



## Consumer acceptance of processed telang BUTERI flower and BUSER KING coffee products

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Article Information	ABSTRACT
<p><b>Article History:</b> Submitted: 2024-12-19 Revision: 2024-12-19 Accepted: 2024-12-19 Published: 2024-12-20</p> <p><b>Keywords:</b> BUSER KING; BUTERI; <i>Coffea</i> sp.; <i>Clitoria ternatea</i></p>	<p>Processed telang flower and coffee products from Malang must be introduced to the public as typical Malang food tourism, such as processed telang BUTERI flower and BUSER KING coffee products. The purpose of the study was to determine consumer acceptance of processed telang BUTERI flower and BUSER KING coffee products through organoleptic tests. The type of research is quantitative descriptive research with organoleptic test methods through hedonic tests (likeability). The research sample was 40 researchers for processed telang BUTERI flower products and 50 panelists for processed BUSER KING coffee products. The research instrument was a hedonic test sheet with a scale of 1 to 5 (taste, aroma, appearance, texture, and overall). The research data are quantitative data of the percentage of preference and qualitative data in the form of information or panelist comments. The data analysis technique is quantitative descriptive. The results of the study indicate that consumer acceptance of processed telang BUTERI flower products from the taste aspect is 60.5%, aroma aspect is 61%, appearance aspect is 70%, texture aspect is 63.5%, and overall aspect is 67%. Meanwhile, consumer acceptance of processed BUSER KING coffee products from the taste aspect is 74.4%, aroma aspect is 79.6%, appearance aspect is 74.8%, texture aspect is 74.8%, and overall aspect is 82.4%. The study concludes that processed telang BUTERI flower and BUSER KING coffee products can be accepted by consumers. The public can consume telang BUTERI flower and BUSER KING coffee processed products because they have halal certificates, NIB, and PIRT certificates.</p>
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## INTRODUCTION

Indonesia is known as a country that has a diversity of flora with thousands of plant species. One species of the diversity of flora in Indonesia that can be utilized in the development of science is the telang flower (*Clitoria ternatea*). The telang flower is a flowering plant that can grow as an ornamental plant or wild plant with single purple flower petals (Mahendra, 2022). The telang flowers are very beneficial for the human body because they have benefits as antioxidants, anti-obesity, anti-diabetic, antibiotics, anti-inflammatory, and protect liver tissue (Prihandini et al., 2024; Kushargina et al., 2022; Widowati et al., 2023). Now, the telang flowers are increasingly popular in Indonesia as flowering plants that have health benefits due to the chemical compounds contained in telang flowers (Laia et al., 2023; Khasanah et al., 2021). The telang flowers are currently being hunted by the public because they contain anthocyanins which function as antioxidants to maintain the body's immune system (Melati & Rahmadani, 2020; Gamage et al., 2021). The chemical compounds contained in telang flowers other than anthocyanins are flavonoids, tannins, saponins, steroids and triterpenoids (Yuliasari et al., 2023; Muawanah et al., 2023). However, the efficacy of telang flowers as medicine is still not widely known by the public. Therefore, to introduce telang flowers to the public, it is necessary to make processed products based on telang BUTERI flowers from Arjowinangon Village, Malang City.

In addition to telang flowers, coffee species (*Coffea* sp.) are one of the parts of the flora in Indonesia. Indonesia is the fourth largest coffee-producing country in the world so it has great potential and can compete in the global market with other countries (Mukhlisah et al., 2020). Coffee is a plantation commodity with high economic value among other plantation crops (Fauzi et al., 2019; Sinaga & Hilman, 2022). Coffee is used as one of the raw materials in the food and beverage industry. The currently popular processed coffee product is a drink served in a cafe (Marpaung et al., 2021).

Two types of coffee species cultivated in Indonesia are Arabica coffee and Robusta coffee. Arabica coffee has an aroma and taste that is preferred by consumers to Robusta coffee (Fitriyah et al., 2021). Coffee has chemical compounds such as caffeine, chlorogenic acid, fat, melanoidin, carbohydrates, aromatic compounds, organic acids, proteins, and trigonelline (Latunra et al., 2021). However, the chemical compound content of coffee is influenced by the area of origin where the coffee is grown, altitude, type of coffee, and processing process (Ningrum & Prayitno, 2024). The large number of coffee varieties cultivated throughout Indonesia requires efforts to introduce certain coffee varieties originating from certain areas to become typical coffees of certain regions such as BUSER KING coffee, typical of Lawang District, Malang Regency.

