

# Enriching Culinary Variety through Ice Cream Innovation with Traditional Herbal Medicine Turmeric Acid at Jinggo Café & Restaurant

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## Abstract

The development of Tourism encourages the development of health tourism (wellness tourism and herbal tourism) by re-socializing herbal medicine, by innovating the utilization of sour turmeric herbal medicine into sour turmeric herbal ice cream so that it becomes a culinary alternative. This study aims to determine the manufacturing process, the level of public liking and cost analysis. The type of approach used is research and development (R&D) with the 4D development model (Define, Design, Development and Dissemination) which uses hedonic and hedonic quality organoleptic tests. The results showed that the best recipe used a ratio of 40% herbal medicine: 100% milk with a favorability level of 86.7%. In the process of making sour turmeric herbal ice cream through several stages, namely preparation of ingredients, mixing ingredients, pasteurization, homogenization, aging or freezing, packaging and storage. With the selling price of the Sour Turmeric Herb Ice Cream product IDR 6,000 / portion.

*Keywords: Ice Cream, Innovation, Traditional Herbal Medicine, Jinggo Café & Resto, Turmeric Tamarind*

## Introduction

Tourism has now become a leading sector for the Indonesian economy. The development of Tourism from year to year has a significant impact on Indonesia's economic growth. In reviving the tourism and creative economy sector, the Ministry of Tourism and Creative Economy or the Tourism and Creative Economy Agency encourages the development of health tourism, namely wellness tourism and herbal tourism in Indonesia. Regarding the development of herbal tourism, Indonesia has great potential, because Indonesia has approximately 30,000 thousand species of medicinal plants, out of 40,000 thousand species of medicinal plants in the world. Currently, only about 7000 herbs and spices are often used to maintain health, fitness and healing. Herbal tourism activities carried out, for example, the tradition of processing herbal plants into herbal concoctions that are efficacious for fitness and treatment that existed in ancient times until now (The Ministry of Tourism and Creative Economy, 2021).

For centuries, Indonesians have used various herbs and spices as important parts of the nation's culinary as well as traditional medication. Because of the long historic and cultural background, the herbs and spices have become the parts of Indonesian culture. For instance, the use of herbs and spices as the bases of *jamu*, Indonesian traditional medicines, recipe has inspired Indonesians to promote them as Indonesian cultural heritage (Nurcholis & Arianti, 2024). Furthermore, *jamu* has also become one of the topics discussed in the tourism field especially regarding the potential to be included in

tourism promotion (Satriyati & Biroli, 2019). Therefore, it is obvious that innovation on the utilization of herbs and spices is much needed especially to support the effort of promoting tourism in Indonesia.

There are many species of herbal plants or biopharmaca plants spread throughout Indonesia, one of which is found in Banyuwangi. Based on Banyuwangi data related to the production of Biopharmaca Plants in 2018-2021, it states that the total production of turmeric plants is 270,670 kg more than ginger as much as 207,777 and kencur 99,615 kg (BPS-Statistics of Banyuwangi Regency, 2023). Besides having a large amount of production, it turns out that herbal plants such as turmeric, temulawak and red ginger contain compounds that can increase the body's immune system from attacks of infections of various diseases including infections from viruses (Sutana & Dwipayana, 2020). This shows that the development of herbal plants can make opportunities to re-publicize herbal medicine with different types of preparations, namely herbal ice cream.

Ice cream *jamu*, as the main focus of current study, is a frozen beverage product made from cream or similar ingredients combined with herbal medicine (Maskuri, 2002), which can be one of the alternative culinary innovations that are healthy, easy and modern using herbal ingredients. The formulation of sour turmeric herbal medicine is made from turmeric and sour rhizomes, then will be mixed into recipes I, II and III. Turmeric is widely used as a herbal ingredient because it has the properties of natural compounds (curcuminoids) as antioxidants, hepatotoxic, anti-inflammatory and anti-rheumatic (Safitri & Gustina, 2022). While acid is antiperic, antiseptic, abortivium and can increase appetite (Sotyati, 2016).

