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| Journal Name: | [Asian Journal of Research and Review in Agriculture](https://jagriculture.com/index.php/AJRRA) |
| Manuscript Number: | **Ms\_AJRRA\_1907** |
| Title of the Manuscript: | **OPTIMIZATION OF A ROTARY CAGE-TRAY FISH DRYER USING I-OPTIMAL SURFACE RESPONSE METHODOLOGY FOR PROCESS EFFICIENCY AND PRODUCT QUALITY** |
| Type of the Article |  |

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| **PART 1: Comments** | | |
|  | **Reviewer’s comment**  **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **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 work is highly relevant to the scientific community focused on food preservation and agro-processing technology. It contributes to sustainable development goals by proposing an energy-efficient solution that reduces post-harvest losses. The novel combination of dual heat sources and mechanized rotation offers practical applications for smallholder and commercial processors. The use of I-Optimal RSM to fine-tune the drying parameters highlights a data-driven strategy that can be adapted across various food processing technologies.** |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **Yes, the title is clear, specific, and captures the key elements of the research. No changes needed.** |  |
| **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.** | **Yes, the abstract is informative and well-structured. However, consider shortening some complex sentences and explicitly stating key findings earlier. Also, the mention of “recommendations” might be better suited to the conclusion rather than the abstract.** | The abstract has been rewritten as follows: Preserving fish, a highly perishable commodity with ~80% moisture content, demands efficient drying technologies to maintain nutritional quality and extend shelf life. This study optimized a newly developed rotary cage-tray fish dryer, designed with dual heat sources (charcoal-wood and gas) with a mechanized turning system, to enhance process efficiency and product quality during catfish (*Clarias* *gariepinus*) drying. Using an I-Optimal response surface experimental design (version 10), 48 runs were conducted with six input factors; gas pressure (kPa), fish length (cm), fish weight (kg), number of turns, charcoal-pot load, and fish appearance alongside six responses: drying time, physical appearance, taste and flavor, drying rate, mean temperature and drying efficiency. Optimal operating conditions were determined as: gas pressure (1.109 bar), fish length (24.733 cm), fish weight (0.979 kg), number of turns (6), and charcoal-pot load (two-third filled), yielding a curved fish appearance. Desirability values ranged from 0.672 to 0.683, reflecting robust optimization outcomes. Confirmation experiments validated the model, with predicted and actual response values showing low standard deviations (e.g., drying time SD < 0.5 h) and errors (<2%), affirming high predictive accuracy. The optimized system reduced drying time by 15–20% compared to baseline settings and improved sensory attributes (taste, flavor) by minimizing over exposure to heat. This work demonstrates the efficacy of surface response methodology in fine-tuning complex drying systems, offering a data-driven approach to balance efficiency and quality in fish preservation. |
| **Is the manuscript scientifically, correct? Please write here.** | **Yes. The methodology is detailed and replicable. Statistical modeling is appropriately used, and results are clearly interpreted. The inclusion of model validation enhances scientific robustness.** |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **Yes, the references are mostly from recent literature and appropriate journals. If space allows, consider adding a few more recent works on hybrid drying technologies or RSM applications in food engineering from the last 2–3 years for broader context.** |  |
| **Is the language/English quality of the article suitable for scholarly communications?** | Yes. The manuscript is well-written with scholarly language. Minor proofreading would improve flow in a few areas, especially in the Introduction and Conclusion, where sentence length could be trimmed slightly. |  |
| **Optional/General** comments | **This manuscript presents the optimization of a rotary cage-tray fish dryer using I-Optimal Surface Response Methodology. The study is important for its focus on improving fish drying efficiency a crucial issue in food preservation, especially in regions with high fish consumption and limited infrastructure. The hybrid heating system and mechanized design represent a meaningful innovation that bridges traditional and modern approaches. The comprehensive experimental design, statistical rigor, and validation make it a strong contribution to the field of food process engineering and agricultural mechanization.**  Tables are informative, but the manuscript could benefit from a brief mention of Appendix 1 in the main text for completeness.  The sensory analysis discussion is relevant consider a short mention of inter-rater reliability or any standardization followed by the panel.  The figures/plates are helpful. If possible, adding one more schematic of the dryer design would be valuable for visual clarity. |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with the 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?** |  |  |