One way to introduce processed telang BUTERI flower and BUSER KING coffee products to become typical Malang food tourism is to test consumer acceptance through organoleptic tests with hedonic tests (preferences). Organoleptic tests for processed butterfly pea flower products and coffee have been carried out quite a lot by researchers. The addition of butterfly pea flower flour to make cheesecake with a ratio of 10:10 was liked by panelists and this study used a sample of 30 panelists and the research method did not appear to use a hedonic test (Prihandini et al., 2024). The telang flowers tea drink with added passion fruit juice in Yogyakarta was quite popular with panelists, but the number of panelists was not visible in the research method (Laia et al., 2023). Diversification and preferences for processed food from natural dyes of Ternate city telang flowers such as telang tea, lemon syrup, and coconut milk pudding were preferred by panelists and the number of panelists was not visible in the research method (Melati & Rahmadani, 2020). However, this study is different from previous studies, where the telang flower used as a processed product comes from Arjowinangon, Malang City with the name BUTERI. The panelists used were > 30 panelists. The organoleptic test used a hedonic test (liking)

with a scale of 1 to 5 (dislike, less like, neutral, like, very like). Furthermore, the analysis of the research data used quantitative descriptive analysis. In addition, the processed telang BUTERI flower product is different from other telang flower products because it already has nutrition facts, halal certificates, NIB, and PIRT certificates.

Organoleptic tests of coffee processing have been carried out quite a lot by researchers. Makasar Arabica coffee roasted for 50 minutes was preferred by panelists with a research method using 20 panelists but the explanation of the hedonic test was not apparent (Mukhlisah et al., 2020). Instant Arabica and Robusta coffee from Semarang supermarkets were preferred by panelists with a total of 25 panelists and no hedonic test was apparent in the research method (Priyanto et al., 2022). Banten instant coffee with the addition of 15 grams of sugar is a coffee drink formulation preferred by panelists using 30 panelists (Putri & Roidelindho, 2022). However, this study is different from previous studies, where the coffee used as a product is coffee grown in Lawang, Malang Regency which is named BUSER KING. The number of panelists used is > 30 panelists. Organoleptic test using hedonic test (likeability) with a scale of 1 to 5 (dislike, less like, neutral, like, very like). Furthermore, the analysis of research data using quantitative descriptive analysis. In addition, BUSER KING coffee processed products are different from other coffee products because they already have nutrition facts, halal certificates, NIB, and PIRT certificates. Based on the description above, the purpose of this study is to determine consumer acceptance of processed telang BUTERI flower and BUSER KING coffee products through organoleptic tests with hedonic tests (likeability).

## RESEARCH METHODS

This type of research is quantitative descriptive with organoleptic test method through hedonic test (likeability). The research sample used was 40 panelists for processed telang BUTERI flower products, while 50 panelists for processed coffee BUSER KING products. Organoleptic test materials are processed butterfly pea flower products BUTERI and BUSER KING coffee. The research instrument used was a hedonic test sheet (likeability) with a scale of 1 to 5 and test aspects including taste, aroma, appearance, texture, and overall, which can be seen in Table 1. Research data were collected from panelists who had tasted processed telang BUTERI flower and BUSER KING coffee products, then the researchers filled out the research instrument in the form of a hedonic test sheet. The research data was in the form of quantitative data in the form of a percentage of panelists' likeability levels for each aspect of the test and qualitative data in the form of information or comments from the panelists. The research data analysis technique was quantitative descriptive.

Table 1. Hedonik Test

No	Aspects	Scale				
1	Taste	Dislike (1)	Less like (2)	Neutral (3)	Like (4)	Very like (5)
2	Aroma	Dislike (1)	Less like (2)	Neutral (3)	Like (4)	Very like (5)
3	Appearance	Dislike (1)	Less like (2)	Neutral (3)	Like (4)	Very like (5)
4	Texture	Dislike (1)	Less like (2)	Neutral (3)	Like (4)	Very like (5)
5	Overall	Dislike (1)	Less like (2)	Neutral (3)	Like (4)	Very like (5)

## FINDING AND DISCUSSION

The results of organoleptic tests on processed telang BUTERI flower and BUSER KING coffee products from the study of consumer acceptance of processed telang BUTERI flower and BUSER KING coffee products can be seen in Table 2 and Table 3.