Based on the description above, sour turmeric has good properties for health and the amount of production is abundant so that it can be utilized as a new innovation of herbal ice cream. With the innovation of herbal ice cream, it can open up new business opportunities, especially at Jinggo Café & Restaurant by serving ice cream menus with unique flavors that can reach all consumers and can increase economic value with the abundant benefits of sour turmeric herbal medicine. This is due to the fact that product innovation, along with differentiation and creativity, is always seen as a crucial aspect in gastronomy tourism (Resmi et al., 2024) to provide tourists with unique gastronomic experiences (Kuhn et al., 2024).

This study is a research and development (R&D) which focused on the innovation of ice cream with traditional herbal medicine, specifically turmeric acid as the part of enriching culinary alternatives at Jinggo Café & Restaurant. Jinggo Café & Restaurant is a business unit of Politeknik Negeri Banyuwangi which focuses on culinary or gastronomy sector located in Banyuwangi. Product innovation has been a part of its main focuses in order to promote the business to wider communities.

### **Research Methods**

The tools used in this research were pot, spoon, balloon whisk, measuring cup, mixer, scale, thermometer, bowl, freezer and stove. The ingredients used in making ice cream were milk, whipped cream (powder), granulated sugar, egg yolks, sour turmeric herbs and salt. The ingredients used in making *jamu kunyit asam* were turmeric, tamarind, granulated sugar, coconut sugar or cane sugar, water and salt. This research was conducted using the Research and Development (R&D) method. According to (Sugiyono, 2010), research and development (R&D) has 4 levels consisting of:

- a) Research without making and testing products.
- b) No research, only testing existing products
- c) Research and develop existing products
- d) Research and create products

Based on these levels, this research was at level 3, because the basic product already exists, namely ice cream. Then, research and develop products by utilizing sour turmeric herbs. In implementing the R&D method using the 4D development model (Define, Design, Development, and Dissemination) by (Thiagarajan, 1974) as follows:

- a) *Define*, a stage to establish and define a product that will be researched and developed by compiling reference recipes from various reference sources.
- b) *Design*, the stage for making designs for products that have been determined after conducting hedonic quality organoleptic tests on reference recipes, then making development recipes with the addition of sour turmeric herbs and hedonic quality organoleptic tests which will be obtained 1 best development recipe.
- c) *Development*, this stage makes 3 development recipes which will be validated by 5 trained panellists based on hedonic quality organoleptic test then the selected development recipe will be validated based on hedonic organoleptic test to determine the level of liking of the product by 15 semi trained panellists.
- d) *Dissemination*, this stage is carried out to disseminate and introduce the product to 30 consumer panellists, products that have been selected in the validation test by trained panellists and semi trained panellists.

The results of the assessment based on the hedonic quality organoleptic test questionnaire will be calculated to determine the average assessment as for the calculation formula for the hedonic quality organoleptic test as follows:

$$\bar{X} \text{ (average)} = \frac{\text{Total Score Obtained}}{\text{Number of Panellist}}$$

(Source: SNI 01-2346-2006)

The results of the hedonic organoleptic test questionnaire calculation will be in the form of a percentage (%) and will be calculated using the following calculation formula:

$$\text{Percentage of Results} = \frac{N}{N_{\text{Max}}} \times 100\%$$

Description:

- N : the number of marks obtained  
 N<sub>max</sub> : the maximum number of marks

Source: Arikunto (2009)

## Results and Discussion

### a) *Define Stage*

At this stage, the hedonic quality organoleptic test was conducted to 5 trained panellists with 3 different ice cream reference recipes. The following 3 ice cream reference recipes were used:

*Table 1. Reference Ice Cream Product Recipe*

Material	Recipe 1 (R1)	Recipe 2 (R2)	Recipe 3 (R3)
Fresh cow's milk	323 ml	-	-
UHT milk full cream	-	-	250 ml
Sweetened condensed milk	-	80 ml	-
Cream	55 gr	150 gr	45 gr
Granulated sugar	67 gr	-	50 gr
Egg Yolk	50 gr	-	50 gr
Salt	3 gr	300 ml	-
Ice water	-	300 ml	-
CMC	2 gr	-	-

Regarding the recipes above, it can be described that recipe 1 was by Aliyah (2020), recipe 2 was made by Hermawan (2021), and recipe 3 was by Tentrem Hotel, Yogyakarta

*Table 2. Sour Turmeric Herb Recipe*

Sour Turmeric Herb Ingredients	Control Recipe
Turmeric	100 gr
Tamarind	30 gr
Granulated sugar	15 gr
Cane Sugar or Java Sugar	50 gr
Water	300 ml
Salt	0.5 tsp

Based on the results of the panellist test of the three reference recipes, the best reference recipe was chosen, namely reference recipe 3 with positive responses regarding texture, aroma, taste and color.

**b) Design Stage**

In the design stage, the selected reference product was designed, namely reference recipe 3 from Hotel Tentrem Yogyakarta which was added with sour turmeric herbs with a percentage of 30%, 40% and 50%. The percentage was tested for hedonic quality organoleptic to 5 trained panellists to get the best development recipe.

*Table 3. Recipe Development of Turmeric Tamarind Herb Ice Cream*

Material	Reference Recipe (R3)	Recipe Development		
		RD 1 (30%)	RD2 (40%)	RD3 (50%)
Sour Turmeric Herb	-	75 ml	100 ml	125 ml
UHT milk full cream	250 ml	250 ml	250 ml	250 ml
Whipped Cream	45 gr	45 gr	45 gr	45 gr
Granulated Sugar	50 gr	50 gr	50 gr	50 gr
Egg Yolk	50 gr	50 gr	50 gr	50 gr
Salt	0.5 tsp	0.5 tsp	0.5 tsp	0.5 tsp

According to the results of the hedonic quality organoleptic test, the best recipe was recipe development 2 (RD2) with a ratio of 40% herbal medicine: 100% milk which received positive responses based on indicators of texture, aroma, color and taste. The following are the results of the assessment based on the panellist test:

*Table 4. Hedonic Quality Organoleptic Test Results*

Characteristics	30%	40%	50%
Texture	Soft	Soft	Soft enough
Aroma	Somewhat distinctive herbal Aroma sour turmeric	Scented with sour turmeric herbs	Scented with sour turmeric herbs
Taste	Less typical of sour turmeric herbal medicine	Typical Sour turmeric herb	Typical Sour turmeric herb
Color	Pretty yellow	Yellow	Intense yellow

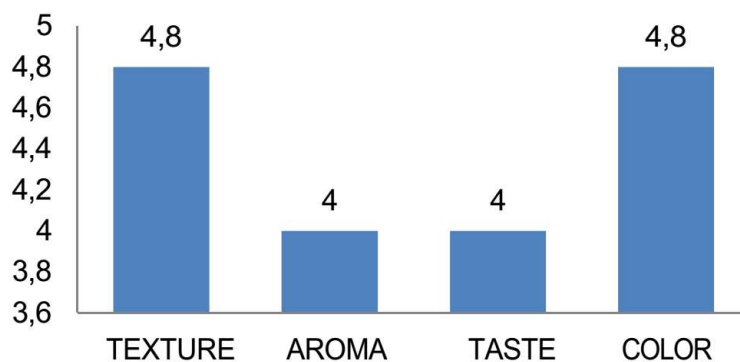
### *c) Development Stage*

At this stage there were revisions to the recipe development 2 (RD2), related to the dosage in the sour turmeric herbal medicine recipe. The following is the revised recipe for sour turmeric herbal medicine:

*Table 5. Development Recipe of Turmeric Tamarind Herb*

Material	Control Recipe	Revised Recipe
Turmeric	100 gr	115 gr
Tamarind	30 gr	33 gr
Granulated sugar	15 gr	15 gr
Cane Sugar or Java Sugar	50 gr	50 gr
Water	300 ml	300 ml
Salt	0.5 tsp	0.5 tsp

The following are the results of the organoleptic test assessment by 5 trained panellists who had chosen the best recipe with the addition of sour turmeric herbal medicine, namely 40% herbal medicine: 100% milk:



*Figure 1. Organoleptic Test Results (Hedonic Quality) 5 Trained panellists*

Based on the picture of the hedonic organoleptic test results to 5 trained panellists, the panellists preferred the texture and color of the ice cream because they had the same assessment of 4.8 in which the texture was soft even without using an ice cream machine, there were no ice crystals while the color could attract consumers because of its yellow color. Furthermore, the panellists liked the taste and aroma which

had the same rating of 4, for the taste was balanced between milk and *jamu*, because the base of the ice cream has milk ingredients so as not to lose the taste of milk and there is an additional flavor of sour turmeric herbal medicine which has its own unique taste which is a differentiator from other ice creams and a fairly distinctive aroma from sour turmeric herbal medicine.

**d) Dissemination Stage**

At this stage, the product was distributed to 30 consumer panellists. These consumer panellists consisted of the academic community around the Jinggo Café & Resto area such as students, lecturers, technicians, and others. The purpose of the distribution to consumer panellists was to introduce and disseminate *Jamu Kunyit Asam* ice cream products. Figure 2 below that show the result of the dissemination stage.

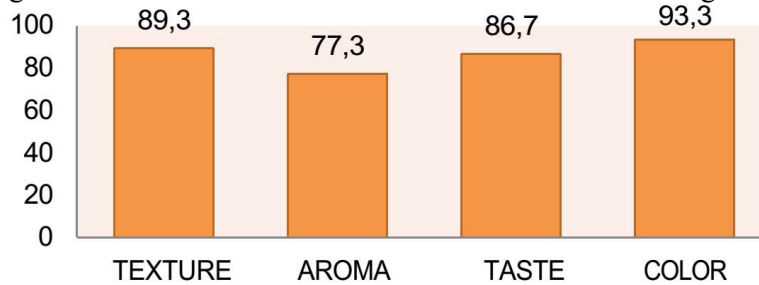


Figure 2. Hedonic Organoleptic Test Results of 30 consumer panellists

Based on the assessment of consumer panellists, the color indicator has the highest score because the color attracts consumers to try. Soft texture even though it is made without using an ice cream maker. Unique taste from the addition of sour turmeric herbal medicine which has its own uniqueness. The aroma that is raised is quite pronounced the aroma of sour turmeric herbs even though it is not too concentrated. So that if accumulated from 4 indicators of color, texture, taste and color, the result is 86.7%, which means that the product is included in the very like category.

To calculate production costs and selling prices using full costing calculations. Researchers use a profit of 20% of the total production cost, for production costs in one manufacture is IDR 36,475. Then the author adds 20% of the production cost of IDR 7,295. The production cost for one serving of ice cream is IDR 5,471 so that researchers provide a price recommendation of IDR 6,000.

**Conclusion**

Based on the presentation of the results of the research that has been carried out, the use of sour turmeric herbs can be used as an additional flavor in ice cream. So that the assumption that herbal medicine tastes bitter can now be enjoyed by all groups with a unique look and taste and can increase the economic value of sour turmeric herbal medicine. The addition of sour turmeric herbal medicine that was selected from the trained and semi trained panellist test was in the ratio of 40% herbal medicine : 100% milk which is the recipe development 2 that has the best assessment based on texture, aroma, taste and color.

