Organoleptic Test of Instant Lemongrass-Ginger Tea Bags as a Local Herbal Beverage Product of Kedungbanjar Village, Sugio, Lamongan

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Abstract: Background: Lemongrass and ginger tea is a traditional herbal drink that has health benefits and the potential to be developed as a local product. Objective: This study aims to assess the level of public acceptance of lemongrass-ginger tea bags in Kedungbanjar Village, Sugio District, Lamongan Regency. Methods: This study used a descriptive analytical design with a *cross-sectional* approach through organoleptic testing of 48 housewife respondents. The assessment was carried out on the aspects of taste, aroma, color, and packaging appearance using a 1–5 Likert scale. Result: The results showed that the taste aspect received an average score of 3.7 (like), aroma 3.9 (like), color 3.4 (like), and packaging appearance 4.1 (like). Overall, this product was well received by respondents due to its practicality, consistent taste, and health benefits from the bioactive compounds in lemongrass and ginger. However, the color aspect still needs improvement, flavor variations need to be added, and the packaging design needs to be enhanced to increase the product's appeal. With further development, lemongrass-ginger herbal tea has the potential to become a healthy local herbal drink with economic value.

1 INTRODUCTION

Kedungbanjar Village is located in Sugio Subdistrict, Lamongan Regency, and is one of the villages with considerable natural potential, especially in terms of herbal plants such as lemongrass (*Cymbopogon citratus*) and ginger (*Zingiber officinale Rosc.*). These plants grow abundantly along village roads and in residents' yards, but their use is still very limited. Local residents have not yet widely processed these plants into useful products.

Herbal drinks are beverages made from natural ingredients derived from various parts of plants such as leaves, stems, roots, fruits, and flowers, and contain nutrients, phytochemicals, and bioactive compounds (Shaik et al., 2023). Lemongrass and ginger have long been known to have various properties. Ginger contains bioactive compounds such as gingerol, shogaol, and zingeron, which have antioxidant, anti-inflammatory, and mild analgesic properties (Sari & Nasuha, 2021). Meanwhile, lemongrass contains citral, geraniol, and flavonoids which are beneficial for boosting immunity, calming the nerves, aiding digestion, and helping to reduce fatigue (Maulana & Syari, 2023). The combination of these two plants in the form of wedang provides a synergistic effect as a drink rich in health benefits.

When processed properly, both can become traditional drinks that are not only refreshing but also healthy. Lemongrass and ginger wedang are widely known as drinks that can boost immunity, warm the body, relieve colds, and aid digestion. Additionally, lemongrass and ginger tea also has a calming effect that is good for reducing stress and fatigue after activities (Raudah et al., 2023).

The geographical conditions of Kedungbanjar Village are very conducive to the growth of lemongrass and ginger. The village's pristine environment and fertile soil allow both plants to grow well. This is a great potential that should be utilized by the community to be processed into local herbal drinks. Unfortunately, this potential has not been maximally managed by the local community, due to limited knowledge and a lack of training on how to process and market the products (Safitri & Gustiana, 2023)

A number of previous studies have also shown that the use of lemongrass and ginger in the form of herbal drinks has the potential to improve community welfare. One such study was conducted by Fifa (2023), which examined community empowerment through the production of lemongrass and ginger-based herbal drinks. The study explains that these local herbal drinks have great potential for development because they are easy to make, the raw materials are readily available, and they have a fairly good selling value. Similar findings were also shown in a training activity by Raudah et al. (2023), which involved the community in making lemongrass and ginger drinks as an effort to boost immunity and increase knowledge about the benefits of herbal plants. Meanwhile, research by Haromin, Ulum, & Aziz (2020) found that the processing of herbal beverage products can improve the quality of creative economy human resources, indicating that herbal beverage innovation can have a positive economic impact.

Given these conditions, it is necessary to conduct research on the organoleptic evaluation of ginger and lemongrass tea by the residents of Kedungbanjar Village. This evaluation aims to determine the extent to which the community accepts these products in terms of taste, aroma, color, and packaging appearance. This product is packaged in the form of dried ingredients placed in tea bags, which are then repackaged in pouches to make the product look more practical and attractive. The results of this assessment can later be used as a basis for developing local herbal drinks that are not only healthy but also popular with the community. In addition, this research is expected to encourage the optimal utilization of the village's natural potential and open up business opportunities for local residents.

