





Recommendation for the Publication of DateBack: An Open Archaeobotanical Repository

Claudia Speciale  based on peer reviews by **Claudia Moricca**  and 1 anonymous reviewer

Margot Besseiche, Elora Chambraud, Vladimir Dabrowski, Elisa Brandstatt, François Sabot, Charlène Bouchaud, Muriel Gros-Balthazard (2025) DateBack, an evolving open-access repository of *Phoenix* archaeobotanical data supporting new perspectives on the history of date palm cultivation. bioRxiv, ver. 2, peer-reviewed and recommended by Peer Community in Archaeology. <https://doi.org/10.1101/2025.02.21.639487>

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I wholeheartedly recommend the publication of "DateBack, an evolving open-access repository of *Phoenix* archaeobotanical data supporting new perspectives on the history of date palm cultivation" (Besseiche et al. 2025). This work emerges at a crucial moment in archaeobotanical research, responding to calls for more integrative, open-access data infrastructures (e.g. Lodwick 2019; Reiter et al. 2024) that enable comparative studies across time and space.

The authors address a key question in agricultural and environmental history: how, when, and where did humans shape the distribution and cultivation of *Phoenix dactylifera*? They hypothesize that only through standardized, large-scale archaeobotanical data, long-standing narratives of domestication and dispersal can be assessed. To test this, they introduce DateBack, a curated database that aggregates published and unpublished archaeobotanical evidence, including seed morphometrics, radiocarbon dates, and contextual metadata.

The methodology is rigorous and transparent, involving systematic data collection, harmonization, and open-source publication following FAIR principles. The database's preliminary results already suggest regionally distinct cultivation trajectories and long-distance interactions shaping date palm history, particularly in North Africa and the Arabian Peninsula.

I recommend the paper because it sets a new standard for data sharing in archaeobotany, moving beyond isolated case studies toward reproducible, collaborative science. The project fills a critical infrastructure gap

and will likely catalyze new cross-disciplinary research. Its relevance extends from archaeology and botany to digital humanities and heritage data management.

In sum, DateBack is a timely and necessary resource, and I wish its publication will have a lasting impact on the field.

References:

Margot Besseiche, Elora Chambraud, Vladimir Dabrowski, Elisa Brandstatt, François Sabot, Charlène Bouchaud, Muriel Gros-Balthazard (2025). DateBack, an evolving open-access repository of Phoenix archaeobotanical data supporting new perspectives on the history of date palm cultivation. bioRxiv, ver.2 peer-reviewed and recommended by PCI Archaeology

<https://doi.org/10.1101/2025.02.21.639487>

Lodwick, L. (2019). Sowing the Seeds of Future Research: Data Sharing, Citation and Reuse in Archaeobotany. Open Quaternary, 5, 7. <https://doi.org/10.5334/oq.62>

Reiter, S. S., Staniuk, R., Kolář, J., Bulatović, J., Rose, H. A., Ryabogina, N. E., ... & Timpson, A. (2024). The BIAD Standards: Recommendations for Archaeological Data Publication and Insights From the Big Interdisciplinary Archaeological Database. Open Archaeology, 10(1), 20240015.

<https://doi.org/10.1515/opar-2024-0015>

Reviews

Evaluation round #1

DOI or URL of the preprint: <https://doi.org/10.1101/2025.02.21.639487>

Version of the preprint: 1

Authors' reply, 08 May 2025

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Decision by Claudia Speciale , posted 01 April 2025, validated 01 April 2025

Dear authors,

Thanks for involving me in this process. I accepted to follow the paper and endorse a potential recommendation because I think this work represents a valid contribution for the study of date history. Nevertheless, I agree with the comments and suggestions that the two reviewers present.

- Literature can and should be integrated

- Add a third table with iconographic references and written sources on dates

- Choose a title that reflects better the history of date cultivation and domestication in Southwest Asia up to the turn of the era

So please accept my proposal of these revisions before recommending it.

With my best wishes

The article's title gives a clear indication of its contents, with a fun wordplay. All the key points assessed in the article are listed in the abstract. The presented database represents an important contribution to the state of the art concerning the reconstruction of the complex history of the spread, cultivation and diversification of the Phoenix genus in Southwest and South Asia. As the authors themselves state, this area is limited geographically, but future perspectives see its extension to include North Africa. The text is well structured and well written, also from a linguistic perspective. The limitations, both of the method and the presented database are illustrated and well argued.

The introduction is extensive, covering numerous topics related to the importance of date, and the current state of the knowledge concerning the history of its consumption and domestication, not only considering archaeobotanical data, but also other disciplines (including archaeology and iconography). The potential and limitations of different types of plant remains, both in terms of level of identification and type of information provided are also well described, along with the current state of art of archaeobotanical databases for the selected study area.

In the discussion section, some areas and time periods scarce in data are highlighted, but interpreted also taking into consideration biases related to the amount of archaeological excavations and availability of reports. The authors did an extensive literature review to gather data. It is, however, a pity, that some studies were excluded due to the difficulties related to the acquisition of full-texts. While I am also facing similar difficulties with my research, with the tools at my disposal, I was easily able to obtain a copy of the cited text by Costantini and Costantini Biasini (1985). I would be glad to share it. Considering this publication, I would like to note that the surname of the second author is Costantini Biasini (the C. is not the initial of a second name), therefore I would suggest its correction in the text and reference list.

