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1. Initial Validation ✓ 2. Editorial Assignment ✓ 3. Independent Review ✓ 4. Interactive Review ✓ 5. Review Finalized ✓ 6. Final Validation ✓ 7. Final Decision

Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits

Luh Suriati*

Review, Front. Sustain. Food Syst. - Agro-Food Safety
Received on: 06 Apr 2022, **Edited by:** Syed Amir Ashraf
Manuscript ID: 914254
Research Topic: Innovations in Nanoscience for Food Security and Sustainability: Perspectives, Applications, and Challenges
Keywords: Aloe gel, Fresh-cut, Fruit, Nano-coating, shelf-life

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History | Editor Active | Reviewer 1 Finalized | Reviewer 2 Finalized | **Reviewer 3 Finalized** | Reviewer 4 Rejected | A I R A

Reviewer 3
Independent review report submitted: 17 Apr 2022
Interactive review activated: 17 Apr 2022
Review finalized: 22 Apr 2022

Initial recommendation to the Editor: Revision is required

EVALUATION

Q 1 **Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the review. If you have additional comments based on Q2 and Q3 you can add them as well.**

Reviewer 3 | 17 Apr 2022 | 10:18 #1

The article entitled “Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit”. The manuscript is a review article which covers the aspects of nano aloe vera gel based coating for fresh cut fruits. It is interesting article with practical applications. I suggest moderate revision before reconsideration for possible publication. Please use fruit with fruits in the title. The introduction is updated with suitable background information. I suggest improving the quality of the figures with more meaningful color contrast and suitable captions. Please add mode of action of nano coatings based on aloe gel. It is also suggested to add few tables with aloe gel concentrations, fruits on which applied and possible inferences. Please also include future perspectives and other research needs for the near future on the basis of the selected theme of the review article.

Corresponding Author: Luh Suriati | 17 Apr 2022 | 13:43 #2

Dear Reviewers

Thank you for reviewing my manuscript.

I need time to fix it according to your suggestions.

Thank you.

Q 2 Check List

Reviewer 3 | 17 Apr 2022 | 10:18 #1

a. Is the quality of the figures and tables satisfactory?
- No

b. Does the reference list cover the relevant literature adequately and in an unbiased manner?
- Yes

c. Does this manuscript refer only to published data? (unpublished or original data is not allowed for this article type)
- Yes

d. Does the review include a balanced, comprehensive, and critical view of the research area?
- Yes

Corresponding Author: Luh Suriati | 18 Apr 2022 | 10:00 #2

Dear Reviewer

thank you for yourreview. I am already revise the manuscript as your suggestion.

thank you

best regards

QUALITY ASSESSMENT

Q 3	Rigor	4
Q 4	Quality of the writing	3
Q 5	Overall quality of the content	4
Q 6	Interest to a general audience	4

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Reviewer 4
Independent review report submitted: 14 Apr 2022
Interactive review activated: 17 Apr 2022

Initial recommendation to the Editor: The manuscript should be rejected

This reviewer recommended rejection of the manuscript on 14 Apr 2022. Discussions for this review are closed.

Reason:
The manuscript contains fundamental errors that cannot be rectified through author revisions.

EVALUATION

Q 1 **Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the review. If you have additional comments based on Q2 and Q3 you can add them as well.**

Reviewer 4 | 14 Apr 2022 | 17:42 #1

This manuscript includes mostly very recent references and has several interesting figures.

Based on the Abstract, this manuscript discusses the use of nano-coating of aloe for fresh-cut fruits. However, the manuscript does not adequately reflect that statement. The title of the manuscript gives a different message as well. Therefore, the main idea of this manuscript is vague. A focused topic area with a comprehensive and critical review would have been useful. It has several interesting figures, but sufficient discussion on the figures is lacking. It cited recent references; however, many in-text references did not maintain a consistent style. Overall, the manuscript is poorly written, with many grammatical and writing errors.

Review supporting file - 288949

Q 2 **Check List**

Reviewer 4 | 14 Apr 2022 | 17:42 #1

b. Does the reference list cover the relevant literature adequately and in an unbiased manner?
- No

c. Does this manuscript refer only to published data? (unpublished or original data is not allowed for this article type)
- Yes

d. Does the review include a balanced, comprehensive, and critical view of the research area?
- No

QUALITY ASSESSMENT

Q 3	Rigor	
Q 4	Quality of the writing	
Q 5	Overall quality of the content	
Q 6	Interest to a general audience	

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I am checking the language quality of the manuscript and assigning it a recommended copy-editing level score.

Language evaluation
Editorial Office 07 Apr 2022 - 15:44 GMT
The language quality of this manuscript is suitable for peer review.

Live chat

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Human images

07 Apr 2022 - 15:44 GMT
I am checking for human images in the figure files and supplementary files, as these require consent statements.

Face and body detection

Editorial Office 07 Apr 2022 - 15:44 GMT
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Image integrity

11 May 2022 - 12:12 GMT
I am checking for areas of similarity within figures. Flagged images should be checked to see if the areas of similarity are intentional or whether clarification is required from the authors.

Image integrity verification

AIRA 11 May 2022 - 12:12 GMT

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06 Apr 2022 - 14:16 GMT
I am checking the manuscript for controversial topics.

Controversial themes

AIRA 06 Apr 2022 - 14:16 GMT
I didn't detect any controversial theme in this manuscript.

Controversial keywords (global and journal specific)

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I didn't detect any controversial elements in this manuscript.

Commercial conflicts

Commercial keyword detection

conflicts.

conflicts of interest.

