

Organoleptic test of combination syrup of carrot juice (*Daucus carota*) and pineapple fruit juice (*Ananas comosus*)

Lisa Rahayu* and Filezia Chintana Sipado

Department of Agro-Industrial Technology, Faculty of Agricultural Technology, Universitas Andalas, Padang, Indonesia.

World Journal of Advanced Research and Reviews, 2024, 23(02), 1674–1678

Publication history: Received on 12 July 2024; revised on 19 August 2024; accepted on 21 August 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.23.2.2432>

Abstract

This research aims to determine the organoleptic value of syrup produced from a combination of carrot juice (*Daucus carota*) and pineapple juice (*Ananas comosus*). This research was carried out for 3 months. This research is descriptive research and laboratory analysis. The organoleptic parameters tested in this study included aroma, taste, color and texture using hedonic test with a scale from 1 to 5. 1 = very dislike, 2 = dislike, 3 = somewhat like, 4 = like, 5 = very like. The treatment are A= Carrot juice: pineapple juice ratio (50:50), B = Carrot juice: pineapple juice ratio (25:75) and C= Carrot juice: pineapple juice ratio (75:25). Based on experiments conducted on the combination of carrot juice and pineapple juice, it can be concluded that the most preferred syrup overall by panelists is syrup with a combination of 75% carrot juice with 25% pineapple juice.

Keywords: Carrot; Organoleptic; Pineapple; Syrup

1. Introduction

Carrot (*Daucus carota* L.) is one of the most commonly consumed vegetables in Indonesia, characterized by high beta-carotene content. Pineapple is one of the most widely cultivated plants in Indonesia that can be consumed directly^[7]. In addition, pineapple fruit can also be processed into various foods and processed beverages such as jam, syrup and juice.

Syrup is a liquid material in the form of a sugar solution in water^[12]. According to SNI 3544^[2] syrup is a beverage product made from a mixture of water and sugar with a minimum sugar solution content of 65% with or without other food ingredients and permitted food additives in accordance with applicable regulations. The combination of carrot juice and pineapple juice is an interesting combination to make syrup. This is because carrots contain carotenoids (beta-carotene) which are beneficial for the eyes and skin. While pineapple is high in vitamin C and has a fresh taste, it has the potential to produce natural syrup. so it has the potential to produce natural syrup that is fresh and also healthy. Based on the above background, researchers are interested in conducting research on organoleptic tests of combined carrot juice and pineapple juice syrup. Organoleptic test is a test conducted on food based on the liking of a product^[4]. The organoleptic test parameters tested are aroma, flavor, color and texture.

2. Material and methods

2.1. Material

The tools used in making the combination syrup of carrot juice and pineapple juice are blender, container, analytical scales, stove, measuring cup, wooden stirrer, baking pan, spoon, knife, spatula, sieve, label paper, glass bottle (packaging). The materials used are carrots, fresh pineapple, sugar, CMC, citric acid and sodium benzoate.

* Corresponding author: Lisa Rahayu Email: lisarahayu@ae.unand.ac.id

2.2. Methods

This research was conducted from November 2023 to February 2024 at the Laboratory of the Department of Agricultural Industrial Technology, Faculty of Agricultural Technology, Andalas University. The research method used is with 3 treatments, namely 3 combinations of syrup from carrot juice and pineapple juice. For further organoleptic tests. The parameters tested were color, taste, aroma and texture using hedonic test with a scale from 1 to 5. 1 = very dislike, 2 = dislike, 3 = somewhat like, 4 = like, 5 = very like. The analysis was conducted to determine any differences in organoleptic values in combination syrups with different percentages of carrot and pineapple, namely:

A= Carrot juice: pineapple juice ratio (50:50)

B = Carrot juice: pineapple juice ratio (25:75)

C= Carrot juice: pineapple juice ratio (75:25)

The following are the stages of syrup making:

2.2.1. Preparation of pineapple juice

Pineapple fruits are sorted first, then selected pineapple fruits that are old, fresh and ripe. After that, the peeling process is carried out to separate the fruit flesh from the skin. Next, the pineapple fruit is washed. Pineapple fruit is then reduced in size, blanched for 5 minutes, crushed until smooth and filtered to get the juice.

2.2.2. Preparation of carrot juice

Carrots are sorted first to separate good quality carrots and those that are not then weighed. The selected carrots must be fresh and orange in color. Carrots are then peeled to remove the skin and the top of the carrot. Next, they are washed using running water, then blanching at 75 °C-80 °C for 5 minutes. Next, the carrots are crushed with a blender, and a little water is added. After that, it is filtered to separate the carrot juice with the pulp.

2.2.3. Preparation of combined syrup of carrot juice and pineapple juice

Carrot juice and pineapple juice are mixed according to the treatment. The formula for making combination syrup can be seen in Table 1. Other ingredients such as sugar, CMC were added and stirred until all ingredients dissolved.

Table 1 Formula for making combined syrup of carrot juice and pineapple juice

Ingredients	A	B	C
Pineapple juice	500 ml	750 ml	250 ml
Carrot juice	500 ml	250 ml	750 ml
Sugar	650 g	650 g	650 g
CMC	2 g	2 g	2 g
Citrit Acid	3 g	3 g	3 g
Sodium Benzoate	1 g	1 g	1 g

Next, it is cooked at 70 °C-75 °C until it boils for about 15 minutes on regular heat. The pineapple carrot combination syrup was then cooled and put into sterilized glass bottles. Organoleptic test was then started.