Title and abstract

Does the title clearly reflect the content of the article? ☒ Yes, ☐ No (please explain), ☐ I don't know

Does the abstract present the main findings of the study? ☒ Yes, ☐ No (please explain), ☐ I don't know

Introduction

Are the research questions/hypotheses/predictions clearly presented? ☒ Yes, ☐ No (please explain), ☐ I don't know

Does the introduction build on relevant research in the field? ☒ Yes, ☐ No (please explain), ☐ I don't know

Materials and methods

Are the methods and analyses sufficiently detailed to allow replication by other researchers? ☒ Yes, ☐ No (please explain), ☐ I don't know

Are the methods and statistical analyses appropriate and well described? ☒ Yes, ☐ No (please explain), ☐ I don't know

Results

In the case of negative results, is there a statistical power analysis (or an adequate Bayesian analysis or equivalence testing)? ☐ Yes, ☐ No (please explain), ☒ I don't know

Are the results described and interpreted correctly? ☒ Yes, ☐ No (please explain), ☐ I don't know

Discussion

Have the authors appropriately emphasized the strengths and limitations of their study/theory/methods/argument? ☒ Yes, ☐ No (please explain), ☐ I don't know

Are the conclusions adequately supported by the results (without overstating the implications of the findings)? ☒ Yes, ☐ No (please explain), ☐ I don't know

Reviewed by anonymous reviewer 1, 31 March 2025

The preprint proposed by the authors presents the first version of *DateBack*, a new open-access digital repository on the archaeobotanical macroremains of the genus *Phoenix*. This work is exceptional due to both its quality and complexity, creating an interactive website with all the compiled data that is very easy to access and consult.

The authors have clearly focused on a specific problem: the scarcity of archaeobotanical data on dates that would allow for an in-depth investigation into the history of their cultivation. To address this, they have conducted an extensive bibliographic review, which has enabled them to compile a large portion of the existing archaeobotanical information, with some exceptions as specified in the text.

I consider that both the repository and the interpretations of some of the data presented in this text constitute outstanding work. The creation of a web domain where all the research is dynamically accessible allows for direct and effective data consultation. The interactive maps, which intuitively connect the chronologies and data to the archaeological sites, are particularly useful. Personally, I believe it will serve as a model for future studies on other species across different chronologies and regions. It also provides a solid foundation for continuing the study of the history of date cultivation in other regions and time periods, as proposed by the authors in the document, by incorporating new geographical areas and chronologies.

Regarding the repository, I have only one suggestion. If the necessary resources and time are available, I believe it would be interesting and useful to create a third table with iconographic references or even written sources on dates. Since these types of sources have a specific location and chronology, they could also be presented interactively, serving as evidence of the presence of *Phoenix* species in certain places and specific moments in time.

On the other hand, I believe that the text proposed for the preprint could be divided into two separate studies. Presenting the repository alongside the history of date cultivation in Southeast Asia somewhat weakens the prominence of the latter. I believe that each of these components holds significant value and could be developed independently as separate works. While it is true that both sections are thematically related, they should be treated separately as they address different aspects.

Overall, I think this is an excellent work, as the authors have succeeded in simplifying the always complex task of compiling archaeobotanical data, and have clearly explained how the data were collected and from which sources. The online interface is also very clear and intuitive for consultation.

Below, I present responses to the suggested questions, breaking down the different sections of the document:

Title and abstract

Does the title clearly reflect the content of the article?

No, if the original text is published, it does not reflect that the document details the history of date cultivation and domestication in Southwest Asia up to the turn of the era.

Does the abstract present the main findings of the study?

Yes, the abstract explains why this repository was created and that it will analyse the history of date cultivation in the millennia before our era.

Introduction

Are the research questions/hypotheses/predictions clearly presented?

Yes, the problems, research questions, and hypotheses are explained very clearly and concisely.

Does the introduction build on relevant research in the field?

Yes.

Materials and methods

Are the methods and analyses sufficiently detailed to allow replication by other researchers?

Yes, they are highly detailed and could be replicated in other regions, time periods, or even with other species.

Are the methods and statistical analyses appropriate and well described?

Yes, the challenges of quantifying macro-remains of fruits and seeds are explained, as well as how this study addresses them.

Results

In the case of negative results, is there a statistical power analysis (or an adequate Bayesian analysis or equivalence testing)?

There are no negative results, and this type of statistical analysis is not necessary for this repository and the proposed study of cultivation history.

Are the results described and interpreted correctly?

Yes, I believe they are accurately described and interpreted.

Discussion

Have the authors appropriately emphasised the strengths and limitations of their study/theory/methods/argument?

Yes, particularly in relation to the challenges of the archaeobotanical record in certain regions.

Are the conclusions adequately supported by the results (without overstating the implications of the findings)?

Yes, they have identified a possible domestication area and its subsequent expansion across the rest of the geographical region.