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06 Apr 2022 - 14:15 GMT

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Data availability statement verification

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Handling Editor: Syed Amir Ashraf
Received date: 06 Apr 2022
Editorial assignment start date: 06 Apr 2022
Independent review start date: 07 Apr 2022
Interactive review activated date: 17 Apr 2022
Review finalized date: 02 May 2022
Final validation date: 13 May 2022

Important Note: Revise and Resubmit

Guest Associate Editor: Syed Amir Ashraf | 26 Apr 2022 | 11:51 #1

Manuscript still needs substantial revision and in order to appreciate the quality for publication. Firstly, I request authors to submit a proper rebuttal (Answers to reviewers comments) along with the revised manuscript clearly answering to each comment individually and not just stating that all corrections are done. It is very difficult for the reviewers as well as for the editors to check and confirm which comment has been answered/justified and which are not. Please submit the revised file again clearly highlighing the changes or a track changed file. You can submit the response here in the editor's thread and attach the revise file.

Secondly, thorough English editing is required. Please revise the manuscript taking help from a colleague who is proficient in English and familiar with the subject matter, who can review your manuscript, or contact a professional editing service to review your manuscript. Extensive spelling errors are there, issues with singular plural etc, specially in figures. For example: Figure 2: check calcium, figure 3: structural protection statement is not logical, figure 4: no need of capital letters and check hyphenations etc, figure 5: spelling of dehydration, economical etc. All figure legends must be elaborated to explain the content of the figure. I strongly suggest to thoroughly check the figure and the manuscript overall and resubmit.

Corresponding Author: Luh Suriati | 27 Apr 2022 | 10:04 Draft

to the comments from reviewer 1, reviewer 2 and reviewer 3. I hope you can accept the revision and publish my manuscript in your journal. Thank you.

Best Regards

Luh Suriati

Reviewer 1

The author of the manuscript (914254) entitled "Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit" presents a review focusing on edible coating, particularly the use of Aloe-gel as nano coating. The section on the obstacles that fresh-cut fruit producers face to avoid deterioration are well presented, and the same can be pointed for the sections on edible coating for fresh cut fruit, the importance of aloe gel, its extraction process, stabilization. However.

Comments:

1. The section of Nano-coating of Aloe requires rewriting as the content does not fit with the section title In the significance of the review change

Revision:

Nano-coating of Aloe-gel

Nanotechnology is a science that is quite popular in the last few decades. Nanoparticles include the design, characterization, production, and application of a material, tool, or system at the nanoscale (0.1-100 nm) (Kehinde et al., 2021)(Lu et al., 2021). Nanoparticles have received significant attention in the food sector, including as nano ingredients, nano emulsions, and nano-coatings (Sathiyaseelan et al., 2021). The advantages of using nano coatings are:

1) Antimicrobial ability: Nano coatings can interact directly with microbial cells, penetrate cell membranes, oxidize cell components, or produce secondary products that cause damage (Lu et al., 2021). Nano coatings can be used to extend the shelf life of types of food that are easily damaged by microbial activity such as meat and its processed products, minimally processed foods, etc. (Prakash et al., 2020)(Hu et al., 2020)

2) improvement and mechanical properties (flexibility, durability, temperature and humidity). This is related to the interaction between nano coating additives and the matrix, the movement of air and gas is increasingly difficult because of the tortuous path (Praseptiangga et al., 2021) Nanocoating mechanism reduces matrix (Salgado-Cruz et al., 2021).

3) Improved emulsion system. The advantage of nano coating is that the droplets are much smaller which causes a decrease in the gravitational force, prevents sedimentation, cream formation, flocculation so that the emulsion system becomes better. Tools commonly used include high pressure homogenizer, ultrasonic disruptor, high speed blender (Wang et al., 2020)(Prakash et al., 2020)

4) Bioavailability: nano coating is expected to increase bioavailability so that the bioactive components can be absorbed optimally. The very fine and small size of the material causes an increase in the higher solubility rate and is evenly dispersed (Luh Suriati et al., 2022).

The application of nano-coating of Aloe-gel has great potential to provide new, innovative and better results in horticultural productivity, post-harvest, processing efficiency, packaging, and food quality and safety through the detection of microbes harmful to human health (Ghasemi & Niakousari, 2020)(Hu et al., 2020). Currently, the application of nano-coating of Aloe-gel in food products makes a significant contribution to the delivery of bioactive compounds, protecting antioxidant compounds, because nano-coating of Aloe-gel can increase the bioavailability of active ingredients, control the release of active ingredients, protect against chemical reactions thereby reducing impact on the sensory properties of the product.

Nano coating of Aloe-gel produces a larger surface area which has the potential to increase the solubility, absorption, and availability of biologically active compounds (bioavailability), as well as controlled release.

According to the opinion (Salgado-Cruz et al., 2021) (Luh Suriati, Utama, Harsojuwono, et al., 2020), nano coating of Aloe-gel can be applied to fresh handling, processing, preservation, and improving the functional properties of food to maintain physical quality (freshness) and quality. product chemistry. Nanocoating has been widely developed and applied to the surface of fresh fruit to maintain its quality and shelf life. (Wang et al., 2020)showed that the active application of chitosan nano-composite coating can maintain the nutritional content of the coating material. The application of a nano-active composite coating can extend shelf life, produce a better appearance and prevent mold growth.

The packaging system in the future is required to be able to close the small pores in the packaging and have a good response to the environment such as changes in temperature, air, and humidity. In addition, future packaging trends are biodegradable and have antimicrobial capabilities. Nano coating of Aloe-gel can be used as an alternative packaging material and is expected to increase the added value of food products as shown in Figure 5. Some of them are to control the ripening process of fruit, maintain freshness and safety, detect contaminants/pathogens, and detect food expiration dates (Gokularaman et al., 2017)(Singh et al., 2020)

2. Figure 8 : I was not able to find in the main text the indication of this figure, and in my opinion, it is better to eliminate it. The title of the Figure does not seem appropriate or the content of the Figure.

Revision: Gambar 8 sudah saya hilangkan. trimakasih

3. Line 437-438- The sentence does not make sense rewrite.

Revision: I have changed the sentence to: "The use of nano-coating of Aloe-gel incorporation additives maintains the quality of fresh-cut fruit".

Reviewer 2

The manuscript entitled “Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit” was reviewed. This research has a good topic and novelty. However, there is some suggestion which is given below, this reviewer does suggest minor revision for this manuscript before publication in this journal.

comments:
1) The highlights should be revised. The bold results and findings of the study must be mentioned.