2 METHOD

This study is a descriptive analytical study with a *cross-sectional* approach using organoleptic tests to determine the level of sensory acceptance of lemongrass ginger tea. This study was conducted in July 2025 in Kedungbanjar Village, Sugio District, Lamongan Regency. The subjects of this study were 48 women from Kedungbanjar Village who were selected using accidental sampling, namely anyone who happened to be present at the time the study was conducted and was willing to be a respondent. Thus, sampling was based on ease of access and availability of participation without any specific criteria.

The lemongrass-ginger tea bags used in this study were formulated using 3 grams of dried lemongrass and 2 grams of dried ginger per serving. These ingredients were packaged in tea bags, making them practical and easy for consumers to brew. The product was then repackaged in pouches containing five tea bags each.

To use, one tea bag of lemongrass-ginger herbal tea is brewed with 200 ml of warm water and 6 grams of granulated sugar, or the equivalent of 1½ teaspoons. This formulation was chosen to produce a balanced flavor and to make it easy for people to prepare herbal drinks in a practical way.

To assess the respondents' level of preference for lemongrass and ginger drinks, an organoleptic test was conducted by filling out a questionnaire with 48 female respondents who were residents of Kedungbanjar Village. The assessment indicators used were based on sensory observations, including taste, color, aroma, and packaging appearance, using a five-point rating scale: 1 = strongly dislike, 2 = dislike, 3 = neutral, 4 = like, and 5 = strongly like.

Next, to determine the respondents' level of preference, the average score (mean) was calculated for each aspect using a Likert scale of 1–5. These average values were interpreted based on the following categories: strongly dislike, dislike, neutral, like, and strongly like.

3 RESULT

Based on the organoleptic test that had been conducted previously, the results of the respondents' assessment of the lemongrass-ginger tea bag product were obtained in four aspects, namely taste, aroma, color, and packaging appearance. Each aspect will be measured using a Likert scale with the following options: Strongly Dislike (1), Dislike (2), Neutral (3), Like (4), and Strongly Like (5).

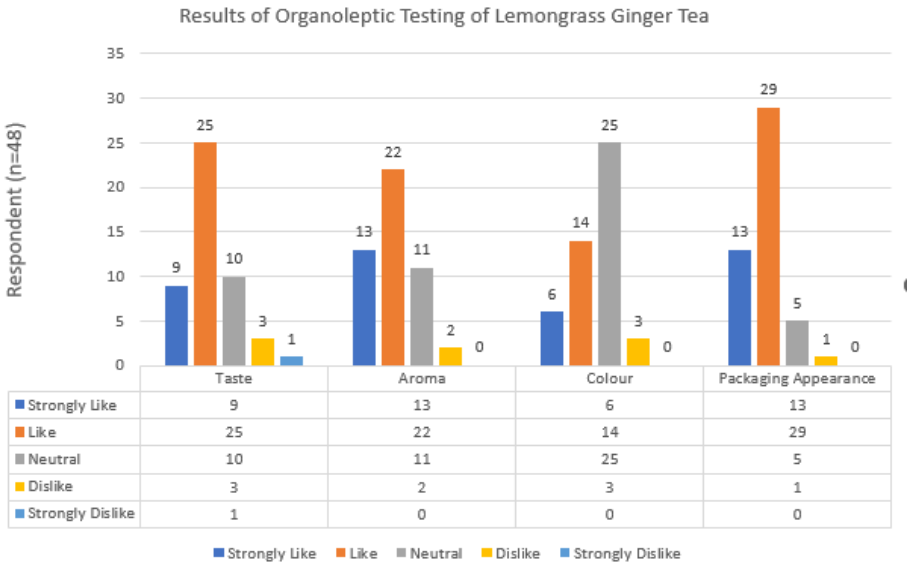

Figure 1: Results of Organoleptic Testing of Taste, Color, Aroma, and Packaging Appearance of Lemongrass Ginger Tea Products

The measurement results in this study will be explained as follows:7

Taste

The results of the taste aspect measurements in this study are presented in the following table:

Table 1: Organoleptic Test Results for Lemongrass Ginger Tea in Terms of Taste.

