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THE STUDY OF MARSHMALLOW'S PREFERENCES LEVEL WITH THE ADDITION OF GREEN GRASS JELLY *(Cyclea Barbata* L. Miers*)*

Ahmad Sofyan, Esteria Priyanti*, Kurnianingsih
Culinary Art Department Akademi Kesejahteraan Sosial (AKS) Ibu Kartini Semarang, Indonesia
E-mail: esterpriyanti@gmail.com

ABSTRACT

The purpose of this study is to determine the level of panelists' preferences for green grass jelly marshmallows. The stages of the study consisted of two stages, which are making green grass jelly leaves extract and making green grass jelly marshmallows. The percentage of addition green grass jelly leaves extract as much as 25%, 50% and 75% based on the weight of the liquid needed in making marshmallows. This study uses a hedonic test that aims to determine the response of the panelists' preferences level to the taste, flavor, texture and color of green grass jelly marshmallows. The hedonic test results for the taste of green grass jelly marshmallows showed that products with the addition of green grass jelly leaves extract by 25% got the most preference from Panelist with mean score of 3.50 ± 0.73 (neutral). While the hedonic test results for the flavor, texture and color of green grass jelly marshmallows, showed that products with the addition of green grass jelly leaves extract by 50% got the most preference from Panelist with mean scores of 3.50 ± 0.68 (neutral), 3.50 ± 0.51 (neutral) and 3.30 ± 1.06 (neutral). Based on the results of determining the best product, panelists preferred marshmallows with the addition of green grass jelly leaves extract by 50%.

Keywords: marshmallows, green grass jelly leaves, preferences level

INTRODUCTION

Green grass jelly (*Cyclea barbata* L. Miers) is commonly found in various regions in Indonesia. There are three types of grass jelly known to the public namely green grass jelly, black grass jelly, and shrubs grass jelly. However, Indonesian people are morefond of green grass jelly, because physically it has thin and limp leaves so it is easier to squeeze to produce grass jelly gel.

Green grass jelly leaves are widely used by the community as traditional food to help reduce body heat, heartburn, stomach aches (nausea) and diarrhea. Grass jelly leaves are known to contain chlorophyll, as well as bioactive compounds polyphenols, saponins, flavonoids and fats. These four components are generally known as antioxidants, anticancer, and anti-inflammatory. Seeing the benefits of grass jelly leaves on the human body, it is necessary to develop a food product based on green grass jelly leaves that are attractive and acceptable and liked by all ages. One food product that can be added with green grass jelly is marshmallows.

Marshmallows is one type of soft candy which has a texture like foam, chewy, soft, and when eaten will melt in the mouth (Nakai & Modler, 1999). Marshmallows is not only liked by children, but also adults like it. The price is relatively cheap and easy to find on the market. Some researchers have developed marshmallow products that provide more benefits to marshmallows. Research from Jalasena RA *et al.* (2016), marshmallows are processed with the addition of broccoli as an alternative high-antioxidant product. Research from Kinadari (2013), showed that marshmallows are processed with the addition of spirulina as a natural coloring agent. Research from Rumadana (2015), showed that marshmallows are processed with the addition of seaweed as a stabilizer. Research from Chandra (2013), showed that marshmallow is

processed by adding angkak extract as a natural coloring agent. Whereas in this study, the use of green grass jelly leaves aims as a thickening agent and natural coloring. This innovation is expected to be liked by the community, as well as provide references for new food products based on green grass jelly for the community. The purpose of this study was to determine the level of community preference for green grass jelly marshmallows.

MATERIALS AND METHODS

Materials

Ingredients used in making green grass jelly marshmallows are sugar, green grass jelly extract, gelatin, salt, cornstarch and refined sugar. The green grass jelly itself was collected from the yard self-owned by researcher. The equipment used to make green grass jelly marshmallows are hand mixer, dough compost, spatula and mold.

Methods

The experiment of making green grass jelly marshmallows took place in the Laboratory of Culinary Art Program, Akademi Kesejahteraan Sosial Ibu Kartini, located on Sultan Agung street Number 77, Gajah Mungkur, Semarang City, Central Java Province. Ingredients used in making green grass jelly marshmallows are sugar, green grass jelly extract, gelatin, salt, cornstarch and refined sugar. The equipment used to make green grass jelly marshmallows are hand mixer, dough compost, spatula and mold.

This study compared the level of preference of Panelists to marshmallows with addition of green grass jelly leaves extract by 25%, 50% and 75%. The percentage addition of green grass jelly leaves extract based on the weight of the liquid needed in making marshmallows. The stages of this study consisted of two stages, namely the stage of making green grass jelly leaves extract and the stage of making green grass jelly marshmallows.

The stage of making green grass jelly leaves extract requires green grass jelly leaves that are old and clean, then mashed and kneaded using warm water with a ratio of 1:3, then filtered to produce green grass jelly leaves which are ready for use in making marshmallows. Meanwhile, the stages of making green grass jelly marshmallows can be seen in Figure 1.

