

Molecular Gastronomi Methods in *Es Teller*: Jellification Technique

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KEYWORDS

es teler,
jellification,
molecular
gastronomy

ABSTRACT

This study is an experimental study in which the purpose of this study is to analyze the application of molecular gastronomy methods to es teler dishes by using jellification as a processing method, in order to it looks more attractive, serving practical and its storing. The application of this method is still rarely used in modifying traditional products, therefore the authors use this method in the process of making es teler by substituting 100% of the method of making es teler products, while maintaining the same taste as the real es teler products. The sampling technique used in this study is purposive sampling with research instruments in the form of interviews and questionnaires which were distributed to 15 panelists of the Pastry Chef and Pastry Commissary who worked in five-star hotels in Yogyakarta. This research uses organoleptic test with hedonic test technique which focuses on sensory characteristic analysis of es teler molecular gastronomy which includes taste, aroma, color, texture and appearance. The results of this experimental research show that most of the panelists like the shape and es teler presentation which has been modified by molecular gastronomy method by using jellification technique. In addition, es teler with the molecular method is more practical in storage and it is easier to serve.

INTRODUCTION

Culinary is a field that always develops every time following the times. Starting from the materials used, processing methods, presentation methods and others are always changing over time. In ancient times, humans knew the simplest food processing technique, which was only burned over a fire. Then, several technologies in cooking began to be created over time. Some techniques began to appear not only being burned in a bonfire, but also boiling, steaming, grilling, and even frying.

Nowadays, food processing techniques are increasingly unique and sophisticated that combine traditional cooking techniques and modern technology. Science and technology play an important role in cooking methods now and in the future. In doing so, it is called as Molecular Gastronomy, a cooking technique that combines science and technology, producing unique and artistic products. Kamal (2020) argues that molecular gastronomy is one of the cooking techniques that can be used to process products while still having a good texture, natural taste and nutritional content which condition remains intact even though it has gone through the cooking process.

According to Winarno (2017) molecular gastronomy is a science art of cooking. Culinary science is a sub-discipline of food science. Molecular gastronomy studies the molecular changes and physical and chemical transformations of food during the cooking process, as well as sensory phenomena while enjoying the food. Meanwhile, according to Binti (2020) molecular gastronomy is a technique to disguise food or beverage products that have high artistic value based on physical and chemical transformation processes. One of the dishes that can be applied with molecular method is es teler.

Es teler is a native Indonesia fruit cocktail. It includes avocado, young coconut, grass jelly, jackfruit, and other fruits served with coconut milk, sweetened condensed milk, Pandanus amaryllifolius leaves (it usually is in the form of coconut and pandan flavored syrup), sugar and a pinch of salt. Es teler is an original beverage from Central Java, Indonesia. The origin or history turns out to be from Sukoharjo Regency (Irawan et al., 2021; Rhinda, 2016). The ice used can be shaved ice or ice cubes. Es Teler is a type of culinary pure "Fresh from Nature" here the fruit is used without being processed, only cut and cleaned, then given coconut milk sauce and usually it is served with ice. So that, the fruit nutrition is still in good condition. The application of molecular gastronomy techniques uses scientific methods to understand and control the molecular, physiochemical and structural changes that occur in food from the stage of manufacture and when the food is consumed (Herve This, 2006).

Currently, molecular gastronomy techniques are widely found in beverages and foods. Although in Indonesia, there are some restaurants that serve food with molecular gastronomic techniques, it is very rare to find it in other restaurants. This study contains changes to the processing technique and appearance of es teler, to make it more attractive and provide a different experience to consumers when they consume it. The application of molecular gastronomy techniques with the jellification method on es teler is expected to improve the quality of es teler in terms of its texture, taste, sensation, and different eating experiences. It is hoped that this method can increase public interest in es teler beverage. In doing so, the problem can be formulated as 'How is the usage of jellification technique in *es teler*?'.

