palaeoethnobotany and the Indus Civilization. *Antiquity*, 73(282), 813–826.
    - Date seeds reported and thus included in the database (three new entries for three periods)
  - Weber, S. A. (2003). Archaeobotany at Harappa: Indications for Change. In S. A. Weber & W. R. Belcher (Eds.), *Indus Ethnobiology: New Perspectives from the Field* (pp. 175–188). Lexington Books.
    - Additional details reported on the date seeds described in Weber (1999) and thus included also as a reference for the three entries for Harappa
- **Balu, India (ID 151)**
  - Saraswat, K. S., & Pokharia, A. K. (2002). Harappan plant economy at ancient Balu, Haryana. *Pragdhara*, 12, 153–171
    - One *Phoenix* seed fragment, included in the database
- **Kunal, India (ID 152)**

- Saraswat, K. S., & Pokharia, A. K. (2003). Palaeoethnobotanical investigations at early Harappan Kunal. *Pragdhara*, 13, 105–139.  
→ 4 seeds were recovered, now included in the database
- **Sanghol, India (IDs 153, 154)**
  - Pokharia, A. K., & Saraswat, K. S. (1998-1999). Plant Economy during Kushana Period (100-300A.D.) at Ancient Sanghol, Punjab. *Pragdhara*, 9.  
→ 3 seeds recovered (residential complex) , now included in the database
  - Saraswat, K. S., & Pokharia, A. K. (1997-1998). On the Remains of Botanical Material used in Fire-Sacrifice Ritualized during Kushana Period at Sanghol (Punjab). *Pragdhara*, 8.  
→ 3 seeds recovered (religious complex) , now included in the database
- **Al-Kashawba', Yemen (ID 155)**
  - de Moulins, D., & Phillips, C. (2009). The doum palm (*Hypahene thebaica*) in South Arabia: Past and present. In A. S. Fairbairn & E. Weiss (Eds.), *From Foragers to Farmers: Papers in Honour of Gordon C. Hillman* (pp. 117–126). Oxbow Books.
  - Phillips, C. (2007). Preliminary Excavations at Al-Kashawba' 2006. *Bulletin of the Society for Arabian Studies*, 12, 10–11.  
→ Date charred remains are mentioned, now included in the database
- **Mugharat al-Kahf (WTN01), Oman (ID 156)**
  - Miki, T., Kuronuma, T., Kitagawa, H., & Kondo, Y. (2022). Cave occupations in Southeastern Arabia in the second millennium BCE: Excavation at Mugharat al-Kahf, North-Central Oman. *Arabian Archaeology and Epigraphy*, 33(1), 85–107.  
→ Date seeds recovered and now added to the database
- **Kalbā (K4), UAE (ID 157)**
  - Lindauer, S. (2019). Radiocarbon Reservoir Effects on Shells from SE Arabia in the Context of Paleoenvironmental Studies [Ph.D. Thesis, Technische Universität Darmstadt].  
→ One date seed now added in the database

Modifications to existing entries of the main table were limited and are listed point by point below. For all other (unmodified) entries, the *Modification* field displays “NA”, indicating that no change was made since their initial inclusion. This structure allows transparent tracking of future updates.

- **Mehrgarh, Pakistan (ID 100)**
  - The citation originally listed as Costantini (1983) has been corrected to Costantini (1984).
- **Yotavata, Israel (ID 54)**
  - The link to the article Ramsay (2015) was missing and has been added
- **Al-Khidr, Kuwait (ID 84)**
  - Removing the mention of the imprint in the 'Number' column, which is supposed to be solely devoted to archaeobotanical remain quantification
- **Tell F3-F6 (Failaka), Kuwait (ID 86)**
  - Removing the mention of the imprint in the 'Number' column, which is supposed to be solely devoted to archaeobotanical remain quantification
- **Hegra (Madā'in Šāliḥ), Saudi Arabia (ID 110)**

- Removing the mention of the imprint in the 'Number' column, which is supposed to be solely devoted to archaeobotanical remain quantification
- **Tell Abraq, UAE (IDs 137, 138)**
  - Radiocarbon dating of date palm material has been identified for two out the three contexts of this site, and their existence is now mentioned in the dedicated field and the reference was updated