Taste Indicator	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
Value	1	2	3	4	5
Response	1	3	10	25	9
Average	3,7				

The organoleptic test results conducted on 48 respondents, who were mothers from Kedungbanjar Village, showed that the taste aspect received an average score of 3.7, categorized as "average-like." The majority of respondents, namely 25 people (52.1%), said they liked it and 9 people (18.8%) said they really liked the taste of lemongrass ginger drink, although there were 10 respondents (20.8%) who rated it as average. These results indicate that the product is quite acceptable in terms of taste. This suggests that the combination of lemongrass and ginger produces a distinctive, fresh, and warm flavor that meets the preferences of most consumers. However, there are still a small number of respondents who rate it as "average," so it is necessary to develop a more balanced flavor formulation, for example, by adjusting the proportions of the main ingredients or adding complementary ingredients, in order to further increase public acceptance of the product.

Aroma

The results of the measurements of the aroma aspect in this study are presented in the following table:

Table 2: Organoleptic Test Results for Lemongrass Ginger Tea in Terms of Aroma.

Aroma Indicator	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
Value	1	2	3	4	5
Response	-	2	11	22	13
Average		3,9			

In terms of aroma, the product received an average score of 3.9 in the "average-like" category. Most respondents gave a rating of like (45.8%) and very like (27.1%), while only 2 respondents (4.2%) stated that they did not like it. This shows that the distinctive aroma of lemongrass and ginger is one of

the main attractions of the product. This finding is in line with Fifa's (2023) research, which states that the combination of lemongrass and ginger contributes to increased consumer acceptance of herbal beverage products.

Colour

The results of the measurements of the colour aspect in this study are presented in the following table:

Table 3: Organoleptic Test Results for Lemongrass Ginger Tea in Terms of Colour.

Colour Indicator	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
Value	1	2	3	4	5
Response	-	3	25	14	6
Average	3,4				

In terms of colour, the lemongrass ginger drink product received an average score of 3.4 in the "average-like" category. Most respondents gave an average rating (52.1%), while 14 respondents (29.2%) said they liked it and 6 respondents (12.5%) said they really liked it. Although the average score is still in the average-like category, the high number of "average" ratings indicates that the color of the product needs to be improved, for example by adjusting the concentration of ingredients or presentation techniques to make it more appealing.

Packaging Appearance

The results of the measurements of the packaging appearance aspect in this study are presented in the following table:

Table 4: Organoleptic Test Results for Lemongrass Ginger Tea in Terms of Packaging Appearance.

Packaging Indicator	Strongly Dislike	Dislike	Neutral	Like	Strongly Like
Value	1	2	3	4	5
Response	-	1	5	29	13
Average	4,1				

Meanwhile, in terms of packaging appearance, the lemongrass ginger drink product received an average score of 4.1 in the "like-really like" category. The majority of respondents (60.4%) said they liked it and 27.1% said they really liked it. Only a small percentage of respondents (2.1%) said they did not like it. This shows that the product packaging design is quite attractive and practical for consumers, although it can still be improved to better suit current market trends.

Overall, the organoleptic test results show that all aspects of the organoleptic test have an average score above 3.0, which means that the lemongrass and ginger drink product is well received by the majority of respondents. The aspect with the highest acceptance was the packaging appearance, while the aspect with the lowest acceptance was the color. Based on these results, it can be concluded that lemongrass-ginger herbal tea has the potential to be developed as a local herbal beverage product that is not only healthy but also popular, especially among the community in Kedungbanjar Village.

4 DISCUSSION

Lemongrass and ginger tea is a traditional herbal drink that is quite popular among the public because it combines the health benefits of lemongrass (Cymbopogon citratus) and ginger (Zingiber officinale). The product used in this study was a lemongrass-ginger tea bag product made in the form of dried ingredients packaged in tea bags, making it more practical, hygienic, and easier to serve than traditional boiled tea.

The results of the organoleptic test previously conducted in Kedungbanjar Village showed that respondents tended to like the "taste" with a score of 3.7 and the 'aroma' with a score of 3.9, while the "color" with a score of 3.4 was rated as average-liked. Meanwhile, the "packaging appearance" aspect received a relatively high score of 4.1, so it can be concluded that this product has good acceptance potential, especially if some improvements are made to the visual aspect (Fifa, 2023). This is in line with the research by Rahayu and Idris (2024), which found that organoleptic testing plays an important role in assessing the level of consumer preference for ginger-based herbal drinks. Sensory evaluation is the basis for product development to suit market preferences.