METHOD

This study is qualitative research with experimental method. Before testing the respondents, the researchers conducted several experiments on the ingredients and recipes to get the es teler recipe that fits and produces a stable product for the upcoming testing. The population used in this study were chefs and cooks at 4- and 5-star hotels in Yogyakarta. While, the sample in this study were gained from 15 panelists consisting of 10 untrained panelists and 5 trained (experts) panelists. The technique of determining respondents in this study was used purposive sampling. Then, the methods of data collection in this study were by observation, interviews, questionnaires and literature study. Meanwhile, the data analysis method in this research is employing organoleptic test with hedonic test technique. Additionally, in analyzing the data, the researchers describe the collected data without intending to make generally accepted conclusions. This study analyzed the data by discussing the conclusions drawn based on the answers of the panelists and interviews with the experts. Descriptive statistics is done by tabulating the results of the questionnaire in the form of a single table. The table in question provided a general description of consumer responses to the quality of es teler jellification based on the tendency of the rating results, then the interpretation is carried out to understand the meaning behind this tendency.

| ES TELER STANDART RECIPE | | | | | | | |
|--------------------------|--------|---------------|--------|------------------------|--------|-------------------|--------|
| Mouse Es Teler | | Avocado Mouse | | Jackfruits Grass Jelly | | Kelapa Muda Jelly | |
| Ingredients | Qty | Ingredients | Qty | Ingredients | Qty | Ingredients | Qty |
| Whip cream | 200 ml | Whip cream | 100 ml | Jack Fruit | 100 gr | Young coconut | 100 gr |
| White Ganache | 200 ml | White Ganache | 100 gr | Sugar | 25 gr | Sugar | 25 gr |
| Gelatin | 7 gr | Gelatin | 4 gr | Jelly | 3 gr | Jelly Powder | 3 gr |
| Young coconut | 50 gr | Avocado | 50 gr | Water | 100 ml | Coconut water | 100 ml |

[Source: Primary Data, 2022]

RESULTS AND DISCUSSION

Organoleptic Test and Hedonic Test

Organoleptic test is a test that is based on the assessment of the quality of sensory properties that are assessed using the panelists' five senses. The type of organoleptic test used in this study is the hedonic test. This test is carried out by giving the impression of a value based on a scale of 1 (very dislike) to 5 (very like).

Hedonic testing was carried out on es teler products by giving a preference score, namely: strongly like it was worth 5, like statement was worth 4, neutral statement was worth 3, disliked statement was worth 2, and strongly disliked statement was worth 1. The following are the results of the organoleptic test and hedonic ice test high:

1. Taste

Taste is a very important factor for food products. The consumers often prioritize taste over other factors. This is because the taste can send signals through the nerves to the central nervous system so that the food feels good to eat or not. The taste of es teler with the molecular gastronomy method has the same taste as es teler in general. Researchers used jelly that tasted bland and had no aroma. Therefore, the taste of es teler with the molecular method with jellification did not change. As shown in the following hedonic test table:

Table 1 Taste Hedonic Test

| Similar Taste of es teler | | | | |
|---------------------------|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Total | | | 7 | 3 |

[Source: Primary Data, 2022]

From the table above, it can be concluded that as many as seven panelists said "like" on a scale of 4 hedonic tests for the taste of es teler which is the same as es teler in general. In addition, as many as three panelists said they really liked it on a scale of 3 hedonic tests. The average of panelist said that it is good because the taste that arises in the processed of es teler using the molecular gastronomy method with the jellification technique has similar taste as es teler in general.

From the data above, it can be concluded that the gastronomic method with the jellification technique can be applied to processed ice teler. Meanwhile, the use of jelly in the preparation produces the same taste as the original es teler. The taste is the same because in the experiment of making es teler with molecular gastronomy method by using jellification technique, it still maintains the taste of es teler in which the use of

jackfruit, avocado and young coconut as the main ingredients for making es teler with the molecular gastronomy method of jellification technique.

