

Sensory Test on 3 Types of Functional Beverages

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ARTICLE INFO

Keywords: Drink, Sensory, Test

Received : 15, August

Revised : 18, September

Accepted: 20, October

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ABSTRACT

The research method used was a qualitative test consisting of a visual test (color) and a sensory test including aroma and taste. The research treatments were M1, M2, M3. The results of the study showed that were as follows: M1, Ginger Tea: color, aroma, taste tests, namely 4 people really liked it, 14 people liked it, 2 people didn't like it; M2, Lemongrass tea: Color test, aroma test, namely 2 people really like it, 17 people like it, 1 person doesn't like it, the taste test shows 2 people really like it, 16 people like it and 2 people don't like it; M3, Lemongrass ginger tea: color, aroma, taste test yielded 13 people really liked it, 6 people liked it, 1 person didn't like it. So the functional drink most preferred by consumers was M3.

INTRODUCTION

Determine the productivity planted. Farmers and traders are potential human resources in the cultivation and marketing of products that were sold outside the city, outside the island and Indonesia was rich in plant products such as food crops, horticulture, plantations, forestry, as well as medicinal plants and spices. Climatic conditions and soil fertility levels also even abroad. The potential natural resources that will be discussed are functional drinks that are useful for health and increase immunity and treat various diseases. In this study, what was studied were herbal drinks made from medicinal plants, namely tea made from selected tea leaves, ginger, and lemon. The herbal ingredients are cooked according to the M1.M2.M3 treatment. This research aims to study and analyze the level of consumer preference in choosing functional drinks. The benefit was to determine the best results from these 3 types of health drinks as a basis for consideration in business to increase income levels.

LITERATURE REVIEW

Herbal drinks are a type of product derived from natural materials that were useful for the body, usually made from spices or can be obtained from parts of plants such as roots, stems, leaves, flowers or tubers, which have active ingredients (Inti, 2008). According to Anggraini et al, (2018), the community believes in and makes herbal drinks produced from plant materials suspected of containing bioactive compounds. The boiled plant material was used as a health drink. Tea (*Camellia sinensis*) was a plant that has medicinal properties. Quality tea is obtained from the shoot (peko) plus 2-3 young leaves, because it contains polyphenol compounds, caffeine and amino acids which produce a delicious taste and aroma. The types of tea marketed are green tea, oolong tea, black tea and white tea (Ajisaka, 2012). Ginger (*Zingiber officinale*) was a type of rhizome plant which is well known as a spice and medicinal ingredient.

The ginger plant had active compounds, namely zingerone which causes a spicy taste, gingerol, zingerone, flavonoids, acetone, methanol and essential oils, and can be used to treat nausea, vomiting and dyspepsia. (Patrul, 2017), supported by other opinions, which are useful as antioxidants (Kawill et al., 2011). Lemongrass plants contain active compounds including isoorientin, isoscaparin, swertiajaponin, isoorientin 2"O rhamnoside, orientin, chlorogenic acid, and caffeic acid, which have high antioxidant properties (Sarl, 2016). Lemongrass stem extract contains alkaloids, terpenoids, saponins, flavonoids, and tannin (Soraya et al., 2016). Lemongrass was widely used in various culinary delights such as soto, curry, rendang, vegetables with coconut milk, etc. Drinks in cafes also add lemongrass as an aroma in herbal tea drinks.

The problem that exists in society was that the use of herbal tea drinks was not given additional spices, so the taste and aroma and nutritional content are incomplete, nutritional compounds and antioxidants. The aim of the experiment was to study and test the sensory properties of the use of additional spices in herbal tea. The benefit is that it produces new innovations in functional drinks. In organoleptic or sensory testing, namely testing methods that use the human senses as the main tool for measuring product acceptability.

In the measurement and evaluation of food ingredients, the characteristics that determine whether a product is accepted or not are sensory properties. The five senses used to assess were sight, touch, smell (aroma) and taste. The questionnaire is a tool in the form of a list of questions, the questionnaire must be filled in by persons/panelists (Ningrum, 2017).)

METHODOLOGY

The research was carried out from May to July 2023 at the Agrotechnology Laboratory, Faculty of Agriculture, Kadiri Islamic University, Kediri. The equipment used includes: knife, cutting board, pot, ladle, plastic cup, stove. The materials needed are fragrant essence tea, ginger, lemon grass, sugar, water.

How to implement:

This experiment uses 3 types of functional drink formulations:

- M1 (3 bags of fragrant essence tea weighing 15 grams + 150 grams of ginger + 100 grams of white sugar + 1 liter of water),
- M2 (3 bags of fragrant essence tea weighing 15 grams + 5 sticks of lemongrass + 100 grams of white sugar + 1 liter of water),
- M3 (3 bags of fragrant essence tea weighing 15 grams + 150 grams of ginger + 5 stalks of lemon grass + 100 grams of sugar + 1 liter of water).