The table summarizing the radiocarbon dates obtained from date palm material has also been updated with new entries:

- **Mugharat al-Kahf (WTN01), Oman (ID 156)**
  - 10 radiocarbon dates obtained from date seeds, included as ID 57 to 67
- **Kalba (K4), UAE (ID 157)**
  - 1 dated date seed (ID 68)
- **Tell Abraq, UAE**
  - ID 137: three dated date seeds (IDs 73 to 75)
  - ID 138: four dated date seeds (IDs 69 to 72)

We also checked the below references but found no described evidence of date palm macroremains.

- Costantini, L., & Costantini Biasini, L. (1985). Laboratory of Bioarchaeology: Palaeoethnobotanical Investigations in the Middle East and Arabian Peninsula (1985). East and West, 35(4), 331–336.
- Costantini, L. (1990). Ecology and Farming of the Protohistoric Communities in the Central Yemeni Highlands. In The Bronze Age Culture of Hawlān at-Tiyāl and al-Hadā, A First General Report. (IsMEO, pp. 187–204).
  - Solely date imprints are reported, so the site was not included in the database
- Bates, J. (2015). Social organization and change in Bronze Age South Asia: A multi-proxy approach to urbanisation, deurbanisation and village life through phytolith and macrobotanical analysis [PhD thesis]. University of Cambridge.
  - No macrobotanical date palm remains are described, solely phytoliths

Lastly, we also would like to thank the reviewers for highlighting an error in the citation of Costantini & Biasini (1985) which should be cited as Costantini & Costantini Biasini (1985). The mistake is now corrected in the manuscript. A few other minor corrections were done on the citations of the bibliographic references, and these are seeable with tracked changes in the manuscript and they were updated on the website and the data tables.

Changes have also been implemented in the web application, which now displays **Version 1.1** of the platform. Updates were necessary to accommodate the display of the new *Inclusion* and *Modification* fields in the interface. As with the data tables, all changes related to the Shiny app are documented in the *Versioning* section of the web platform, and referenced in the manuscript. The source code of the Shiny application is version-controlled and openly accessible through the Git repository cited in the article and in the web page.

**On the additional table compiling iconographic references and written sources:**

Another suggestion concerned the inclusion of a table compiling iconographic references and written sources on dates. While we fully agree on the interest and potential value of such a compilation — and in fact acknowledge this need in the *Discussion* section of the manuscript — we believe that this task would require significant additional work and lies beyond the scope and expertise of the current team. For these reasons, we have not included such a table in the revised version.

**On the separation of the manuscript into two separate studies:**

We appreciate the reviewer 2's thoughtful comment and fully agree that both the presentation of the repository and the synthesis have significant value. However, we believe that keeping them together in a single manuscript is important for several reasons. The primary aim of making the repository openly accessible is precisely to encourage further reuse and in-depth reinterpretation by others. While our synthesis remains concise, it offers a first integrative perspective based on the structured archaeobotanical data we compiled. We see this as a necessary first step, and not as a definitive or exhaustive interpretation. More detailed analyses, including region- or period-specific studies, could indeed follow in future work—by our team or others.

To reflect the interpretative dimension of the manuscript more clearly, we have revised the title (see below), the last paragraph of the *Introduction*, and the first paragraph of the *Discussion*.

**On the title of the paper:**

We acknowledge the editor's and Reviewer 2's comment that the original title did not adequately reflect the focus on the history of date palm cultivation and domestication in Southwest Asia up to the end of the pre-Islamic period.

We would prefer not to restrict the title to this specific region or timeframe, as the objective of the *DateBack* platform is to support future expansions to other areas and periods. That being said, we fully agree that the manuscript does contain an interpretative component, which was not well reflected in the original title. We have therefore revised it to better reflect this dimension. The new title is:

*DateBack*, an evolving open-access repository of *Phoenix* archaeobotanical data supporting new perspectives on the history of date palm cultivation

We hope this revised version more clearly reflects both the current scope and the long-term aims of the project.