Revision:

Highlight

1. Nano coating of Aloe-gel incorporation additives were investigated

2. The recent advances in preparation, extraction, stabilization, and application methods of nano coating of Aloe were determined

3. In addition, application nano coating of Aloe-gel maintains the quality of fresh-cut fruit were studied.

4. Color change, firmness loss, decay ratio, and weight loss of coated fruits would like to be monitored.

5. In conclusion nano coating of Aloe-gel maintains the quality of fresh-cut fruits.

2) The abstract should be rewritten to further refer to the advantage.

Revision:

Edible coating is an environmentally friendly technology that is applied to fresh-cut fruit products. One of the natural ingredients that has the potential as an edible coating is Aloe-gel because it contains several functional components. The main advantage of using edible coating of Aloe-gel (Aloe-coating) is that additives can be incorporated into the polymer matrix to enhance its properties. Additives can improve the safety, nutritional, and sensory attributes of fresh fruits. However, in some cases, Aloe-coating does not work. Particle size determines the effectiveness of the coating process on fresh-cut

must be monitored during storage. Discoloration, loss of firmness, spoilage ratio, and weight loss of coated fruit were monitored. This review discusses the use nano-coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits. It also includes recent advances in preparation, extraction, stabilization, and application methods of Aloe-gel nanocoating.

3) The introduction is a bit long and is recommended to be reduced to two pages.

Revision:

Fresh-cut fruit is growing rapidly and popular in the current pandemic, stimulated by consumer demand for fresh, convenient, safe, nutritious, and good health food. Some of the advantages of fresh-cut fruit are short preparation, reduced household waste, uniform quality, smaller volume, and cheaper transport costs (Suriati et al., 2020; Deshi et al., 2021; Chen et al., 2021). But on the other hand, the process of removing the skin causes the quality of fresh-cut fruit to quickly decrease and its shelf life shorter (Awad et al., 2021)(Zhao et al., 2021). This is a challenge to produce quality and extend the shelf life of fresh-cut fruit. One of the environmentally friendly ingredients that can be applied to fresh-cut fruit is edible coating combined with cold storage (Maringgal et al., 2020)(Liu et al., 2021)(Basaglia et al., 2021)(Bassey et al., 2021). Advantage of using edible coatings is that some active ingredients can be incorporated into the polymer matrix and consumed with food, to maintain its nutrition and sensory attributes (Tabassum & Khan, 2020)(Rehman et al., 2020)(Deshi et al., 2021)(Ochoa-Velasco et al., 2021). One of the potential natural ingredients as edible coating fresh-cut fruit is a polysaccharide of Aloe vera gel (Aloe-gel) that contains functional components (Shah & Hashmi, 2020)(Rehman et al., 2020)(Hasan et al., 2021).

Aloe-gel polymers have the advantages of being biodegradable, permeable to oxygen, antioxidant power, and have low toxicity effects (Sánchez et al., 2020) (Chauhan & Kumar, 2020)(Sonawane et al., 2021) But, in some cases, the edible coating of Aloe-gel does not maximize its role in maintaining quality and extending the fresh-cut shelf life of the fruit. The stability of Aloe-gel decreases if stored at room temperature. The size of its particles determines the effectiveness of the coating process on fresh-cut fruit (L. Suriati et al., 2020)(Sonawane et al., 2021). Nano edible coating (nano coating) of Aloe-gel incorporated with additives can be used to overcome the difficulty of coating material adhesion on the fresh-cut surface of the fruit (Sánchez et al., 2020)(Bassey et al., 2021). Food additives that can be added are citric acid as an acidulant, ascorbic acid as an antioxidant, and potassium sorbate as an antimicrobial (Nascimento et al., 2020) (Tkaczewska, 2020)(Rodríguez et al., 2020)(Manzoor et al., 2021)(Luh Suriati et al., 2021). Criteria of fresh-cut fruit coated with nano coating should be of good quality and monitored during storage. Discoloration, loss of firmness, ethanol fermentation, decay ratio, and fresh-cut fruit weight loss want to be monitored. This review discusses the use of nano coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits in cold storage.

4) Use more 2022, 2021, and update references.

Revision:

References

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Reviewer 3

comment:

The article entitled "Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit". The manuscript is a review article which covers the aspects of nano aloe vera gel based coating for fresh cut fruits. It is interesting article with practical applications. I suggest moderate revision before reconsideration for possible publication.

1. Please use fruit with fruits in the title.

Revision:

"Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits"

2. The introduction is updated with suitable background information.

Revision:

Fresh-cut fruit is growing rapidly and popular in the current pandemic, stimulated by consumer demand for fresh, convenient, safe, nutritious, and good health food. Some of the advantages of fresh-cut fruit are short preparation, reduced household waste, uniform quality, smaller volume, and cheaper transport costs (Suriati et al., 2020; Deshi et al., 2021; Chen et al., 2021). But on the other hand, the process of removing the skin causes the quality of fresh-cut fruit to quickly decrease and its shelf life shorter (Awad et al., 2021)(Zhao et al., 2021). This is a challenge to produce quality and extend the shelf life of fresh-cut fruit. One of the environmentally friendly ingredients that can be applied to fresh-cut fruit is edible coating combined with cold storage (Maringgal et al., 2020)(Liu et al., 2021)(Basaglia et al., 2021)(Bassey et al., 2021). Advantage of using edible coatings is that some active ingredients can be incorporated into the polymer matrix and consumed with food, to maintain its nutrition and sensory attributes (Tabassum & Khan, 2020)(Rehman et al., 2020)(Deshi et al., 2021)(Ochoa-Velasco et al., 2021). One of the potential natural ingredients as edible coating fresh-cut fruit is a polysaccharide of Aloe vera gel (Aloe-gel) that contains functional components (Shah & Hashmi, 2020)(Rehman et al., 2020)(Hasan et al., 2021).