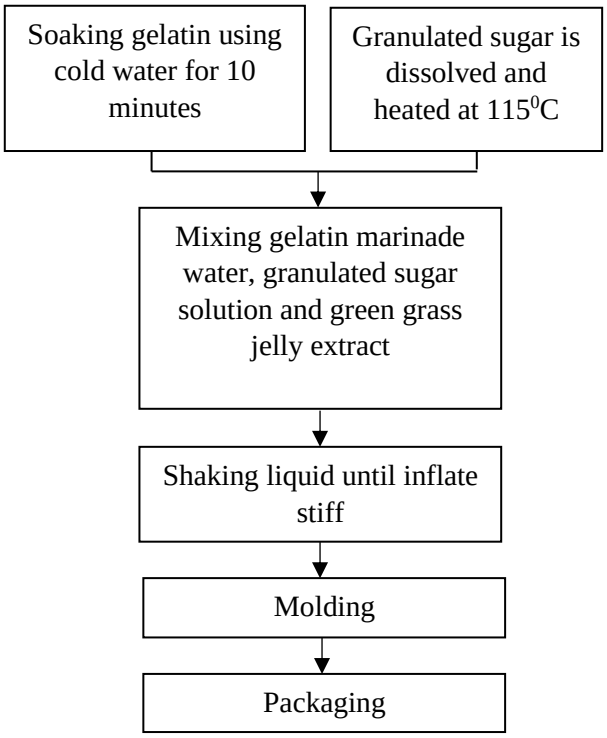

Figure 1. Flow chart of the process of making green grass jelly marshmallows

Sensory Evaluation

This study uses a hedonic test to determine the response level of the Panelists' preference for the taste, flavor, texture and color of green grass jelly marshmallows. The number of Panelists who took the hedonic test were 30 untrained Panelists.

The hedonic green grass jelly marshmallows test questionnaire uses a hedonic scale with very likes, likes, neutral, dislikes, and very dislikes criteria. These criteria are given a score of 5 for very likes, a score of 4 for likes, a score of 3 for neutral, a score of 2 for dislikes, and a score of 1 for very dislikes.

Calculation of the mean score and standard deviation using the Microsoft Excel program. The mean scores and standard deviations of each experimental product are then compared in the form of bar charts. Panelists also gave the most preferred product ratings. Analysis of the data used is descriptive analysis by evaluating and explaining experimental results.

RESULT AND DISCUSSION

Representation of the marshmallows with addition of green grass jelly leaves extract by 25%, 50% and 75% can be seen in Figure 2.

(a)

(b)

(c)

Figure 2. Product of marshmallows with (a) 25%, (b) 50%, and (c) 75% grass jelly leaves extract

Taste

The mean score of the Panelists' preference level for the taste of green grass jelly marshmallows can be seen in Figure 3. Based on Figure 3, the hedonic test results on the taste of green grass jelly marshmallows showed the highest mean score of 3.50 (± 0.73) in the neutral rating range or closed to like the choice of products with addition of 25% green grass jelly leaves extract. Panelists prefer the taste of marshmallows with addition of 25% green grass jelly leaves extract because it has a sweet taste and the taste of green grass jelly is not so strong compared to products that are added green grass jelly leaves extract as much as 50% and 75%. The more the green grass jelly leaves extract on marshmallows added causes more bitter taste. Marshmallows with the addition of 75% green grass jelly leaves extract has the lowest mean score of 2.40 (± 0.50) which is not acceptable to Panelists.

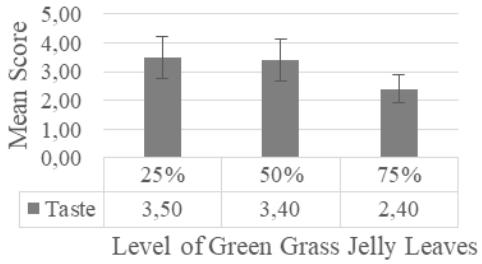

Figure 3. Mean score the Panelists' level of preference for the taste of green grass jelly marshmallows

Flavor

The mean score of the Panelists' preference level for the flavor of green grass jelly marshmallows can be seen in Figure 4.

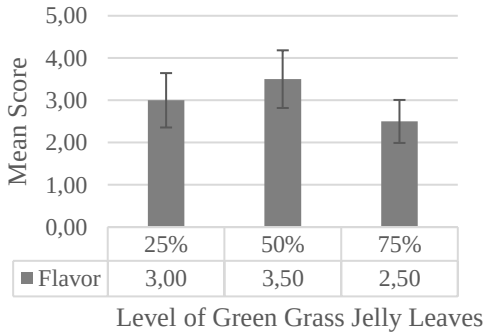

Figure 4. Mean score the Panelists' preference level for the flavor of green grass jelly marshmallows