Prepare tools and materials. Peel the ginger from the skin, then wash it thoroughly. After that, crush the ginger so that the aroma comes out. Cut the lemongrass stalks then wash them until clean, then crush the lemongrass stalks. Furthermore, the cooking of the drink was in accordance with the experimental treatment M1, M2, M3, boiled until boiling for 10 minutes, then filtered, served warm followed by a sensory test of 20 panelists using a tool, namely a questionnaire which was given questions that had to be answered by the panelists in the form of scores. Test parameters include color, aroma and taste of 3 types of functional health drinks.

RESULTS

In traditional beverage processing activities, the function of the body was to increase immunity or resistance to attacks by degenerative diseases and the effects of microbial infections. The results of organoleptic testing for experiment M1, namely ginger tea, are as follows (Table 2) and Figure 1. Observing the assessment of 20 panelists, the result was that ginger tea's color, aroma and taste were very liked by 4 consumers, 16 people liked it. Herbal tea has very good properties for the body. Herbal tea drinks are a traditional way to maintain a healthy body.

Table 1. Ginger Tea Sensory Test

No.	Color Test			Smell test			Taste Test		
	More Like	Like	Dislike	More Like	Like	Dislike	More Like	Like	Dislike
1	v			v			v		
2		v			v			v	
3		v			v			v	
4		v			v			v	
5		v			v			v	
6		v			v			v	
7	v			v			v		
8	v			v			v		
9		v			v			v	
10		v			v			v	
11		v			v			v	
12		v			v			v	
13		v			v			v	
14		v			v			v	
15		v			v			v	
16			v			v			v
17	v			v			v		
18		v			v			v	
19		v			v			v	
20			v			v			v



Figure 1. Ginger Tea Sensory Analysis Diagram

In the organoleptic testing of lemongrass tea drinks which included color, aroma and taste, with 20 panelists producing data such as Table 2 and Figure 2.

Table 2. Sensory Test of Lemongrass Tea

No.	Color Test			Smell test			Taste Test		
	Like	Dislike	More Like	Like	Dislike	More Like	Like	Dislike	More Like
1		v			v			v	
2		v			v			v	
3		v			v			v	
4		v			v			v	
5			v			v			v
6		v			v			v	
7		v			v			v	
8		v			v			v	
9		v			v			v	
10	v			v			v		
11		v			v				v
12		v			v			v	
13		v			v			v	
14		v			v			v	
15		v			v			v	
16		v			v			v	
17	v			v			v		
18		v			v			v	
19		v			v			v	
20		v			v			v	

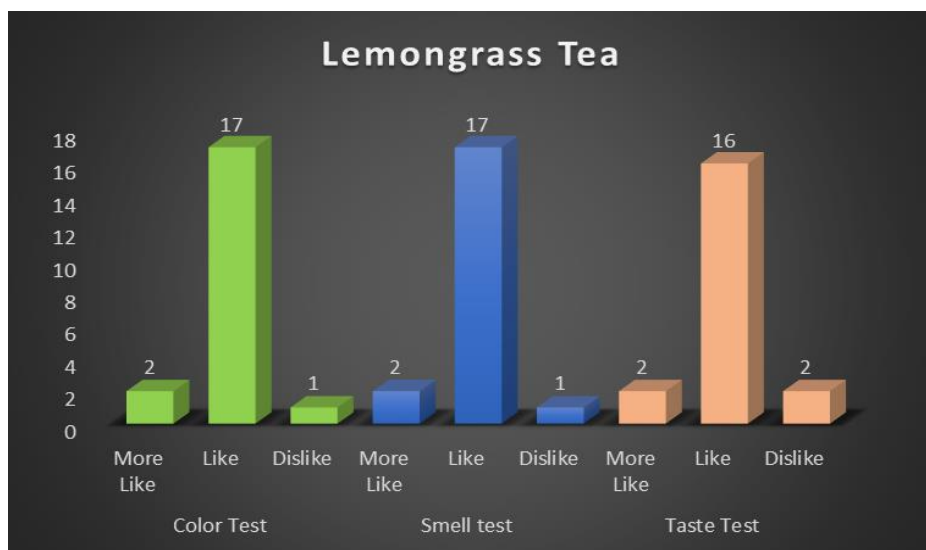


Figure 2. Lemongrass Tea Sensory Test Diagram

Table 3 and Figure 3 show the results of observations and organoleptic testing of ginger lemongrass tea. The highest results were the value of color, aroma and taste very liked around 13 0 people, 6 people liked it and 1 person didn't like it. Ginger contains substances that are beneficial to the body, including essential oils (0.5-5.6%).