Aloe-gel polymers have the advantages of being biodegradable, permeable to oxygen, antioxidant power, and have low toxicity effects (Sánchez et al., 2020) (Chauhan & Kumar, 2020)(Sonawane et al., 2021) But, in some cases, the edible coating of Aloe-gel does not maximize its role in maintaining quality and extending the fresh-cut shelf life of the fruit. The stability of Aloe-gel decreases if stored at room temperature. The size of its particles determines the effectiveness of the coating process on fresh-cut fruit (L. Suriati et al., 2020)(Sonawane et al., 2021). Nano edible coating (nano coating) of Aloe-gel incorporated with additives can be used to overcome the difficulty of coating material adhesion on the fresh-cut surface of the fruit (Sánchez et al., 2020)(Bassey et al., 2021). Food additives that can be added are citric acid as an acidulant, ascorbic acid as an antioxidant, and potassium sorbate as an antimicrobial (Nascimento et al., 2020) (Tkaczewska, 2020)(Rodríguez et al., 2020)(Manzoor et al., 2021)(Luh Suriati et al., 2021). Criteria of fresh-cut fruit coated with nano coating should be of good quality and monitored during storage. Discoloration, loss of firmness, ethanol fermentation, decay ratio, and fresh-cut fruit weight loss want to be monitored. This review discusses the use of nano coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits in cold storage.

3. I suggest improving the quality of the figures with more meaningful color contrast and suitable captions.

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4. Please add mode of action of nano coatings based on aloe gel.

Revision:

I have added the action of nano coating based on aloe gel as shown Figure 9 in the final manuscript

5. It is also suggested to add few tables with aloe gel concentrations, fruits on which applied and possible inferences.

Revision:

I have added the table with aloe gel concentrations, fruits on which applied and possible inferences as show in Table 1.

6. Please also include future perspectives and other research needs for the near future on the basis of the selected theme of the review article.

Revision:

Future perspectives and other research of nano coating of Aloe-gel

The packaging system in the future is required to be able to close the small pores in the packaging and have a good response to the environment such as changes in temperature, air, and humidity. In addition, future packaging trends are biodegradable and have antimicrobial capabilities. Nano coating of Aloe-gel can be used as an alternative packaging material and is expected to increase the added value of food products as shown in Figure 5. Some of them are to control the ripening process of fruit, maintain freshness and safety, detect contaminants/pathogens, and detect food expiration dates (Singh et al., 2020)

Revision request

Guest Associate Editor: Syed Amir Ashraf | 04 May 2022 | 16:16 #1

The article entitled " Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits" written by Luh Suriati is been revised as per reviewer's comments. However, this article needs still needs further correction before considering for publication in Frontiers in Sustainable Food Systems

• English language of the manuscript needs further improvement and editing. There are some grammatical and phrasing mistakes present, which need correction.
• Author should carefully follow the journal guidelines; referencing pattern should be thoroughly checked.
• In general: authors are recommended to choose more scientific words rather than general vague term to describe any important aspects.
• Some of the comments has been marked in the pdf file, kindly refer to pdf pages

Corresponding Author: Luh Suriati | 08 May 2022 | 16:25 #2

Dear Editor

Thank you for all the suggestions and input on my manuscript. I have revised it according to the comments from reviewer 1, reviewer 2 and reviewer 3 as below. Thank you.

Best Regards

Luh Suriati

Reviewer 1

The author of the manuscript (914254) entitled "Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit" presents a review focusing on edible coating, particularly the use of Aloe-gel as nano coating. The section on the obstacles that fresh-cut fruit producers face to avoid deterioration are well presented, and the

Comments:

1. The section of Nano-coating of Aloe requires rewriting as the content does not fit with the section title In the significance of the review change

Revision:

Nano-coating of Aloe-gel

Nanotechnology is a science that is quite popular in the last few decades. Nanoparticles include the design, characterization, production, and application of a material, tool, or system at the nanoscale (0.1-100 nm) (Kehinde et al., 2021)(Lu et al., 2021). Nanoparticles have received significant attention in the food sector, including as nano ingredients, nano emulsions, and nano-coatings (Sathiyaseelan et al., 2021). The advantages of using nano coatings are:

1) Antimicrobial ability: Nano coatings can interact directly with microbial cells, penetrate cell membranes, oxidize cell components, or produce secondary products that cause damage (Lu et al., 2021). Nano coatings can be used to extend the shelf life of types of food that are easily damaged by microbial activity such as meat and its processed products, minimally processed foods, etc. (Prakash et al., 2020)(Hu et al., 2020)

2) improvement and mechanical properties (flexibility, durability, temperature and humidity). This is related to the interaction between nano coating additives and the matrix, the movement of air and gas is increasingly difficult because of the tortuous path (Praseptiangga et al., 2021) Nanocoating mechanism reduces matrix (Salgado-Cruz et al., 2021).

3) Improved emulsion system. The advantage of nano coating is that the droplets are much smaller which causes a decrease in the gravitational force, prevents sedimentation, cream formation, flocculation so that the emulsion system becomes better. Tools commonly used include high pressure homogenizer, ultrasonic disruptor, high speed blender (Wang et al., 2020)(Prakash et al., 2020)

4) Bioavailability: nano coating is expected to increase bioavailability so that the bioactive components can be absorbed optimally. The very fine and small size of the material causes an increase in the higher solubility rate and is evenly dispersed (Luh Suriati et al., 2022).

The application of nano-coating of Aloe-gel has great potential to provide new, innovative and better results in horticultural productivity, post-harvest, processing efficiency, packaging, and food quality and safety through the detection of microbes harmful to human health (Ghasemi & Niakousari, 2020)(Hu et al., 2020). Currently, the application of nano-coating of Aloe-gel in food products makes a significant contribution to the delivery of bioactive compounds, protecting antioxidant compounds, because nano-coating of Aloe-gel can increase the bioavailability of active ingredients, control the release of active ingredients, protect against chemical reactions thereby reducing impact on the sensory properties of the product.

Nano coating of Aloe-gel produces a larger surface area which has the potential to increase the solubility, absorption, and availability of biologically active compounds (bioavailability), as well as controlled release.

