

Review Form 3

Journal Name:	Current Journal of Applied Science and Technology
Manuscript Number:	Ms_CJAST_130619
Title of the Manuscript:	DESIGN OF A HYBRID SOLAR DRYER INCORPORATING THERMAL STORAGE DEVICE
Type of the Article	Original Research Article

PART 1: Comments

	Reviewer's comment	Author's Feedback (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.	This manuscript introduces a hybrid solar dryer incorporating latent heat storage and dehumidification technologies, addressing critical bottlenecks in solar drying—efficiency and autonomy. The innovative integration of paraffin wax for thermal storage and silica gel for air dehumidification offers a practical solution for small and medium-sized enterprises (SMEs) in sub-Saharan Africa. The results demonstrate measurable efficiency improvements and the potential for reducing post-harvest losses in a region heavily affected by food insecurity, making this work a valuable contribution to sustainable agricultural practices and energy-efficient technology.	
Is the title of the article suitable? (If not please suggest an alternative title)	The current title, "Design of a Hybrid Solar Dryer Incorporating Thermal Storage Device," is relevant but can be more specific. A suggested alternative: "Development and Performance Evaluation of a Hybrid Solar Dryer with Latent Heat Storage and Dehumidification Systems."	The authors fully agree with reviewer's proposal. The title has therefore been corrected and becomes: Development and Performance Evaluation of a Hybrid Solar Dryer with Latent Heat Storage and Dehumidification Systems

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Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstract is fairly comprehensive, highlighting the problem, solution, and key results. However, it could be more explicit about the quantitative findings, such as specifying the magnitude of the efficiency improvement (e.g., 3%) and the dehumidification rate (16%). Suggested revisions: <ul style="list-style-type: none">• Include the exact testing conditions (e.g., location, average solar radiation).• Clarify the practical implications, such as reduced drying time or improved product quality. Deletion is unnecessary, but improving precision would enhance clarity.	The reviewer is right. The abstract was completed by providing more precision on the conditions of drying tests.
Is the manuscript scientifically, correct? Please write here.	The manuscript appears scientifically sound, with clear methodologies and consistent use of established references. However, a few concerns need addressing: <ul style="list-style-type: none">• The effectiveness of paraffin wax in practical large-scale applications could be elaborated upon.• The results section could benefit from a deeper statistical analysis (e.g., error bars, confidence intervals) to support the claimed efficiency improvements.	We agree with the reviewer. We have completed the references on the use of paraffin. The new references added are below listed. [8] R. K. Sharma, P. Ganesan, et V. V. Tyagi, « Long-term thermal and chemical reliability study of different organic phase change materials for thermal energy storage applications », J. Therm. Anal. Calorim., vol. 124, no 3, p. 1357-1366, juin 2016, doi: 10.1007/s10973-016-5281-5 [9] W. Lin, Z. Ma, H. Ren, J. Liu, et K. Li, « Solar Thermal Energy Storage Using Paraffins as Phase Change Materials for Air Conditioning in the Built Environment », in Paraffin - an Overview, F. Samir Soliman, Éd., IntechOpen, 2020. doi: 10.5772/intechopen.86025. [10] IRENA, « Innovation Outlook: Thermal Energy Storage ». 2020. [En ligne]. Disponible sur: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Nov/IRENA_Innovation_Outlook_TES_2020.pdf [16] R. A. Rahman, A. H. Lahuri, et Ismail, « Thermal stress influence on the long-term performance of fast-charging paraffin-based thermal storage », Therm. Sci. Eng. Prog., vol. 37, p. 101546, janv. 2023, doi: 10.1016/j.tsep.2022.101546 [25] A. Yadav et V. K. Bajpai, « Experimental Comparison of Various Solid Desiccants for Regeneration by Evacuated Solar Air Collector and Air Dehumidification », Dry. Technol., vol. 30, no 5, p. 516-525, avr. 2012, doi: 10.1080/07373937.2011.647997 [26] K. Lim, J. Kim, et J. Lee, « Comparative study on adsorbent characteristics for adsorption thermal energy storage system », Int. J. Energy Res., vol. 43, no 9, p. 4281-4294, juill. 2019, doi: 10.1002/er.4553 Regarding the statistical analyzes on the improvement of yield, the experiments were disrupted by the winter period. These first promising experimental results will be validated with other tests which will be carried out over several consecutive days, also varying the quantities of paraffin and silica gel. This will be the subject of a new article. A sentence on this perspective was added at the abstract level and at the end of the discussion section.
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The references are adequate and include recent studies, particularly on latent heat storage and dehumidification systems. However, a few additional references could strengthen the discussion: <ul style="list-style-type: none">• Studies focusing on the long-term performance of paraffin-based storage systems in tropical climates.• Comparative evaluations of silica gel versus other solid adsorbents in solar drying.	The new references added and listed above, make it possible to satisfy this relevant remark of the examiner.

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Is the language/English quality of the article suitable for scholarly communications?	<p>The language is clear and scholarly but can benefit from minor grammatical corrections and improved sentence structures in some sections for smoother readability. Examples:</p> <p>Replace "We then present the first tests and results obtained" with "The initial tests and results are subsequently presented."</p> <p>Ensure consistent terminology, e.g., "thermal storage system" versus "latent heat storage."</p>	The article has been proofread and the sentence structures have been improved.
Optional/General comments	<p>No competing interests are declared, and none are apparent from the content.</p> <p>No plagiarism is suspected based on the originality of the design and results presented. A similarity check using tools like Turnitin or iThenticate is recommended for confirmation.</p> <p>The manuscript demonstrates significant relevance by addressing efficiency and autonomy challenges in solar drying, particularly for sub-Saharan Africa. The integration of paraffin wax and silica gel as latent heat storage and dehumidification systems is innovative, with clear potential to reduce post-harvest losses. While the methodology is scientifically robust, the results would benefit from statistical validation and a deeper discussion on scalability and economic feasibility. Minor grammatical refinements and enhanced data presentation would further improve clarity. Overall, this is a well-structured and impactful study requiring only minor revisions.</p>	

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Are there ethical issues in this manuscript?	(If yes, Kindly please write down the ethical issues here in details)	We agree with the reviewer's observations and suggestions. The article has been corrected accordingly and the corrected parts are highlighted in the new version of the article.