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| Journal Name: | [**Asian Journal of Food Research and Nutrition**](https://journalajfrn.com/index.php/AJFRN) |
| Manuscript Number: | **Ms\_AJFRN\_139468** |
| Title of the Manuscript: | **Improving the Nutritional Profile of Beef Burgers Using stabilized Rice Bran Oil Oleogel as a Fat Replacer** |
| Type of the Article | **Original Research 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** (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 research is significant for the scientific community as it provides a robust, data-driven validation for using stabilized rice bran oil (SRBO)-oleogel as a viable fat replacer in meat products. The study not only demonstrates that SRBO-oleogel can effectively maintain the essential nutritional and textural properties of beef burgers, but it also shows a remarkable improvement in cooking characteristics like cooking loss and shrinkage. This work establishes a clear path for food scientists to develop healthier, more sustainable meat products without compromising on quality or consumer acceptance, which is crucial for addressing public health concerns related to saturated fat intake. |  |
| **Is the title of the article suitable?****(If not please suggest an alternative title)** | Yes, the title is suitable. It is clear, concise, and accurately reflects the study's primary objective and methodology. |  |
| **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 well-structured and follows the standard format of a scientific abstract: Introduction is states the purpose of the study: to examine the impact of replacing animal fat with SRBO-oleogel in beef burgers.Methods mention the substitution levels (50%, 75%, and 100%). The results provide a good amount of quantitative data for both raw and cooked burgers, covering moisture, protein, fat, cooking loss, shrinkage, texture, and color. It concludes that SRBO-oleogel is an effective fat replacer that improves nutritional and technological properties while maintaining sensory quality. Some suggestions are-1. Start the abstract with a sentence like: "Growing health concerns regarding saturated animal fats necessitate the development of healthier alternatives in meat products." This sets the stage and immediately tells the reader the significance of the research.
2. Add the oleogelator and its concentration to the methods section within the abstract. For example: "The study examined the impact of replacing animal fat with a stabilized rice bran oil (SRBO)-oleogel, structured with 9% beeswax, at 50%, 75%, and 100% substitution levels..."
3. Some data points are a bit confusing or seem contradictory in the abstract's summary. For example: "Ether extract (fat) increased from 42.5% in the control to 42.37 % in the 100% SRBO-oleogel sample" - The abstract states it "increased," but the numbers show a slight decrease (42.5 > 42.37)."total carbohydrates decreased from 17.2% to 17.3%." - Again, the abstract states "decreased," but the numbers show an increase (17.2 < 17.3).