In terms of nutritional content, 100 grams of fresh lemongrass contains 137.9 kcal of energy, 25.9 g of carbohydrates, 11.2 g of protein, 2.2 g of fat, 125.0 mg of magnesium, 1903.0 mg of potassium, 734.0 mg of calcium, and 49.0 mg of iron. Meanwhile, ginger contains approximately 66 kcal of energy, 15.3 g of carbohydrates, 2.1 g of protein, 0.3 g of fat, 142 mg of magnesium, 2152 mg of potassium, 49.3 mg of iron, as well as approximately 69 mg of vitamin C and 0.7 mg of vitamin B6. Although the amount of ingredients used in serving lemongrass-ginger tea is relatively small, around 5 grams per serving, lemongrass-ginger tea still has its main benefits derived from its bioactive compounds, such as play an important role in providing health effects.

The benefits of lemongrass and ginger tea have been found in several previous studies. Lemongrass, with its citral content, has antimicrobial and antioxidant properties and provides a relaxing effect (Anita et al., 2024). Ginger is known to aid digestion, relieve nausea, and provide anti-inflammatory and mild analgesic effects (Raudah et al., 2023). The combination of these two ingredients produces an herbal drink that has the potential to boost immunity, support metabolic health, and provide a soothing warm sensation (Patandung et al., 2024) (Adi et al., 2023). Thus, lemongrass and ginger tea can be categorized as a local functional beverage that has both health benefits and economic potential (Safitri & Gustina, 2023).

However, consumer acceptance of lemongrass-ginger tea bags is not entirely positive.

Some respondents dislike the spicy taste of ginger produced by the gingerol compound, especially individuals who are sensitive to spicy sensations. The pungent aroma of ginger and lemongrass is also a challenge, as not all consumers are accustomed to strong herbal aromas (Anita et al., 2024). In addition, the pale color of the drink is considered visually unappealing, thereby lowering taste expectations. The physical quality of herbal tea bags is greatly influenced by the drying method used, including aspects such as color, aroma, and taste (Husnaini et al., 2022). Packaging also plays a role in shaping perceptions of product quality, although in this study, the packaging aspect received a fairly good rating. However, packaging innovation is still needed to increase the appeal of ginger-based products to consumers, as modern and attractive packaging has been proven to increase consumer interest in purchasing (Badri et al., 2022).

Several efforts that can be made to increase the acceptance of this lemongrass and ginger drink include varying the product formulation, for example by creating a mild ginger flavor variant or adding honey and lime to balance the taste. The aroma can be maintained by selecting fresh ingredients and using the right processing techniques. The visual appearance of the product can be improved by increasing the concentration of the extract or adding decorative elements when serving. In addition, more attractive packaging design and educating the public about the health benefits of lemongrass and ginger are also very important to increase the appeal and consumption of this product (Raudah et al., 2023).

The advantages of lemongrass-ginger tea bags compared to other products are their practicality, hygiene, and consistent quality. While traditional herbal tea requires boiling time, herbal tea bags only need to be brewed, making them more efficient. Furthermore, tea bag packaging ensures consistent ingredient composition, reduces the risk of contamination, and facilitates product distribution. From an economic perspective, this innovation has added value because it combines the tradition of local herbal drinks with simple technology that supports the empowerment of MSMEs (Safitri & Gustina, 2023).

This, lemongrass-ginger tea bags have great potential for further development. The nutritional content and bioactive compounds found in lemongrass-ginger tea bags can support health benefits, while their organoleptic properties and packaging can be continuously improved to suit consumer tastes. The combination of traditional values, health benefits, and product innovation makes lemongrass-ginger herbal tea a local herbal beverage with potential for development.

5 CONCLUSIONS

The conclusion of this study shows that lemongrass-ginger tea bags are well accepted by the people of Kedungbanjar Village, with an average score of 3.7 for taste, 3.9 for aroma, 3.4 for color, and 4.1 for packaging appearance. This product is considered superior to traditional teas in general because it is practical, hygienic, consistent in taste, and rich in bioactive compounds that are beneficial to health. In addition, abundant raw materials and practical packaging make this product a potential healthy local herbal drink with economic value.

For product development recommendations, the focus should be on improving color, adding flavor

variations, and innovating packaging design to make it more appealing. Further research on nutritional content and health benefits is highly recommended, as well as production and marketing training for the community to support the sustainability of the business.

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