

### Review Form 3

Journal Name:	<a href="#">European Journal of Nutrition &amp; Food Safety</a>
Manuscript Number:	Ms_EJNFS_122398
Title of the Manuscript:	<b>Optimizing the Process Parameters for Carrot Pulp Cake Development Using Response Surface Methodology</b>
Type of the Article	<b>Original Research Article</b>

#### **General guidelines for the 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 guidelines for the Peer Review process, reviewers are requested to visit this link:

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**PART 1: Review Comments**

<b>Compulsory</b> REVISION comments	<b>Reviewer's comment</b>	<b>Author's Feedback</b> <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p><b>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.</b></p>	<p>The concept of the research to repurpose the pulp of carrots into a nutritious bakery product ingredient is commendable as it also helps reduce wastage. The response surface methodology was also commendable in getting the most optimized parameters in making the carrot pulp cake. The discussion was also adequate even though it needs some minor improvement for it to be more robust.</p>	
<p><b>Is the title of the article suitable? (If not please suggest an alternative title)</b></p>	<p>The title is suitable. However, the author(s) should verify if it is really "carrot pulp" or just "carrots" since no juice extraction was performed.</p>	
<p><b>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.</b></p>	<p>The abstract is comprehensive.</p>	
<p><b>Are subsections and structure of the manuscript appropriate?</b></p>	<p>The structure of discussion needs a bit of rework. The authors should look into the suggestions pointed below.</p>	
<p><b>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.</b></p>	<p>This manuscript is adequate with good scientific observations, especially highlighted in the results section. The resulting optimized parameters were also in good agreement with the actual results obtained. The resulting optimized product can already be filed for patent and be disseminated to end-users.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>There are some references that need to be updated, especially in the introduction section.</p>	

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<p>Minor REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>There are minor edits to be done in the writing of the research paper to achieve a clearer discussion of the concept of the research as well as the overall discussion of the results.</p>	
<p><b>Optional/General</b> comments</p>	<p><b>INTRODUCTION</b></p> <ol style="list-style-type: none"> <li>1. Second and Third Paragraph can be combined as follows: <ul style="list-style-type: none"> <li>➤ The bakery industry can grow by developing fortified, nutritionally enhanced products. Bakery products, which are mainly made with wheat flour, can be enriched with health-promoting ingredients that contains omega-3 oils and dietary fibers. This may help prevent cardiovascular problems like atherosclerosis and irregular heartbeats, and may also help lower blood pressure. Adding dietary fibers may also be beneficial for individuals with diabetes as it can positively regulate blood glucose and cholesterol levels and promote gut health.</li> <li>➤ Please add references to these.</li> </ul> </li> <li>2. Second Paragraph, sentence “They may also help with mental health issues like depression and bipolar disorder [2].” <ul style="list-style-type: none"> <li>➤ I suggest finding updated references for this sentence.</li> </ul> </li> <li>3. Third Paragraph, sentence “European Food Safety Authority recommends 25g of fiber daily, while other guidelines suggest higher amounts. In the United States, people typically consume only about 10 to 15 g of fiber on average [3].” may be removed. Otherwise, you may need to supply info that does not only highlight United States.</li> <li>4. Fourth Paragraph can be rewritten as: <ul style="list-style-type: none"> <li>➤ Carrots (<i>Daucus carota</i> L.) are the esteemed root vegetable of the <i>Apiaceae</i> family. Presently, Asia leads in carrot production at 61% [4]. In recent years, the consumption of carrots and their related products have increased consistently due to the recognition of antioxidant and anticancer activities of <math>\beta</math>-carotene in carrots, which is also a precursor of vitamin A [5]. Carrot pulp also contains substantial nutrients such as proteins, lipids, sugars, vitamins, minerals, and dietary fibers [6].</li> <li>➤ Kindly also mention that these aforementioned nutritional benefits of carrots make it an excellent ingredient for enhancing bakery products, particularly cake which is the bakery product explored in this study. This is to connect the idea of the fourth paragraph with the previous paragraphs.</li> <li>➤ Kindly also cite other studies that used carrot pulps as ingredients which proved its capability of enhancing the nutritional content of the resulting products. This may or may not be bakery products, as long as they are also food items e.g., noodles, cookies, etc.</li> <li>➤ In the abstract, waste reduction was also mentioned. It may help to highlight also how much carrot pulp is being wasted to further strengthen the need to valorise carrot pulp.</li> </ul> </li> </ol> <p><b>MATERIALS AND METHODS</b></p> <ol style="list-style-type: none"> <li>1. Materials, rewrite as follows: <ul style="list-style-type: none"> <li>➤ The raw materials used in the production of carrot pulp cake were procured from the local market of Anand, Gujarat. These include refined wheat flour (all-purpose flour), carrots (<i>Pusa yamdagni</i>), sweetened condensed milk, whey protein concentrate (WPC), ghee (shortening), sunflower oil, baking soda, baking powder, vinegar, essence, cake gel, skimmed milk powder (SMP), sugar, and PET container. The raw materials were of good quality and from the same reputable brand. They were purchased in one or as few instances as possible, stored in a cool, dry place, and used as required.</li> </ul> </li> <li>2. 2.2.1 Preparation of carrot pulp, rewrite as follows: <ul style="list-style-type: none"> <li>➤ The raw carrots were cleaned, peeled, and grated. After that, the carrots were steam blanched at 90°C for 3 min. The blanched carrots were then chilled in a refrigerator at 5°C for 15min until the core temperature of the carrot slices reached 5°C. The chilled carrots were then grinded and packed in PE pouches, frozen and stored at -24°C [7].</li> <li>➤ By definition, carrot pulp is the remaining pulp after juicing the carrots. However, you did not juice the carrots according to your methodology. Hence, you may not use the word carrot pulp in the succeeding discussions. Please recheck the proper term to be used, is it just “carrots” or “carrot pulp”?</li> </ul> </li> </ol>	