More importantly, this study supports the spirit of promoting *jamu* from Indonesian herbs and spices in tourism industry. This is in line with (Sutana, 2024) who states that the herbs and spices have the potential to be promoted in wellness tourism in

Indonesia. For sure, it could be challenging to introduce *jamu* to tourists, especially the ones coming from foreign countries. Therefore the innovation presented in this study can be implemented due to the fact that tourists may be more familiar with ice cream products.

In addition, there are suggestions for improvements that can be made by further research related to the shelf life of sour turmeric herbal ice cream, packaging design and business feasibility studies from marketing and financial aspects so that the production process runs optimally.

## References

- Arikunto, S. (2009). *Prosedur Penelitian Suatu Pendekatan Praktik*. PT. Rineka Cipta.
- BPS-Statistics of Banyuwangi Regency. (2023). *Banyuwangi Regency in Figures* (BPS-Statistics of Banyuwangi Regency (ed.)). BPS-Statistics of Banyuwangi Regency.
- Kuhn, V. R., Gadotti dos Anjos, S. J., & Krause, R. W. (2024). Innovation and creativity in gastronomic tourism: A bibliometric analysis. *International Journal of Gastronomy and Food Science*, 35, 100813. <https://doi.org/10.1016/j.ijgfs.2023.100813>
- Maskuri. (2002). *Teknologi Pembuatan Es Krim*. Fakultas Peternakan Universitas Diponegoro.
- Nurcholis, W., & Arianti, R. (2024). Jamu as Indonesian Cultural Heritage and Modern Health Innovation. *Jurnal Jamu Indonesia*, 9(1), 1–2. <https://doi.org/10.29244/jji.v9i1.317>
- Resmi, I. C., Dhewanto, W., & Dellyana, D. (2024). *Gastronomy Tourism: Local Food and Tourism Experience in Bandung* (Vol. 10, Issue 2, pp. 1804–1810). [https://doi.org/10.2991/978-94-6463-234-7\\_190](https://doi.org/10.2991/978-94-6463-234-7_190)
- Safitri, S., & Gustina, G. (2022). Edukasi Kunyit Asam Pereda Dismenorea. *Jurnal Abdimas Kesehatan (JAK)*, 4(2), 178. <https://doi.org/10.36565/jak.v4i2.306>
- Satriyati, E., & Biroli, A. (2019). Peluang dan Tantangan Jamu Madura sebagai Pendukung Pariwisata dan Ekonomi Kreatif di Kabupaten Bangkalan dan Sumenep. *Prosiding Seminar Nasional Budaya Madura V: Membangun Pariwisata Madura Berbasis Budaya Lokal*, November, 167–172. <https://doi.org/10.21107/budayamadura.2019.38>
- Sotyati. (2016). *Asam Jawa, Tumbuhan Multifungsi*. Satu Harapan. <https://www.satuharapan.com/read-detail/read/asam-jawa-tumbuhan-multifungsi>
- Sugiyono. (2010). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D*. ALFABETA.
- Sutana, I. G. (2024). REMPAH-REMPAH SEBAGAI POTENSI WELLNESS TOURISM DI INDONESIA. *Cultoure*, 5(1), 20–29.
- Sutana, I. G., & Dwipayana, A. P. (2020). Perilaku Konsumsi Jamu Tradisional Di Tengah Pandemi Covid-19. In Poniman & J. Simarmata (Eds.), *COVID-19: Perspektif Agama dan Kesehatan* (pp. 41–68). Yayasan Kita Menulis.
- The Ministry of Tourism and Creative Economy. (2021). *Tawangmangu Destinasi Herbal Tourism Indonesia*. <https://kemenparekraf.go.id/ragam-pariwisata/Tawangmangu-Destinasi-Herbal-Tourism-Indonesia>
- Thiagarajan. (1974). *Intructional Development For Training Teachers of Exceptional*

*Children A Sourcebook*. Leadership Training Institute/Special Education, University of Minnesota.