The small particle size results in new physicochemical properties, such as surface area, reactivity, and color, which are very different from conventional sized materials. Nano coating of Aloe-gel can be applied to a wide variety of products. According to the opinion (Salgado-Cruz et al., 2021) (Luh Suriati, Utama, Harsojuwono, et al., 2020), nano coating of Aloe-gel can be applied to fresh handling, processing, preservation, and improving the functional properties of food to maintain physical quality (freshness) and quality. product chemistry. Nanocoating has been widely developed and applied to the surface of fresh fruit to maintain its quality and shelf life. (Wang et al., 2020)showed that the active application of chitosan nano-composite coating can maintain the nutritional content of the coating material. The application of a nano-active composite coating can extend shelf life, produce a better appearance and prevent mold growth.

The packaging system in the future is required to be able to close the small pores in the packaging and have a good response to the environment such as changes in temperature, air, and humidity. In addition, future packaging trends are biodegradable and have antimicrobial capabilities. Nano coating of Aloe-gel can be used as an alternative

(Gokularaman et al., 2017)(Singh et al., 2020)

2. Figure 8 : I was not able to find in the main text the indication of this figure, and in my opinion, it is better to eliminate it. The title of the Figure does not seem appropriate or the content of the Figure.

Revision: Gambar 8 sudah saya hilangkan. trimakasih

3. Line 437-438- The sentence does not make sense rewrite.

Revision: I have changed the sentence to: "The use of nano-coating of Aloe-gel incorporation additives maintains the quality of fresh-cut fruit".

Reviewer 2

The manuscript entitled “Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit” was reviewed. This research has a good topic and novelty. However, there is some suggestion which is given below, this reviewer does suggest minor revision for this manuscript before publication in this journal.

comments:
1) The highlights should be revised. The bold results and findings of the study must be mentioned.

Revision:

Highlight

1. Nano coating of Aloe-gel incorporation additives were investigated

2. The recent advances in preparation, extraction, stabilization, and application methods of nano coating of Aloe were determined

3. In addition, application nano coating of Aloe-gel maintains the quality of fresh-cut fruit were studied.

4. Color change, firmness loss, decay ratio, and weight loss of coated fruits would like to be monitored.

5. In conclusion nano coating of Aloe-gel maintains the quality of fresh-cut fruits.

2) The abstract should be rewritten to further refer to the advantage.

Revision:

Edible coating is an environmentally friendly technology that is applied to fresh-cut fruit products. One of the natural ingredients that has the potential as an edible coating is Aloe-gel because it contains several functional components. The main advantage of using edible coating of Aloe-gel (Aloe-coating) is that additives can be incorporated into the polymer matrix to enhance its properties. Additives can improve the safety, nutritional, and sensory attributes of fresh fruits. However, in some cases, Aloe-coating does not work. Particle size determines the effectiveness of the coating process on fresh-cut fruits. Nano-coating Aloe-gel can be used to overcome the difficulty of adhesion of coating materials on the surface of fresh-cut fruits. Quality criteria for fresh-cut fruit coated with nano-coating of Aloe-gel must be strictly defined and quality parameters must be monitored during storage. Discoloration, loss of firmness, spoilage ratio, and weight loss of coated fruit were monitored. This review discusses the use nano-coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits. It also includes recent advances in preparation, extraction, stabilization, and application methods of Aloe-gel nanocoating.

3) The introduction is a bit long and is recommended to be reduced to two pages.

Revision:

Fresh-cut fruit is growing rapidly and popular in the current pandemic, stimulated by consumer demand for fresh, convenient, safe, nutritious, and good health food. Some of the advantages of fresh-cut fruit are short preparation, reduced household waste, uniform quality, smaller volume, and cheaper transport costs (Suriati et al., 2020;

the shelf life of fresh-cut fruit. One of the environmentally friendly ingredients that can be applied to fresh-cut fruit is edible coating combined with cold storage (Maringgal et al., 2020)(Liu et al., 2021)(Basaglia et al., 2021)(Bassey et al., 2021). Advantage of using edible coatings is that some active ingredients can be incorporated into the polymer matrix and consumed with food, to maintain its nutrition and sensory attributes (Tabassum & Khan, 2020)(Rehman et al., 2020)(Deshi et al., 2021)(Ochoa-Velasco et al., 2021). One of the potential natural ingredients as edible coating fresh-cut fruit is a polysaccharide of Aloe vera gel (Aloe-gel) that contains functional components (Shah & Hashmi, 2020)(Rehman et al., 2020)(Hasan et al., 2021).

Aloe-gel polymers have the advantages of being biodegradable, permeable to oxygen, antioxidant power, and have low toxicity effects (Sánchez et al., 2020) (Chauhan & Kumar, 2020)(Sonawane et al., 2021) But, in some cases, the edible coating of Aloe-gel does not maximize its role in maintaining quality and extending the fresh-cut shelf life of the fruit. The stability of Aloe-gel decreases if stored at room temperature. The size of its particles determines the effectiveness of the coating process on fresh-cut fruit (L. Suriati et al., 2020)(Sonawane et al., 2021). Nano edible coating (nano coating) of Aloe-gel incorporated with additives can be used to overcome the difficulty of coating material adhesion on the fresh-cut surface of the fruit (Sánchez et al., 2020)(Bassey et al., 2021). Food additives that can be added are citric acid as an acidulant, ascorbic acid as an antioxidant, and potassium sorbate as an antimicrobial (Nascimento et al., 2020) (Tkaczewska, 2020)(Rodríguez et al., 2020)(Manzoor et al., 2021)(Luh Suriati et al., 2021). Criteria of fresh-cut fruit coated with nano coating should be of good quality and monitored during storage. Discoloration, loss of firmness, ethanol fermentation, decay ratio, and fresh-cut fruit weight loss want to be monitored. This review discusses the use of nano coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits in cold storage.

4) Use more 2022, 2021, and update references.