Based on Figure 4, it is known that the results of the hedonic test on the flavor of green grass jelly marshmallows show that the highest mean score is 3.50 (± 0.68) in the neutral rating range or closed to like the product with the addition of green grass jelly leaves extract by 50%. Panelists prefer the flavor of marshmallows with the addition of green grass jelly leaves extract as much as 50% because it has a distinctive flavor of green grass jelly but not too sharp, so that it can still be accepted by Panelists compared to products that are given

additional green grass jelly leaves extract as much as 75%. Whereas marshmallows with the addition of green grass jelly leaves extract as much as 25% do not have the distinctive flavor of grass jelly, so it cannot be accepted by Panelists with an mean score of 2.40 (dislike). Basically the smell of grass jelly is not strong. The smell of grass jelly comes from volatile components, such as lunalool, styrolyl, this component is a group of flavortic compounds (Dalimartha, 2005).

Texture

The mean score of the Panelists' preference level for the texture of green grass jelly marshmallows can be seen in Figure 5.

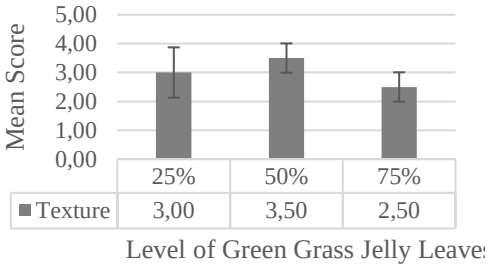

Figure 5. Mean score the Panelists' preference for the texture of green grass jelly marshmallows

Based on Figure 5, it is known that the hedonic test results on the texture of green grass jelly marshmallows shows that the highest mean score is 3.50 (± 0.51) in the neutral rating range or closed to like the product with the addition of green grass jelly leaves extract by 50%. Panelists prefer the texture of marshmallows with the addition of green grass jelly leaves extract as much as 50% because it has a chewy and soft texture.

For marshmallows with the addition of green grass jelly leaves extract as much as 25% produces a chewy texture but is too soft so it is easily broken. Whereas marshmallows with the addition of green grass jelly leaves extract as much as 75% produce a chewy texture that is too hard so that it cannot be accepted by Panelists.

Marshmallow's texture can be influenced by material formulation and manufacturing processes. Marshmallows composition ingredients such as granulated sugar, green grass jelly extract and gelatin affect the solidity of marshmallows. The function of gelatin as a stabilizer can form a gel layer that binds water molecules so that the formed marshmallows become stiff and chewy. While the effect of the manufacturing process on the texture of marshmallows if the marshmallows dough shaking process is not right will result in low amounts of air trapped in marshmallows causing marshmallows to have a hard texture (Rohman, 2013)

Color

The mean score of Panelists' preference level for the color of marshmallows green grass jelly can be seen in Figure 6.

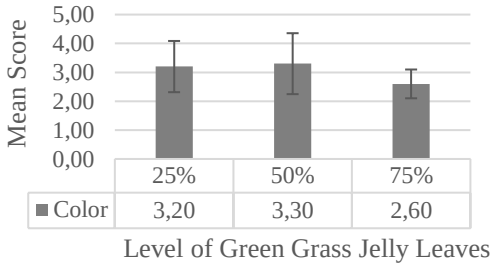

Figure 6. Mean score the Panelists' preference for the color of green grass jelly marshmallows

Based on Figure 6, the hedonic test results on the color of green grass jelly marshmallows showed the highest mean score of 3.30 (± 1.06) in the neutral rating range of products with 50% green grass jelly leaves extract.

Green grass jelly leaves contain chlorophyll pigments that produce a green color, producing marshmallows that are produced green (Palupi, 2015). The panel prefers the color of marshmallows by using green grass jelly leaves extract as much as 50% because it has a white color with green spots scattered from the grass jelly leaves. For marshmallows by using green grass jelly leaves extract as much as 25% produces a pale white color. While marshmallows using green grass jelly leaves extract by 75% produces a light green color but at this percentage it cannot be accepted by Panelists.

Based on the best product selection results, Panelists preferred marshmallows by agreeing to 50% green grass jelly leaves extract. Because, these products are more easily accepted by Panelists in terms of taste, flavor, texture and color. The higher the green grass jelly extract, the lower the Panelists' preference because of the dominant the taste and flavor of green grass jelly extract.

CONCLUSION

The hedonic test results for the taste of green grass jelly marshmallows showed that products with the addition of green grass jelly leaves extract by 25% had the highest mean score of 3.50 ± 0.73 (neutral or closed to like). While the hedonic test results for the flavor, texture and color of green grass jelly marshmallows, showed that products with the addition of green grass jelly leaves extract by 50% had the highest mean score s of 3.50 ± 0.68 (neutral or closed to like), 3.50 ± 0.51 (neutral or closed to like) and 3.30 ± 1.06 (neutral). Based on the results of determining the best product, Panelists preferred marshmallows with the addition of green grass jelly leaves extract by 50%. Understanding the limitation of this research, researcher suggest to improve this kind of research in the future with complimentary of proximate analysis.

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