3. Results and discussion

Organoleptic test is a product test carried out using human sensory organs such as the sense of taste (tongue), sense of smell (nose) and sense of sight (eyes). The panelists who participated in this test were students of the Agricultural Industrial Technology Study Program. The combination syrup was diluted first using drinking water before the organoleptic test was conducted by the panelists. The ratio used was 10 ml syrup: 50 ml water. Organoleptic parameters tested in this study included aroma, taste, color and texture, which used the hedonic test with a scale from 1 to 5. namely 1 = very dislike, 2 = dislike, 3 = mildly like, 4 = like, 5 = very like. The results of organoleptic testing for 4 parameters can be seen in Picture 1.

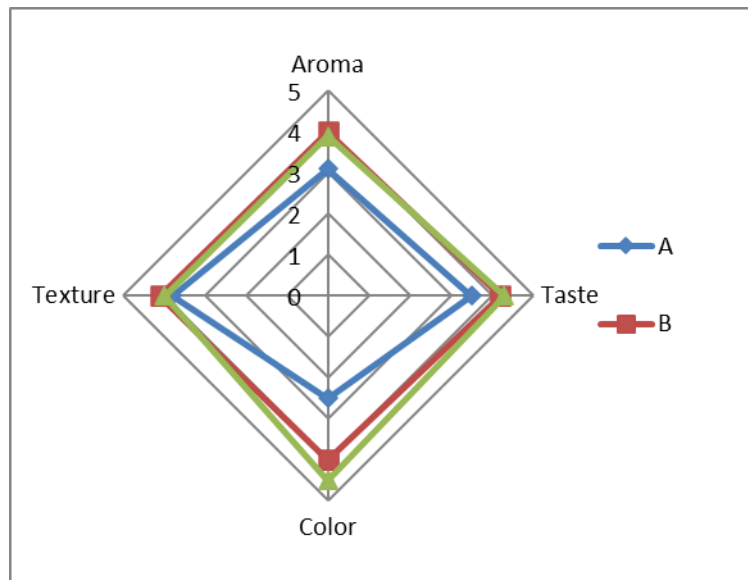


Figure 1 Result of Organoleptic

3.1. Aroma

Aroma is a sensory sensation experienced by the sense of smell that can affect panelists' acceptance of the food products tested^[5]. Based on Table 2, it can be seen that the highest score of panelist assessment is in treatment A, namely the use of carrot juice and pineapple juice in equal amounts. This shows that the panelists' liking for the aroma of the carrot juice and pineapple juice mix syrup is mildly like to like. The results of organoleptic testing of the aroma of the combined syrup of carrot juice and pineapple juice ranged from 3.10 - 4.00 which can be seen in Table 3.

Table 2 The average value of the level of liking for the color of the combined syrup of carrot juice and pineapple juice

Treatment	Average
A = carrot juice: pineapple juice (50:50)	4,00
B = carrot juice: pineapple juice (25:75)	3,10
C = carrot juice: pineapple juice (75:25)	3,90

3.2. Taste

The result of the taste of the combined syrup is ranged from 3.50 - 4.30 which can be seen in Table 3.

Table 3 The average value of the level of liking for the taste of the combined syrup of carrot juice and pineapple juice

Treatment	Average
A = carrot juice: pineapple juice (50:50)	3,50
B = carrot juice: pineapple juice (25:75)	4,20
C = carrot juice: pineapple juice (75:25)	4,30

Taste is one of the organoleptic properties of a product and preference highly determines consumer acceptance of food product^[9]. Based on Table 4 above, it shows that panelists preferred treatment C, which is a combination syrup of 75% carrot juice and 25% pineapple juice.^[6]Taste is a major factor in the final decision of panelists to accept or reject a food.

3.3. Texture

The result of the texture of the combined syrup is ranged from 3.80 - 4.10 which can be seen in Table 4.

Table 4 The average value of the level of liking for the texture of the combined syrup of carrot juice and pineapple juice

Treatment	Average
A = carrot juice: pineapple juice (50:50)	3,80
B = carrot juice: pineapple juice (25:75)	4,10
C = carrot juice: pineapple juice (75:25)	4,00

Texture is a combination of shape, size, amount and elements of product formation that can usually be felt by the senses of taste, touch and taste^[3]. Based on the results of the assessment of the panelists on the texture, the value is obtained between 3.80 to 4.10 which means somewhat like to like. The texture that was preferred by the panelists was in treatment B, namely with a combination of pineapple juice as much as 75%.

3.4. Color

The result of the color of the combined syrup is ranged from 2.50 - 4.50 which can be seen in Table 5.

Table 5 The average value of the level of liking for the color of the combined syrup of carrot juice and pineapple juice

Treatment	Average
A = carrot juice: pineapple juice (50:50)	4,00
B = carrot juice: pineapple juice (25:75)	2,50
C = carrot juice: pineapple juice (75:25)	4,50

Color is a product visualization that can be seen first compared to other variables, so color will directly affect panelist assessment^[3]. Based on the organoleptic test conducted, the panelists' level of liking for the color of the syrup increased along with the increasing concentration of carrot juice used, namely in treatment C (use of 75% carrot juice). This is because carrots contain natural pigments such as carotenoids which give the resulting carrot juice a yellow to orange color. The color produced in syrup generally depends on the raw material used. So that the more carrot juice used, the more visually appealing the resulting syrup.

4. Conclusion

Based on experiment conducted on the combination of carrot juice and pineapple juice, it can be concluded that the most preferred syrup overall by panelists is syrup with treatment C, namely a combination of 75% carrot juice with 25% pineapple juice.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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