Revision:

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Reviewer 3

comment:

practical applications. I suggest moderate revision before reconsideration for possible publication.

1. Please use fruit with fruits in the title.

Revision:

"Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits"

2. The introduction is updated with suitable background information.

Revision:

Fresh-cut fruit is growing rapidly and popular in the current pandemic, stimulated by consumer demand for fresh, convenient, safe, nutritious, and good health food. Some of the advantages of fresh-cut fruit are short preparation, reduced household waste, uniform quality, smaller volume, and cheaper transport costs (Suriati et al., 2020; Deshi et al., 2021; Chen et al., 2021). But on the other hand, the process of removing the skin causes the quality of fresh-cut fruit to quickly decrease and its shelf life shorter (Awad et al., 2021)(Zhao et al., 2021). This is a challenge to produce quality and extend the shelf life of fresh-cut fruit. One of the environmentally friendly ingredients that can be applied to fresh-cut fruit is edible coating combined with cold storage (Maringgal et al., 2020)(Liu et al., 2021)(Basaglia et al., 2021)(Bassey et al., 2021). Advantage of using edible coatings is that some active ingredients can be incorporated into the polymer matrix and consumed with food, to maintain its nutrition and sensory attributes (Tabassum & Khan, 2020)(Rehman et al., 2020)(Deshi et al., 2021)(Ochoa-Velasco et al., 2021). One of the potential natural ingredients as edible coating fresh-cut fruit is a polysaccharide of Aloe vera gel (Aloe-gel) that contains functional components (Shah & Hashmi, 2020)(Rehman et al., 2020)(Hasan et al., 2021).

Aloe-gel polymers have the advantages of being biodegradable, permeable to oxygen, antioxidant power, and have low toxicity effects (Sánchez et al., 2020) (Chauhan & Kumar, 2020)(Sonawane et al., 2021) But, in some cases, the edible coating of Aloe-gel does not maximize its role in maintaining quality and extending the fresh-cut shelf life of the fruit. The stability of Aloe-gel decreases if stored at room temperature. The size of its particles determines the effectiveness of the coating process on fresh-cut fruit (L. Suriati et al., 2020)(Sonawane et al., 2021). Nano edible coating (nano coating) of Aloe-gel incorporated with additives can be used to overcome the difficulty of coating material adhesion on the fresh-cut surface of the fruit (Sánchez et al., 2020)(Bassey et al., 2021). Food additives that can be added are citric acid as an acidulant, ascorbic acid as an antioxidant, and potassium sorbate as an antimicrobial (Nascimento et al., 2020) (Tkaczewska, 2020)(Rodríguez et al., 2020)(Manzoor et al., 2021)(Luh Suriati et al., 2021). Criteria of fresh-cut fruit coated with nano coating should be of good quality and monitored during storage. Discoloration, loss of firmness, ethanol fermentation, decay ratio, and fresh-cut fruit weight loss want to be monitored. This review discusses the use of nano coating of Aloe-gel which is incorporated with additional ingredients to maintain the quality of fresh-cut fruits in cold storage.

3. I suggest improving the quality of the figures with more meaningful color contrast and suitable captions.

Revision:

I have corrected all the images that are not clear, as in the final manuscript that I uploaded

4. Please add mode of action of nano coatings based on aloe gel.

Revision:

I have added the action of nano coating based on aloe gel as shown Figure 9 in the final manuscript

5. It is also suggested to add few tables with aloe gel concentrations, fruits on which applied and possible inferences.

Revision:

I have added the table with aloe gel concentrations, fruits on which applied and possible inferences as show in Table 1.

Revision:

Future perspectives and other research of nano coating of Aloe-gel

The packaging system in the future is required to be able to close the small pores in the packaging and have a good response to the environment such as changes in temperature, air, and humidity. In addition, future packaging trends are biodegradable and have antimicrobial capabilities. Nano coating of Aloe-gel can be used as an alternative packaging material and is expected to increase the added value of food products as shown in Figure 5. Some of them are to control the ripening process of fruit, maintain freshness and safety, detect contaminants/pathogens, and detect food expiration dates (Singh et al., 2020)

Corresponding Author: Luh Suriati | 08 May 2022 | 16:29 #3

Dear Editor

I am sorry low respon. I am waiting for the results of the proof reading from my friend who is an expert in his field. give me time.

Thank you

Best regards

Guest Associate Editor: Syed Amir Ashraf | 08 May 2022 | 18:46 #4

I would like to thank author for making revision as suggested by reviewer and Editor. However, going through the manuscript, Other than proof reading author is required to revise the manuscript as some comments were marked in pdf file. Pdf file comments has been mentioned below

· Line no. 18-19; How the discoloration, loss of firmness and other parameter were monitored. Kindly justify

· Line No 34: Author should carefully follow the journal guidelines; referencing pattern should be thoroughly checked.

· Line 41; Kindly check Aloe-gel polymers ….

· Line 53-54: Rephrasing required ..(Discoloration, loss of firmness, ethanol fermentation, decay ratio, 54 and fresh-cut fruit weight loss want to be monitored)

· Line no. 66 Kindly complete the sentence (low temperatures as seen in)

· Line no 69: All the figures number should be mentioned into the text.

· Line no. 69: All the figure presented in this manuscript should enhance the image pixel. In addtion, the color choosen in these figure must of better viaibility with clarity for the reader.

· Line no. 75: need reference….. Fresh-cut fruit circulating

· Line no. 106: impact on ness ??

· Line no. 119: The components need rephrasing

· Line no. 125: figure no. must be cited in text

· Line no. 131-133: needs rephrasing

· Line no. 137-138: Should be written as reported, kindly rephrase

· Line no. 147: oxide ???

· Line no 156: figure color selection should be made in such a way information input can be clearly visible for the reader

· Line no 199: Table caption -describe the figure content. Image can be written as A , B and C with their description

- Line no 229: of the gel. Remove full stop
- Line no. 280: 0.05%-0.5 Keep all these values in bracket
- Line no. 299: Put full stop after reference
- Line no. 389: and quality ???
- Line no: 424: biological chemistry ???