2. Scent

Scent is one of the parameters in testing sensory properties by using the sense of smell as an assessment. Assessment through scent is a subjective assessment so that everyone has their own assessment. The Es Teler scent is very distinctive with the scent of coconut milk and jackfruit. The taste of es teler using the molecular gastronomy method has the same aroma as es teler in general. This is because in making es teler using jellification, the original ingredients are still used in making es teler in general, so that the scent produced remains the same as es teler in general. The result of the data can be seen in the scent hedonic test table below:

Table 2 Scent Hedonic Test

| Similar Scent of es teler | | | | | |
|---------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Total | | | | 9 | 1 |

[Source: Primary Data, 2022]

From the table above, it can be seen that nine panelists said they "liked" the scent of es teler using the jellification method. Meanwhile, there is one person said that es teler using jellification "really liked" the original es teler. The average panelist's assessment of the scent is good because the panelists stated that they liked the scent of es teler using the jellification method.

From the data above, it can be concluded that gastronomy with jellification technique can be applied to processed ice teler. The use of the same ingredients as es teler in the preparation produces the same scent as the origin of es teler. The scent remains the same because in the experiment of making es teler with the molecular gastronomy method with the jellification technique, the researchers maintain the original ingredients of es teler by continuing to use jackfruit and as the main ingredient for making es teler with the molecular gastronomy method with the jellification technique.

3. Color

Color is the first organoleptic parameter in the presentation because it involves the sense of sight in its assessment. Color can be said to be important because attractive colors can attract panelists' tastes. The color of es teler is generally produced from the various ingredients used. The white color comes from coconut milk and young coconut, the yellow color comes from jackfruit, and the green color comes from avocado. The color of es teler jellification does not change because it uses the same ingredients as the original es teler. The presentation is shown in the color hedonic test table below:

Table 3 Color Hedonic Test

| Similar Color of es teler | | | | | |
|---------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Total | | | | 4 | 6 |

[Source: Primary Data, 2022]

From the table above, it can be concluded that four panelists said "the same" for the color of es teler using the jellification method, in addition, six people said that es teler using jellification was "very similar" to the original es teler. The majority of panelists stated that they really liked the color of es teler using the jellification method. Based on the data in table 3, it can be concluded that the gastronomic method with the jellification technique can be applied to the processed of es teler. The use of the same ingredients as es teler in the preparation produces the same color as the original es teler. The same scent is because in the

experiment of making es teler with the molecular gastronomy method using the jellification technique is because the researchers still maintain the original ingredients of es teler by using jackfruit, avocado, young coconut and coconut milk as the main ingredients for making es teler with the molecular gastronomy method using the jellification technique.

4. Texture

Texture is something that is associated with the sense of touch. In this study, the sensory assessment used is more inclined to use the sense of touch on the tongue, because on the tongue food goes through many processes. Texture testing in this research focuses on the level of softness of es teler products using the jellification method. The selection of this assessment method is taken from the texture of the mousse in general. This is because es teler which uses the jellification method using a mousse making technique so that the results produced are the same as mousse products in general. The result of the data can be seen in the table of texture hedonic test below:

Table 4 Texture Hedonic Test

| Similar Texture of es teler | | | | | |
|-----------------------------|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| Total | | | | 2 | 8 |

[Source: Primary Data, 2022]

Based on the table above, it can be seen that two panelists said they were "the same" with the mousse texture applied in es teler using the jellification method, meanwhile, eight people said that the mousse applied in es teler using jellification was "very similar" to the original mousse product. The average panelists assessment of the texture was very similar because the majority of the panelists stated that they were very similar to the mousse texture applied in es teler using the jellification method.

From the data above, it can be concluded that the gastronomic method with the jellification technique can be applied to the processed es teler. The use of the mousse technique in es teler preparation produces the same texture as the original mousse product. The same texture is because in the experiment of making es teler with the jellification method, the researchers use the mousse technique so that the result of its texture remains soft.

