

## Review Form 1.7

Journal Name:	<b>Journal of Scientific Research and Reports</b>
Manuscript Number:	<b>Ms_JSRR_100377</b>
Title of the Manuscript:	<b>Experimental evaluation of the thermal performance of a solar air collector</b>
Type of the Article	Research Article

### **General guideline for Peer Review process:**

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<https://www.journaljsrr.com/index.php/JSRR/editorial-policy> )

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**PART 1: Review Comments**

	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)
<p><b>Compulsory</b> REVISION comments</p> <ol style="list-style-type: none"> <li><b>Is the manuscript important for scientific community?</b> (Please write few sentences on this manuscript)</li> <li><b>Is the title of the article suitable?</b> (If not please suggest an alternative title)</li> <li><b>Is the abstract of the article comprehensive?</b></li> <li><b>Are subsections and structure of the manuscript appropriate?</b></li> <li><b>Do you think the manuscript is scientifically correct?</b></li> <li><b>Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form.</b></li> </ol> <p><b><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></b></p>	<p>The article is interesting, the text is clear, the methodology is adequate to the proposed objectives, <b>it requires minor corrections, I suggest the inclusion of current references from recent articles between the period 2019 -2021.</b> Include the <b>important agricultural crops of the Burkina Faso region.</b> I add some information about the importance of the manuscript. The presented prototype can be a viable solution to improve energy efficiency and <b>food security</b> in Burkina Faso and other developing countries, contributing to the reduction of post-harvest losses and increased income of local agricultural producers. The most important agricultural crops in the Burkina Faso region include <b>maize, sorghum, rice, cotton, peanuts, beans, sesame and shea.</b> In addition to these, other crops such as <b>bananas, mangoes, pineapples, and oranges are also grown on a smaller scale.</b> According to the study presented, it can heat the drying air efficiently, with a considerable variation in air temperature between the inlet and outlet of the collector, which results in a wide range of variation in thermal efficiency. The air speed of 0.3 m/s is considered adequate for the collector to work, and solar irradiation that varies between 142 W/m<sup>2</sup> and 837 W/m<sup>2</sup> is a typical range of solar irradiation in various regions of the world. <b>It is important to note that the angle of inclination of the solar collector in relation to the horizontal (12°)</b> was chosen to maximize the capture of solar radiation, since this is more intense when the solar rays fall perpendicularly on the collecting surface. The air temperature variation between the inlet and outlet of the collector, which varies between 0.1°C and 74.4°C, indicates that the efficiency of the collector varies significantly with the conditions of solar irradiation and air flow. The variation range of thermal efficiency, between 0.94% and 50.68%, is wide and indicates that the collector can be very efficient under ideal conditions but may not be so efficient under conditions of low solar irradiation or low flow of water. In the drying chamber, the air temperature varies between 27.2 °C and 69.2 °C, indicating that the collector is capable of significantly heating the air, making it suitable for drying products that require a temperature higher. <b>In addition,</b> the prototype can be further improved by including techniques such as <b>forced convection, free convection, increased heat transfer area and use of different materials.</b> Another <b>future possibility</b> is the use of <b>nanoparticles</b> to improve <b>the absorption of the absorber plate and increase its effectiveness.</b> In addition, a water pump can be used, improving the entire system for irrigation of crops, the solar irrigation system can help with the water issue uses solar energy to pump water from underground wells and surface sources, <b>reducing dependence on fossil fuels and electricity.</b> This can make irrigation more accessible and cost-effective for farmers in the region, especially in remote areas that lack access to electricity infrastructure.</p> <p>Obs.: <b>remove the following text from page 07: "Each figure should have a caption. The caption should be concise and typed separately, not on the figure area. Figures should be self-explanatory. Information presented in the figure should not be repeated in the table . All symbols and abbreviations used in the illustrations should be defined clearly. Figure legends should be given below the figures.] A sample figure is given in fig. 1."</b></p> <p>Obs.: <b>After including the current references, review the formatting of the entire article as requested by the journal.</b></p> <p>Here's an interesting reference: GÜRBÜZ, Emine Yağız et al. Improving the performance of an unglazed solar air collector using mesh tubes and Fe<sub>3</sub>O<sub>4</sub> enhanced absorber coating. Energy, pg. 127704, 2023.</p>	
<p><b>Minor</b> REVISION comments</p> <ol style="list-style-type: none"> <li><b>Is language/English quality of the article suitable for scholarly communications?</b></li> </ol>		
<p><b>Optional/General</b> comments</p>		

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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(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)</i>
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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