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3. 2.2.2 Standardization of process parameters for carrot pulp cake
  - The terms used in the table should be consistent with the terms used in the materials section. Hence, "Sunflower Oil" instead of just "Oil", "Condensed Milk" should be "Sweetened Condensed Milk", "Refined Flour" should be "Refined Wheat Flour", and so on.
  - For consistency, kindly use grams for all the measurements. Kindly convert the equivalent grams of the milliliters of water, vinegar, and essence.
4. 2.2.3 Experimental design for carrot pulp cake
  - According to your discussion, you changed only three variables. However, according to Table 1, you also varied the amount of water. This needs to be clarified why the amount of water was also varied during the experiment.
5. Table 2
  - Since you also measured the proximate analysis of the carrot pulp cake, this should also be mentioned as one of the dependent variables. If this was done to the optimized carrot pulp cake formulation, kindly include that information as well.
6. Table 3 Discussion
  - "All 20 trials..." The 20 formulations are runs, and not trials. Trials refer to the replication of each formulation/run.
  - How many replications were performed for each run? This was not mentioned in the discussion.
  - There should be a minimum of three replicates per run. Hence, this information should have been mentioned. The results of the Response surface methodology are only valid when the minimum number of replicates is achieved.
7. 2.2.4 Process of manufacture of carrot pulp cake
  - Kindly rewrite the paragraph to show the sequence of the steps made into creating the carrot pulp cake. Which ingredients were added first? Followed by which ingredient?
8. Kindly include the method to how the specific volume, springiness, and overall acceptability were measured.
  - For the overall acceptability, who were the respondents? What specific characteristics do they possess i.e., are they experts or non-experts? How many tested the product?
  - What were the dimensions of the overall acceptability?

#### RESULTS AND DISCUSSION

1. 3.1 Optimization of Process Parameter for Manufacturing of Carrot Pulp Cake
  - The discussion of the process can be removed as these were already discussed in the Materials and Methods section.
2. 3.1.1 Influence of independent variables on properties of carrot pulp cake
  - The statistical tools used should be discussed in the Materials and Methods section.
3. Specific Volume Discussion
  - "They observed that increase the level of condensed milk, results in an increase cake's volume and specific volume [2, 11]." can be rewritten as "Similar studies [2, 11] observed that increasing the level of condensed milk increased the cake specific volume.
  - Can you also provide a discussion on why do condensed milk increase the cake's specific volume? What component of sweetened condensed milk is responsible for that?
  - Similarly, it was also found that increasing carrot pulp level also increased the cake's specific volume? What may be the reason for that?
  - Furthermore, it was also found that interactions of AB were significant? Please also explain what may be the reason for the synergistic effect of the levels of carrot pulp with the condensed milk.
4. Springiness Discussion
  - "They observed that the increase the level of condensed milk, results in an increase the springiness of cake [11]." can be rewritten as "A similar study [11] observed that increasing the level of condensed milk increased the cake springiness.
  - Can you also provide a discussion on why do condensed milk increase the cake's springiness?
  - "They found that a higher carrot pomace content causes the cake's springiness to decrease [12]. Both results support the results obtained in the present study." In your study, it was found that the effect of levels of carrot pulp has no significant effect on the cake springiness, hence this can be removed. You may also rewrite it in a form of a

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	<p>recommendation for a potential follow up study. Depending on the desired property, how would you like to adjust the level of carrot pulp, do you add more to decrease the springiness or add less to increase the springiness.</p> <p>5. Overall Acceptability Discussion</p> <ul style="list-style-type: none"> <li>➤ “They observed that incorporating yellow carrot pomace up to 20% increased the overall acceptability of the cakes [13]. They found that the addition of 10% carrot pomace powder and 10% orange peel improves the product's overall acceptability, texture, appearance, and flavor [14]. They observed that the cake contained 5% fruit pulp waste powder (pineapple) was thought to be the most palatable option [15]. They noted that the absence of grease and enhanced crust colour, flavour, richness, and appearance of cake are all attributed by the condensed milk [11].” must be rewritten in a similar way as the previous dependent variables.</li> <li>➤ What component of the WPC may have affected the overall acceptability negatively?</li> <li>➤ Kindly check the applicability of ANOVA on hedonic scales. Hedonic scales are similar to Likert scales and as such, you may not use mean or other parametric test to draw conclusions.</li> </ul>	
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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?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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