**Table 2. Organoleptic Test Results of Telang BUTERI Flower Processed Products**

No	Aspects	Dislike	Less Like	Neutral	Like	Very Like	Total panelists	Percentage (%)
1	Taste	2	8	17	13		40	60.5
2	Aroma	2	8	16	14		40	61
3	Appearance	1	7	4	27	1	40	70
4	Texture	1	9	12	18		40	63.5
5	Overall	1	8	7	24		40	67

Table 2 shows that the acceptability of the taste aspect is 60.5%, the aroma aspect is 61%, the appearance aspect is 70%, the texture aspect is 63.5%, and the overall aspect is 67%. Table 2 shows that the highest percentage of 70% is the acceptability of the appearance aspect, while the lowest percentage of 60.5% is the acceptability of the taste aspect. Where the panelists for the organoleptic test of telang BUTERI flower processed products are panelists with an age of > 35 years. In addition, the panelists' comments on telang BUTERI flower processed products during the organoleptic test include (1) making the body fresh and healthy, (2) making you sleep soundly, and (3) making the body relax.

The taste of telang BUTERI flower processed products is slightly neutral or slightly herbal with a distinctive taste. The taste is quite liked by the panelists because it feels quite light and not too strong when drunk. The statement above is in line with the research results of Kushargina et al. (2022) that telang flower processed products have a taste with specific characteristics towards herbal. Nasrulloh et al. (2023) added that the taste of telang flower processed products is quite popular with the public because it is not too strong, although not many people know about the distinctive taste of telang flowers. The telang flower processed products are quite popular with the public because of their properties as medicine for body health (Melati & Rahmadani, 2020).

The aroma of telang BUTERI flower processed products is almost odorless or tends to have a slightly herbal aroma. This aroma is quite liked by panelists because it is fresh and relaxing. This statement is in line with the results of the study by Laia et al. (2023) that the aroma of telang flower processed products is quite liked by panelists because of its distinctive herbal aroma. If telang flower processed products are mixed with other ingredients, the aroma will change to be fresher and spicier or the herbal aroma will be slightly fainter. Fresh telang flower processed products have a different aroma from telang flower products that have been stored for a long time. Where fresh telang flower processed products have a weak or faint herbal aroma, while telang flower processed products that have been stored for a long time have a fading herbal aroma and are more sour. The statement above is in line with the results of the study Khalisa et al. (2021) that the amount of raw materials in processed beverage products will affect their aroma. Where the more main raw materials used, the stronger the aroma will describe the raw materials.

The appearance of telang BUTERI flower processed products is preferred by panelists because the products have an attractive appearance. The telang flower processed products have dark blue, purple, and purplish blue colors. The statement above is in line with the research of Melati & Rahmadani (2020) that the color of telang flower processed products is very attractive to panelists or consumers' sensors in choosing food products. The color of telang flower processed products is greatly influenced by chemical compounds such as anthocyanins (Kushargina et al., 2022). Anthocyanins are natural pigments of the flavonoid group (Yuliasari et al., 2023). Dharmadewi & Suryatini (2023) and Gamage et al. (2021) added that anthocyanins in telang flowers have the potential to be antioxidants, where the average antioxidant content in telang flowers with an IC50 value of 87.86 ppm (strong category). The results of other studies show that dried telang flowers have the strongest antioxidant activity of 344.17 ppm (Sumartini et al.,

2020). The telang flowers also contain tannin compounds which are useful as anti-diarrhea, anti-bacterial, and antioxidants so telang flowers can be recommended to the public as an alternative herbal medicine (Khasanah et al., 2021).

The texture of telang BUTERI flower processed products is quite liked by the panelists. This product has a smooth and light texture, thick with medium to high viscosity, and soft and light. This statement is in line with the research results Prihandini et al. (2024) dan Mahendra (2022) that telang flower processed products are liked by panelists because they have a texture that is easy to drink, easy to chew, and easy to swallow. The texture of telang flower products is caused by several factors including mixing techniques and the ratio of ingredients to liquids. Overall, the telang BUTERI flower processed products are liked by panelists because these telang flower processed products are able to attract panelists' sensors and are good for body health. The telang flower processed products have properties as antioxidant products that function to protect the body from disease (Laia et al., 2023; Melati & Rahmadani, 2020; Kushargina et al., 2022; Yuliasari et al., 2023; Dharmadewi & Suryatini, 2023; Sumartini et al., 2020; Khasanah et al., 2021; Muawanah et al., 2023; Sowmya et al., 2023). In addition, the telang BUTERI flower processed products already have a nutrition fact label, halal certificate, NIB, and PIRT certificate so that panelists are not afraid to consume them.