Table 3. Sensory Test of Lemongrass Ginger Tea Drinks

No.	Color Test			Smell test			Taste Test		
	Like	Dislike	More Like	Like	Dislike	More Like	Like	Dislike	More Like
1	v			v			v		
2	v			v			v		
3		v			v			v	
4		v			v			v	
5		v			v			v	
6	v			v			v		
7	v			v			v		
8	v			v			v		
9		v			v			v	
10	v			v			v		
11	v			v			v		
12		v			v			v	
13	v			v			v		
14	v			v			v		
15		v			v			v	
16	v			v			v		
17	v			v			v		
18	v			v			v		
19		v			v			v	
20	v			v			v		

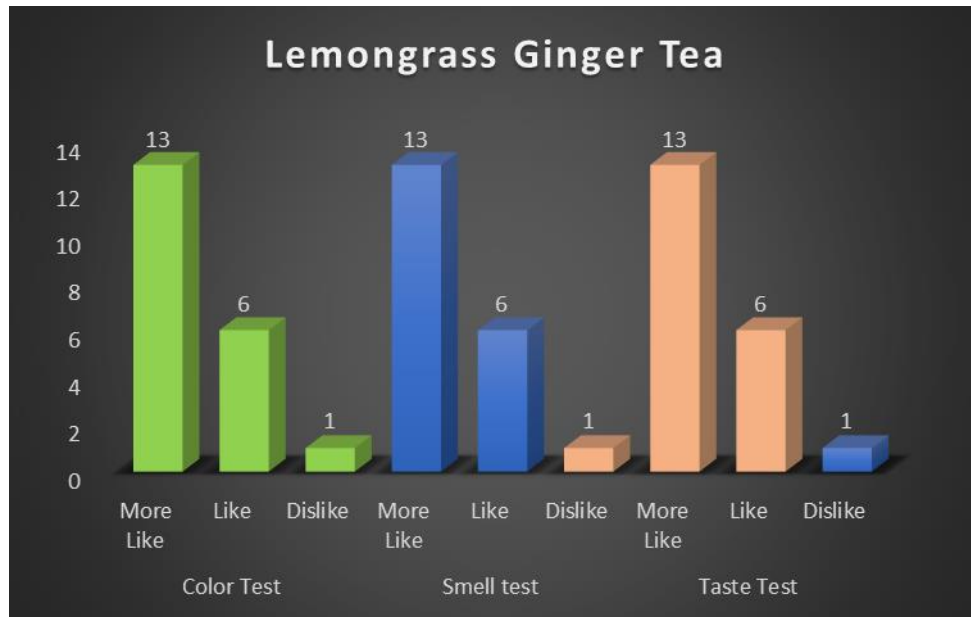


Figure 3. Sensory Test Diagram for Ginger Lemongrass Tea

DISCUSSION

The catechin and flavonoid content contained was believed to be able to prevent various diseases. Indonesia is rich in natural resources which can provide health benefits (Anggorowati, et al., 2016). The aim of boiling herbal tea is to inhibit the growth of unwanted microorganisms and reduce enzyme activity that can damage the material so that it lasts longer (Lagawa, et al., 2020). The use of herbal drinks has become popular because of its distinctive aroma and antioxidant properties so it was useful for health (Chan, et al., 2012). The results Table 2 and Figure 2 obtained were the color, aroma and taste of the drink, which 2 people rated very like, 17 people liked. while 1 person doesn't like it. This was a quantitative test that describes the level of consumer liking for herbal drink products, and the potential for development because 85% like them. 10% really like it. Herbal tea has very good properties for the body, it was a traditional way to maintain a healthy body. The catechins and flavonoids contained in herbal tea are believed to be able to prevent various diseases. Ginger contains substances that are beneficial to the body, including essential oils (0.5-5.6%), zingiberone, zingiberinzingibetolbarneol, camphor, folandren, cineolgingerin, vitamins (A, B1, and C). carbohydrates (20-60%) resin (resin) and organic acids (malic, oxalate), as anti-microbial and antioxidants (Aidin, 2016).

Ningrum, 2017 revealed the Hedonic Test Technique is "a technique designed to measure the level of desire of a product. The hedonic test is the most widely used test to measure the level of production preference. The addition of ginger and lemon grass to herbal teas had significantly different effects on chemical properties, antioxidant activity, physical properties, color degree and organoleptic properties. Herbal teas have very good properties for the body. Aroma parameters can be defined as a material that can be observed with the sense of smell. In food industry activities, aroma testing was considered important because it can quickly provide product evaluation results about

whether a product is acceptable or not. So Aroma is the smell caused by chemical stimulation which was smelled by the response nerve (Triharditia, 2016).

CONCLUSIONS AND RECOMMENDATIONS

Based on the research that has been carried out, it can be concluded that the most popular functional drink product is the M3 combination, namely fragrant essence tea plus ginger and lemongrass. The M1 results of ginger tea are more preferable than lemon grass tea from consumer assessment

FURTHER STUDY

This research still has limitations, so it is necessary to conduct further research related to the topic "Sensory Test on 3 Types of Functional Beverages". Future research can use different plant objects to add insight for readers.

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