Review the data points and ensure the descriptions (e.g., "increased" or "decreased") match the reported values. For instance, if the ether extract truly decreased, state that: "Ether extract (fat) showed a minor decrease from 42.5% in the control to 42.37%..."1. The abstract mentions that "full replacement of animal fat with SRBO-oleogel maintained flavor, texture, and overall acceptability, with only minor reductions in color and appearance at partial substitution levels." This is a key finding, but the language is a bit clunky. Rephrase this for better flow and impact. For example: "Sensory evaluation demonstrated that a 100% substitution of animal fat with SRBO-oleogel successfully maintained flavor, texture, and overall acceptability, while partial substitution levels led to only minor reductions in color and appearance."
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| **Is the manuscript scientifically, correct? Please write here.** | **Some typographical mistakes are present, e.g.**, there are a couple of small inconsistencies in the abstract where the text says "increased" while the numbers show a decrease (or vice-versa). For example, "Ether extract (fat) increased from 42.5%... to 42.37%..." is a minor error that should be corrected for accuracy. This does not impact the scientific validity of the data itself, just its description. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | While the references are strong, there are a few opportunities to enhance their quality and provide more specific and recent context.1. The manuscript cites "Gels, 2024" and "Foods, 2022" without specific authors or article titles, making it difficult to locate the exact source. These are likely special issues from MDPI journals. For a more robust reference list, it's essential to provide the full citation (author, year, title, journal, volume, pages).
2. The citation style in the text is inconsistent. For example, some are cited as (World Health Organization, 2021) while others are (Mellema (2003)) or (Gels, 2024). Maintaining a consistent format (e.g., Author, Year) is crucial for a professional manuscript.
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|  | 1. The study uses beeswax, which is a common oleogelator. While the authors cite a few relevant papers, it would be beneficial to include more recent studies specifically on beeswax oleogels in meat products to show a more comprehensive literature review.
2. Few highly relevant and recent papers that could be included to strengthen the literature review and support the claims made in the manuscript:
	1. **Pintado, C., Cofrades, S., & Carballo, J. (2020).** *Beeswax-based oleogels as pork backfat replacers in dry fermented sausages: effect on quality characteristics and fatty acid profile.* Meat Science, 161, 107981. This study directly uses beeswax oleogels to replace animal fat in sausages and evaluates similar parameters, providing a strong comparative reference for your findings on texture and fatty acid profiles.
	2. **Moghtadaei, M., Alizadeh, A., & Ghorbani, M. (2018).** *Production of sesame oil oleogels based on beeswax and application as partial substitutes of animal fat in beef burger.* LWT - Food Science and Technology, 94, 219-226. This is a direct study on beeswax oleogels in beef burgers. It provides excellent context for your results, especially regarding cooking loss, fat absorption, and textural changes. The manuscript already cites this study, but it is not listed in the references. It would be an essential addition to the reference list.
	3. **Gómez-Estaca, J., Pintado, T., & Jiménez-Colmenero, F. (2019).** *Oleogels in meat products: A review of recent applications and challenges.* Trends in Food Science & Technology, 92, 1-10. This review provides a broad overview of oleogel applications in meat products and can help contextualize your specific findings within the wider field. It's a key reference for any paper on this topic.
	4. **Pușcaș, A., Mureșan, V., Muste, S., & Bota, A. (2020).** *Oleogels: A review of their formation, properties, and applications in food.* Foods, 9(12), 1801. This is another solid review on the formation and properties of oleogels, which can support the methodology and the discussion on the three-dimensional network formation.
	5. **Wolfer, T. L., Acevedo, N. C., Prusa, K. J., & Tarté, R. (2018).** *Replacement of pork fat in frankfurter- type sausages by soybean oil oleogels structured with rice bran wax.* Meat Science, 145, 352-362. While it uses soybean oil, it's a great example of using rice bran wax as a gelator in a meat product, which is very similar to your study's approach. It supports the claims about improving fatty acid profiles and textural properties.
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| **Is the language/English quality of the article suitable for scholarly communications?** | The language and English quality of the article are generally suitable for scholarly communication, but there is room for improvement to enhance clarity, flow, and scientific precision.1. The text sometimes uses unnatural or redundant phrases that could be simplified for a more professional tone. "The beef burger samples were cooked..." or "The burger samples were cooked..."
2. "...the increasing awareness of the negative health consequences associated with excessive consumption of saturated animal fats has driven the food industry to seek healthier alternatives in meat products." This sentence is fine, but some sentences are less fluid. For instance, "In the present study, the results of cooked beef burgers containing..." could be rephrased as "The results for cooked beef burgers containing..."
3. "...the mixtures were left to cool at room temperature overnight for gelation." This is a bit clunky. A simple change to "The mixtures were then cooled to room temperature overnight for gelation." would improve it.
4. There are several instances of missing articles ("a," "an," "the"), incorrect prepositions, and verb tense issues. "Texture was determined at Food Technology Research. Institute, Agricultural Research Center Giza- Egypt..." "...at the Food Technology Research Institute, Agricultural Research Center, Giza, Egypt..." (Note the missing "the" and commas). "The PH of the sample was determined as that of the supernatant after shaking 1 g in 30 ml of distilled water...". "The pH of the sample was determined as that of the supernatant after shaking 1 g in 30 mL of distilled water..." (Note the capitalization of "pH" and the unit "mL"). "...which are strongly linked to cardiovascular diseases and other metabolic disorders (World Health Organization, 2021 and Guo et al., 2023)." "...which are strongly linked to cardiovascular diseases and other metabolic disorders (World Health Organization, 2021; Guo et al., 2023)." (Using a semicolon is standard for multiple citations in a single parenthetical.). "The PH of the sample..." and later "the pH values ranged..." - Inconsistent capitalization. "Beef burger samples..." vs. "beef burger" - Inconsistent capitalization of "beef burger." Table 1 has "ingredients" on one line and then "Level replacement" and "Beef Meat" on others, which is slightly disorganized.
5. Some sentences are repetitive. For instance, the discussion section often restates data from the tables, which is good, but the phrasing can be redundant. The text often uses phrases like "The results showed

that..." or "It was found that..." which can be streamlined. |  |
| **Optional/General** comments |  |  |

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| **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:**

**Sanyogita Shahi, Kalinga University, India**