5. Appearance

Es teler with a molecular gastronomy method using a jellification technique for its shape and appearance is different from es teler in general. The form of es teler with the molecular gastronomy method using the jellification technique has more elegant shape and can be served on a plate or plating. This form of es teler does not exist before because this experiment aimed to produce a different form of es teler. Based on the result of the survey, there are ten panelists said that the appearance of Es Teler is very good on a scale of 5 hedonic tests. The panelists' assessment indicated that the appearance of es teler with the molecular gastronomy method using the jellification technique was liked by the panelists. The following is a hedonic test table for the appearance of es teler:

Table 5 Appearance Hedonic Test

| Similar Appearance of es teler | | | | | |
|--------------------------------|---|---|---|---|----|
| | 1 | 2 | 3 | 4 | 5 |
| Total | | | | | 10 |

[Source: Primary Data, 2022]

It can be seen from the table above that ten panelists said it was "very interesting" to the appearance of es teler using the jellification method. The very attractive appearance of es teler is because the researchers used

the jellification technique in the processing of es teler. The jellification technique that the researcher used is to add jelly to the processing of es teler and to make several layers to get a more attractive appearance of es teler. Here is a picture of es teler before and after using the jellification technique:



Figure 1 Es Teler [Source: <https://www.frisianflag.com/resep-kami/resep-dengan-kental-manis/resep-es-teler-nikmat>].



Figure 2 Es Teler Molecular Gastronomy [Source: Primary data, 2022].

CONCLUSION

From the experimental research above, it can be concluded that the use of the molecular gastronomy method with the jellification technique in process of producing es teler taste, scent, texture, and appearance that is preferred by the panelists and the experts. Majority of the panelists like es teler with the jellification technique because the shape, appearance, taste, and scent are not much different from es teler in general. In addition, the shape and appearance of the jellification technique of es teler has more attractive shape and is easier to store longer

REFERENCES

Journal article with DOI

Gusnadi, D., Taufiq, R., & Baharta, E. (2021). Uji Oranoleptik Dan Daya Terima Pada Produk Mousse Berbasis Tapai Singkong Sebagai Komoditi Umkm Di Kabupaten Bandung. *Jurnal Inovasi Penelitian*, 1(12), 2883-2888. Doi: <https://doi.org/10.47492/jip.v1i12.606>

Journal article without DOI (when DOI is not available)

Irawan, M. A., Saepulloh, A., & Pardede, M. L. (2021). Penerapan Metode Cost Reduction Terhadap Bahan Baku Pedagang Kuliner Minuman Es Teler. *Jurnal Bina Bangsa Ekonomika*, 14(2), 329-336. Retrieved <https://jbbe.lppmbinabangsa.id/index.php/jbbe/article/view/86/73>

Gusnadi, D., Taufiq, R., & Baharta, E. (2021). Uji Oranoleptik Dan Daya Terima Pada Produk Mousse Berbasis Tapai Singkong Sebagai Komoditi Umkm Di Kabupaten Bandung. *Jurnal Inovasi Penelitian*, 1(12), 2883-2888. Retiveried <https://stp-mataram.e-journal.id/JIP/article/view/606/501>

Kamal, F. F., & Herryani, H. (2020). Penerapan Teknik Molekular Gastronomi Pada Kombinasi Bentuk Kue Putu Mayang. *Eduturisma*, 4(2), 41-52. Retiveried <http://ejournal.akpindo.ac.id/index.php/eduturisma/article/view/1178/709>

For an unpublished dissertation or thesis, use the following template:

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Rizki, B. (2020). Pengaruh penggunaan alginat dan kalsium laktat terhadap karakteristik sensori produk gastronomi molekuler artifisial sunny side up (Doctoral dissertation) Universitas Brawijaya, Malang.

Blog post:

Rhianda, (2016, April 16). Es Teler. Retiveried from <https://www.scribd.com/doc/309072554/Es-Teler>

Global Solusi Ingredia. (2022, July 8). Apa Saja Teknik memasak Gastronomi Molekuler? Cek Yuk!. Retiveried from <https://globalsolusiingredia.com/blog/apa-saja-teknik-memasak-gastronomi-molekuler-cek-yuk>

For an entire book, use the following reference formats:

Winarno, F. G., & Winarno, S. A. A. (2017). *Gastronomi Molekuler*. Gramedia Pustaka Utama.

A This, Herve. 2006. *Exploring The Science Of Flavor*. New York: Colombia University