Corresponding Author: Luh Suriati | 10 May 2022 | 13:00 #5

I would like to thank editor; I am already revising the manuscript as your suggestion and has been mentioned below.

1. Line no. 18-19; How the discoloration, loss of firmness and other parameter were monitored. Kindly justify

Quality criteria for fresh cut fruit coated with Aloe-gel nano-coating must be strictly defined. The fruit to be processed must be of minimal quality so that discoloration, loss of firmness, spoilage ratio, and fruit weight loss can be minimized.

2. Line No 34: Author should carefully follow the journal guidelines; referencing pattern should be thoroughly checked.

(Maringgal et al., 2020; Liu et al., 2021; Basaglia et al., 2021; Bassey et al., 2021)

3. Line 41; Kindly check Aloe-gel polymers ….

Aloe-gel have

4. Line 53-54: Rephrasing required ..(Discoloration, loss of firmness, ethanol fermentation, decay ratio, 54 and fresh-cut fruit weight loss want to be monitored)

Quality criteria for fresh cut fruit coated with Aloe-gel nano-coating must be strictly defined. The fruit to be processed must be of minimal quality so that discoloration, loss of firmness, spoilage ratio, and fruit weight loss can be minimized.

5. Line no. 66 Kindly complete the sentence (low temperatures as seen in)

fresh-cut fruit storage is usually carried out at low temperatures.

6. Line no 69: All the figures number should be mentioned into the text.

Figure 1. Whole cells (A) and cells that are injured or cut (B)

8. Line no. 69: All the figure presented in this manuscript should enhance the image pixel. In addtion, the color choosen in these figure must of better viaibility with clarity for the reader.

Already revise all of the figure

9. Line no. 75: need reference….. Fresh-cut fruit circulating

mixture (Alves et al., 2017).

10. Line no. 106: impact on ness??

on freshness

11. Line no. 119: The components need rephrasing

The constituent components of edible coating are divided into three groups namely hydrocolloids such as polysaccharides, proteins, and alginate; lipids including fatty acids, aryl glycerides, waxes; and composites namely protein-protein, polysaccharide-protein, and fat-polysaccharide formulated with the addition of surfactants and plasticizers as in Figure 4 (Liu et al., 2021; Luh Suriati et al., 2021; Paidari et al., 2021; Ochoa-Velasco et al., 2021). The constituent components of edible coating can provide maximum protection in a combined form.

12. Line no. 125: figure no. must be cited in text

Special requirements are as follows; water, minimal 1-3% oxygen around the commodity, function as a barrier, permeable against gases, water vapor, volatile compounds, and solutes, form an emulsion, not-sticky, quickly dry, does not interfere with the quality of the fruit and can apply pressure. It must also have low viscosity, be transparent, tasteless, and does not give unwanted influence on the coated product. The formulation of edible coatings does not contain harmful additives, technology, and the raw materials are relatively cheap

15. Line no. 137-138: Should be written as reported, kindly rephrase

Edible coatings made from polysaccharides have also been developed to inhibit gas transfer and reduce respiration rates.

17. Line no. 147: oxide ???

oxidation processes

19. Line no 156: figure color selection should be made in such a way information input can be clearly visible for the reader

Figure 7. The aloe vera plant (A), aloe vera leave (B), and the location of aloe vera gel (C)

22. Line no 199: Table caption -describe the figure content. Image can be written as A , B and C with their description

Figure 7. The aloe vera plant (A), aloe vera leave (B), and the location of aloe vera gel (C)

23. Line no 214: Alo-gel contains—reference required

(Suriati et al., 2022),

24. Line no. 226: after reference put full stop

(Nia et al., 2021).

25. Line no 229: of the gel. Remove full stop

According to L. Suriati et al. (2020), the constituent enzyme is very active as it affects the bonds of compounds as well as the viscosity of the gel.

26. Line no. 280: 0.05%-0.5 Keep all these values in bracket

(0.05-0.5) % followed by one or more standardization ingredients. Among others are citric acid (0.01 - 0.5) %, sorbitol powder 1 - 6 %, sodium benzoate (0.05 - 0.5) %, acetyl alcohol (0.001 -0.05) % and color stabilizers such as tocopherol or vitamin E (0.006 - 0.01)%

27. Line no. 299: Put full stop after reference

(Marghmaleki et al., 2021).

28. Line no. 389: and quality ???

and chemical quality of product.

29. Line no: 424: biological chemistry ???

physical, biological and chemical changes,

Thank you

Best regards

Guest Associate Editor: Syed Amir Ashraf | 11 May 2022 | 09:20 #6

2,,3 and 7) in the text wherever required and resubmitit again.

Corresponding Author: Luh Suriati | 11 May 2022 | 11:59 #7

Dear Editor

I am already revising the manuscript as your suggestion and has been mentioned below.

Thank you

Best regards

Furthermore, some of the considerations needed in handling post-harvest fresh-cut fruit are physiological, physical, and pathological (Deshi et al., 2021; Awad et al., 2021; Wen et al., 2020; Xu et al., 2020). Whole cells (A) and injured or cut cells (B) can be shown in **Figure 1**.

The minimal process also has an impact on product deterioration; hence, handling techniques are needed to maintain quality and extend shelf life **as shown in Figure 2**.

They are majorly used to protect products from the outside environment such as gas effects, water, evaporation, odor, microorganisms, dust, shock, vibration, and pressure **(Figure 3)**.

The harvest period ranges from 10-12 months after planting (Chauhan & Kumar, 2020; Suriati et al., 2020) and the leaf layers are shown in **Figure 7**.

