

Review Form 3

Journal Name:	Chemical Science International Journal
Manuscript Number:	Ms_CSIJ_126842
Title of the Manuscript:	Mathematical modelling of the drying kinetics of Clupea harengus from Congo
Type of the Article	Research

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PART 1: Review Comments

Compulsory REVISION 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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	The research provides valuable insights for the community and future researchers on the drying kinetics model of <i>Clupea harengus</i>, offering a practical approach to safe preservation through drying. Mathematical modeling in this context is beneficial for optimizing material selection, machinery, and process inputs, ultimately supporting cost-efficient scale-up for manufacturing. However, the study's scope is quite narrow, as it includes a limited range of mathematical models and a small sample size. Expanding the study to incorporate at least five drying kinetic models and a broader variety of samples would enhance its depth and applicability. Thin-layer drying kinetics are influenced by several factors, including temperature, airspeed (if forced), sample thickness, and shape. Including these factors would improve the robustness and relevance of the findings. Given that mathematical models for drying kinetics in both oven- and solar-dried products are well-studied across various fields, incorporating these additional variables would align this study with best practices in the field. The findings for <i>Clupea harengus</i> are promising, but the inclusion of these additional factors, either in the research itself or in the recommendations for future work, would greatly enhance its impact and utility.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes, the title is appropriate but needs some modifications, such as "Mathematical Modelling of Drying Kinetics of Oven-Dried *Clupea harengus*." The phrase "from the Congo River" may not be essential here; if you consider it necessary, make it more precise by specifying "from the Congo River" and include this detail in the abstract and methodology instead. Additionally, providing a detailed description of the methodology would be beneficial to support future research and validation efforts by other researchers.	
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 generally comprehensive but could benefit from a few adjustments. For instance, the initial sentence about modelling could be removed, as it may be redundant. Additionally, ensure consistency in terminology between the title and abstract—after introducing *Clupea harengus*, using "herring fish" in subsequent mentions may improve readability. It would also be helpful to specify the sample used in this study. Rather than including "from Congo" in the title, it's better to mention this detail in the abstract, as well as in the methods and procedures sections. Overall, the abstract meets essential requirements and effectively summarizes the study's main points.	
Are subsections and structure of the manuscript appropriate?	Yes In Figure 2c, the reason behind the high fluctuations at 60°C should be explained in more detail. Specifically, the temperature decreases at 150 minutes, increases at 200 minutes, and then decreases again. A potential cause for this fluctuation could be the variation in drying rate due to changes in the material's moisture content or external factors such as humidity or airflow. It is important to provide a detailed justification for these fluctuations, explaining why the graph behaves differently compared to others. In Figure 3, the label on the x-axis is unclear. It currently says "temps (min)," but it should be clarified as "time (min)," since the x-axis represents the time in minutes rather than temperatures. Additionally, the term "x*" needs clarification. It is important to define what "x*" represents and what it indicates in the context of the graph, so the reader can better understand its significance. These adjustments will improve the clarity of the figures and ensure that the data is well-explained and accessible for further analysis.	
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The manuscript is scientifically sound and aligns with established research in the field of drying kinetics modeling. Mathematical modeling is a crucial tool for understanding and optimizing the drying process, which is essential for preserving food products like <i>Clupea harengus</i>. The methodology and approach are technically robust, but revisions based on reviewer feedback would enhance its clarity and accuracy. Incorporating additional factors such as sample size, shape, and other mathematical models would strengthen the study and make it more comprehensive for future researchers working on herring fish drying kinetics. Overall, addressing the reviewer comments will improve the manuscript and ensure its scientific rigor.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The references in the manuscript are not sufficient or recent enough. There have been many relevant studies published in recent years across various journals, so it is important to review and incorporate these newer articles where possible. Additionally, many of the cited references are not directly related to the title, which	

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:	focuses on the drying kinetics and mathematical modelling of herring fish. Most of the references are centered on fruits, vegetables, and other products, which may not be as relevant. It is recommended to update the reference list with more recent and pertinent studies, such as this one: https://doi.org/10.11648/j.ajche.20231102.12 . This will help strengthen the manuscript's alignment with the research topic.	
Minor REVISION comments Is the language/English quality of the article suitable for scholarly communications?	Yes, the language is generally suitable for the community, but some revisions are needed. There are minor corrections to be made, such as ensuring uniformity in the units— for example, the units for activation energy are inconsistent. Additionally, in Table 2, the values for k' and k'' are missing, so it's unclear why they are included in the table. It is recommended to either remove them or provide a clear explanation in the table description. Lastly, the table title should be revised to be more descriptive for better clarity.	
Optional/General comments	The research is interesting, and I would like to commend the authors for identifying a valuable research gap. If all the reviewer comments are addressed, the manuscript will be ready for publication. I appreciate the authors' efforts in tackling significant challenges in the drying kinetics of herring fish. Drying is a crucial area of research, especially in the context of balancing food demand with rapid population growth and increasing energy consumption. Keep up the great work and continue pursuing such impactful findings.	

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)	

Reviewer Details:

Name:	Tigabu Mekonnen Belay
Department, University & Country	Addis Ababa Science and Technology University, Ethiopia