**Table 3. Organoleptic Test Results of BUSER KING Coffie Processed Products**

No	Aspects	Dislike	Less Like	Neutral	Like	Very Like	Total panelists	Percentage (%)
1	Taste		1	15	31	3	50	74.4
2	Aroma		2	7	31	10	50	79.6
3	Appearance		1	17	26	6	50	74.8
4	Texture		2	15	27	6	50	74.8
5	Overall			8	28	14	50	82.4

Table 3 shows that the acceptability of the taste aspect is 74.4%, the aroma aspect is 79.6%, the appearance aspect is 74.8%, the texture aspect is 74.8%, and the overall aspect is 82.4%. Table 3 shows that the highest percentage of 82.4% is the appearance aspect, while the lowest percentage of 74.4% is the taste aspect. Where the panelists for the organoleptic test of BUSER KING coffee processed products are panelists aged < 35 years. In addition, the panelists' comments on BUSER KING coffee processed products during the organoleptic test include (1) can be used for diet and increase energy, (2) can eliminate drowsiness, (3) can make you more enthusiastic, (4) can make you fresher and more passionate, (5) does not cause bloating, and (6) can reduce stress and fatigue.

The taste of BUSER KING coffee processed products is preferred by panelists. The product has a smoother, more complex, and diverse taste suitable for coffee lovers looking for a deep taste experience. The explanation above is in line with the research results Priyanto et al. (2022) that organoleptic test panelists like the taste of Arabica and Robusta coffee. Taste preferences are influenced by the level of coffee compound content such as caffeine, chlorogenic acid, protein, and trigonelline (Fitriyah et al., 2021; Putri & Roidelindho, 2022; Hartati et al., 2022).

The aroma of BUSER KING coffee processed products is liked by panelists. This product has a more complex aroma such as floral, fruity, and nutty. This statement is in line with the research results of Marpaung et al. (2021) that coffee lovers like the complex aroma of coffee where with this aroma the panelists can determine the quality of the coffee. The aroma of this coffee product appears due to volatile and non-volatile compounds such as aldehydes, ketones, alcohols, chlorogenic acid, sugar and trigonelline (Fauzi et al., 2019; Mukhlisah et al., 2020).

The appearance of BUSER KING coffee processed products is preferred by panelists. This product has a light brown to dark brown appearance. This appearance looks more aesthetic and tempting for coffee lovers. The explanation above is in line with the research results of [Wulandari et al. \(2023\)](#) that the appearance of coffee preferred by coffee lovers is not too young or too old (burnt). The appearance of coffee is influenced by the level of roasting and sugar caramelization ([Mukhlisah et al., 2020](#); [Fitriyah et al., 2021](#)).

The texture of BUSER KING coffee processed products is preferred by panelists. The product has a soft and smooth texture in the mouth. This statement is in line with the research results of [Priyanto et al. \(2022\)](#) that panelists prefer a soft and smooth coffee texture in the mouth such as Arabica coffee. Coffee texture is greatly influenced by the level of roasting and grinding. A good level of roasting and grinding will determine the coffee texture preferred by panelists ([Fitriyah et al., 2021](#); [Putri & Roidelindho, 2022](#)).

Overall BUSER KING coffee products are liked by the panelists. This product has a taste, aroma, appearance, and texture that the panelists like so that overall the panelists like the coffee. The statement above is in line with the research results of [Wulandari et al. \(2023\)](#) dan [Putri & Roidelindho \(2022\)](#) that if the panelists give an assessment of liking the taste, aroma, appearance, and texture, then overall the panelists like the product being tested. Chemical compounds in coffee such as caffeine, chlorogenic acid, fat, melanoidin, carbohydrates, aromatic compounds, organic acids, protein, and trigonelline can make panelists fresher, more enthusiastic, not sleepy, and not stressed ([Latunra et al., 2021](#); [Ningrum & Prayitno, 2024](#)). In addition, BUSER KING coffee products already have a nutrition fact label, halal certificate, NIB, and PIRT certificate so that panelists are not afraid to consume it.

## CONCLUSION

Consumer acceptance of processed telang BUTERI flower products represented by panelists showed that the acceptance of the taste aspect was 60.5%, the aroma aspect was 61%, the appearance aspect was 70%, the texture aspect was 63.5%, and the overall aspect was 67%. Meanwhile, consumer acceptance of processed BUSER KING coffee products represented by panelists showed that the acceptance of the taste aspect was 74.4%, the aroma aspect was 79.6%, the appearance aspect was 74.8%, the texture aspect was 74.8%, and the overall aspect was 82.4%. Thus, the telang BUTERI flower and BUSER KING coffee processed products can be accepted by consumers where these products already have a nutrition fact label, halal certificate, NIB, and PIRT certificate. Based on the findings of this study, the telang BUTERI flower and BUSER KING coffee processed products are recommended to undergo BPOM tests so as to strengthen these products to be in demand by consumers and competition in the industrial market.

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