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1. Initial Validation ✓ 2. Editorial Assignment ✓ 3. Independent Review ✓ 4. Interactive Review ✓ 5. Review Finalized ✓ 6. Final Validation ✓ 7. Final Decision

Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits

Luh Suriati*

Review, Front. Sustain. Food Syst. - Agro-Food Safety
Received on: 06 Apr 2022, **Edited by:** Syed Amir Ashraf
Manuscript ID: 914254
Research Topic: Innovations in Nanoscience for Food Security and Sustainability: Perspectives, Applications, and Challenges
Keywords: Aloe gel, Fresh-cut, Fruit, Nano-coating, shelf-life

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Date	Updates
13 May 2022	Article accepted for publication.
11 May 2022	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati posted new comments in the Editor tab.
	Guest Associate Editor Syed Amir Ashraf posted new comments in the Editor tab.
10 May 2022	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati posted new comments in the Editor tab.
08 May 2022	Guest Associate Editor Syed Amir Ashraf posted new comments in the Editor tab.
	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati posted new comments in the Editor tab.
	Corresponding Author Luh Suriati posted new comments in the Editor tab.
	Editorial Office reminded you to respond to a comment in the Editor tab.
04 May 2022	Guest Associate Editor Syed Amir Ashraf requested Corresponding/Submitting Author to revise the manuscript.
02 May 2022	Review of Review Editor 2 finalized.
27 Apr 2022	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati re-submitted manuscript.
26 Apr 2022	Guest Associate Editor Syed Amir Ashraf posted new comments in the Editor tab.
22 Apr 2022	Review of Review Editor 3 finalized.

18 Apr 2022	Corresponding Author Luh Suriati re-submitted manuscript.
	You posted new comments.
	You posted new comments.
	Guest Associate Editor Syed Amir Ashraf reactivated the review of Review Editor 3.
	Guest Associate Editor Syed Amir Ashraf reactivated the review of Review Editor 2.
	Guest Associate Editor Syed Amir Ashraf reactivated the review of Review Editor 1.
	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati re-submitted manuscript.
	Corresponding Author Luh Suriati re-submitted manuscript.
	Review of Review Editor 3 finalized.
17 Apr 2022	You posted new comments.
	Interactive review forum activated.
16 Apr 2022	Review of Reviewer 2 is finalized.
14 Apr 2022	Review of Reviewer 1 is finalized.
06 Apr 2022	Corresponding Author Luh Suriati submitted manuscript.

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Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruits

Luh Suriati*

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Reviewer 1
Independent review report submitted: 14 Apr 2022
Interactive review activated: 17 Apr 2022
Review finalized: 21 Apr 2022

Initial recommendation to the Editor: The manuscript can be accepted

EVALUATION

Q 1 **Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the review. If you have additional comments based on Q2 and Q3 you can add them as well.**

Reviewer 1 | 14 Apr 2022 | 15:43 #1

The author of the manuscript (914254) entitled “Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit” presents a review focusing on edible coating, particularly the use of Aloe-gel as nano coating. The section on the obstacles that fresh-cut fruit producers face to avoid deterioration are well presented, and the same can be pointed for the sections on edible coating for fresh cut fruit, the importance of aloe gel, its extraction process, stabilization. However. the section of Nano-coating of Aloe requires rewriting as the content does not fit with the section title
In the significance of the review change

Figure 8 : I was not able to find in the main text the indication of this figure, and in my opinion, it is better to eliminate it. The title of the Figure does not seem appropriate or the content of the Figure.
Line 437-438- The sentence does not make sense rewrite.

Review supporting file - 288899

Corresponding Author: Luh Suriati | 18 Apr 2022 | 09:48 #2

Dear Reviewer

I am already revise the manuscript as your suggestion.

Review supporting file - 290787

Q 2 Check List

Reviewer 1 | 14 Apr 2022 | 15:43 #1

a. Is the quality of the figures and tables satisfactory?
- Yes

b. Does the reference list cover the relevant literature adequately and in an unbiased manner?
- Yes

c. Does this manuscript refer only to published data? (unpublished or original data is not allowed for this article type)
- Yes

d. Does the review include a balanced, comprehensive, and critical view of the research area?
- Yes

Corresponding Author: Luh Suriati | 18 Apr 2022 | 09:48 #2

Dear reviewer

Thank you for your review

Best regards

QUALITY ASSESSMENT

Q 3 Rigor

Q 4 Quality of the writing

Q 5 Overall quality of the content

Q 6 Interest to a general audience

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Reviewer 2
Independent review report submitted: 16 Apr 2022
Interactive review activated: 17 Apr 2022
Review finalized: 02 May 2022

Initial recommendation to the Editor: Revision is required

EVALUATION

Q 1 **Please list your revision requests for the authors and provide your detailed comments, including highlighting limitations and strengths of the review. If you have additional comments based on Q2 and Q3 you can add them as well.**

Reviewer 2 | 16 Apr 2022 | 18:17 #1

The manuscript entitled “Nano coating of Aloe-gel incorporation additives maintain the quality of fresh-cut fruit” was reviewed. This research has a good topic and novelty. However, there is some suggestion which is given below, this reviewer does suggest minor revision for this manuscript before publication in this journal.

comments:
1) The highlights should be revised. The bold results and findings of the study must be mentioned.
2) The abstract should be rewritten to further refer to the advantage.
3) The introduction is a bit long and is recommended to be reduced to two pages.
4) Use more 2022, 2021, and update references.

Corresponding Author: Luh Suriati | 18 Apr 2022 | 09:54 #2

Dear Reviewer

I am already revise the manuscript as your suggestion.

thank you

best regards

Q 2 Check List

Reviewer 2 | 16 Apr 2022 | 18:17 #1

a. Is the quality of the figures and tables satisfactory?
- Yes

b. Does the reference list cover the relevant literature adequately and in an unbiased manner?
- Yes

c. Does this manuscript refer only to published data? (unpublished or original data is not allowed for this article type)
- Yes

d. Does the review include a balanced, comprehensive, and critical view of the research area?
- Yes

Corresponding Author: Luh Suriati | 18 Apr 2022 | 09:54 #2

Dear reviewer

Thank you for your review

Best regards

QUALITY ASSESSMENT

Q 3 Rigor

Q 4 Quality of the writing

Q 5 Overall quality of the content

Q 6 Interest to a general audience

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