

Potential Of Tamarind Turmeric Instant Herbal Drink As A Student Entrepreneurship Project

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Article Info	ABSTRACT
<p>Keywords: Tamarind turmeric, Entrepreneurship, Organoleptic properties, Hedonic test.</p>	<p>The article discusses the potential of tamarind turmeric instant herbal products as part of an entrepreneurship project for pharmacy students. It emphasizes the importance of combining pharmaceutical knowledge with entrepreneurial skills, which can lead to innovation in the healthcare industry. The project involves minimal investment in equipment for powdering ingredients and offers a convenient product for consumers through instant drink mixes. Leveraging e-commerce and digital marketing strategies, students can promote their product effectively. Collaborations with health influencers and participation in local health fairs can enhance product visibility and consumer feedback. The primary aim of the research is to conduct an organoleptic evaluation of the tamarind turmeric instant herbal products and assess sales performance. A descriptive qualitative research design was adopted to gather sensory evaluations and consumer feedback. The results indicate that these herbal products are becoming popular due to their health benefits, including antioxidant and anti-inflammatory properties. The organoleptic attributes were evaluated, focusing on factors such as color, aroma, taste, and texture. The findings showed that the product has a yellowish-brown color, a tangy and citrusy aroma with earthy undertones, a tangy and slightly sour taste with mild spiciness, and a smooth texture that dissolves easily in water. The visual appeal of the product plays a significant role in consumer preference, as color can indicate the presence of beneficial ingredients like curcuminoids in turmeric. The sales performance of instant turmeric and tamarind drinks shows consumer acceptance in hedonic tests on taste, color, and aroma with the results of like and very-like.</p>

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INTRODUCTION

Pharmacy students, traditionally trained in the sciences and healthcare, can greatly benefit from learning and practicing entrepreneurship. This combination of skills not only enhances their professional capabilities but also opens up new opportunities in the rapidly evolving healthcare industry (Ananto et al., 2024; Honifa et al., 2024). Pharmacy students equipped with entrepreneurial skills are well-positioned to drive innovation in healthcare. They can identify unmet needs in the market, develop new pharmaceutical products, and create

innovative solutions to improve patient care. This entrepreneurial mindset encourages them to think creatively and develop novel approaches to healthcare challenges (Maulina et al., 2024; Wahyuningsih, 2022).

The global trend towards healthier lifestyles and natural remedies presents a significant market opportunity for the tamarind turmeric instant herb drink. Consumers are increasingly seeking out products that offer health benefits without the side effects associated with synthetic drugs. The wellness industry, particularly the herbal and natural products segment, is experiencing robust growth. According to a report by Grand View Research, the global herbal supplements market size was valued at USD 6.2 billion in 2020 and is expected to expand at a compound annual growth rate (CAGR) of 6.2% from 2021 to 2028 (Dewi & Lestari, 2016; Saragih et al., 2024).

In Indonesia, where Jamu originates, there is a strong cultural acceptance and demand for herbal drinks. This cultural heritage can be leveraged to market the product both locally and internationally. Additionally, the increasing awareness of the health benefits of turmeric and tamarind can drive demand in other markets, particularly in regions where these ingredients are not traditionally consumed (Ariska et al., 2022; Dion & Purwantisari, 2020; Indartuti & Rahmiyati, 2021; Irmayarni et al., 2023).

The tamarind turmeric drink, often referred to as Jamu Kunyit Asam, is renowned for its numerous health benefits. Turmeric, a key ingredient, contains curcumin, a compound with powerful anti-inflammatory and antioxidant properties. Curcumin has been shown to reduce inflammation, alleviate pain, and improve liver function. Additionally, turmeric is known for its potential in cancer prevention and treatment, as it can inhibit the growth of cancer cells (Hewlings & Kalman, 2017; Moghadamtousi et al., 2014). Tamarind, on the other hand, is rich in vitamins and minerals, including vitamin C, potassium, and magnesium. It has antioxidant properties that help in detoxifying the body and improving digestion (Mukherjee et al., 2024). The combination of turmeric and tamarind enhances the drink's overall health benefits, making it a potent remedy for various ailments such as digestive issues, anemia, and even diabetes .

The urgency of this research stems from the increasing demand for natural and functional foods. Consumers are becoming more health-conscious and are seeking alternatives to synthetic supplements and medications. The COVID-19 pandemic has further accelerated this trend, with a heightened focus on boosting immunity and overall health. Developing a tamarind turmeric instant herbal drink can meet this demand and provide a healthier beverage option (Honifa et al., 2024). While there has been extensive research on the individual benefits of tamarind and turmeric, combining them into an instant herbal drink is relatively unexplored. Previous studies have highlighted the health benefits of turmeric's curcumin, including its anti-inflammatory and antioxidant properties (Jyotirmayee et al., 2023). Similarly, tamarind has been studied for its digestive and antimicrobial effects. Therefore, the potential of instant drinks from turmeric and tamarind can be researched further for the development of original Indonesian herbal products., making this research novel and potentially impactful. The purpose of this work is to obtain an organoleptical

description of the marketed products and a profile of the sales performance from hedonic indicator of tamarind turmeric instant herbal products.

METHODS

The research design used was descriptive qualitative research to obtain organoleptic test results and qualitative survey research to obtain feedback from consumers on the produced turmeric-tamarind instant herbal products.



Figure 1. Turmeric juice crystallization

The method of making sour turmeric instant herbal medicine uses several stages of the process.

- a. Washing and wet sortation. Turmeric is washed clean until there is no soil or dirt attached. While tamarind is washed by dipping it briefly in a container of water so that the tamarind ingredients are not wasted. Sortation is done by sorting out rotten turmeric rhizomes and moldy tamarind.
- b. Processing turmeric juice. Turmeric is peeled and mashed, then squeezed to get turmeric juice. Turmeric juice is precipitated and the liquid part above it is taken to be processed further
- c. Enhancing taste and aroma. Turmeric juice heated with the addition of lemongrass, cinnamon, cloves, and pandan leaves, and granulated sugar as a sweetener.
- d. Crystallization. The heating over low-heat and stirred constantly to avoid crusting or burning.
- e. Adding tamarind juice. Tamarind is added with hot water, left for a moment, then squeezed until the flesh of the fruit is dissolved. After that, it is filtered until the tamarind juice is obtained which does not contain fiber or seeds. Then it is put into the turmeric mixture that has begun to crystallize.
- f. Drying and packaging. The heating process with low heat is continued with continuous stirring until dry crystals are obtained. The coarse crystals are smoothed with a blender. The instant turmeric and tamarind drink powder is filtered first before being packaged.



Figure 2. Tamarind turmeric instant herb ready to sell

The results of instant herbal medicine were tested organoleptically using color, taste, and odor parameters.

- a. The turmeric tamarind instant drink powder prepared according to the instructions provided on the packaging. Ensure consistency in preparation for all samples to avoid any bias.
- b. The testing team consists of 4 people who are semi-trained in understanding sensory evaluation techniques.
- c. Testing is performed in a controlled environment with minimal distractions. The room should be well-lit, odor-free, and at a comfortable temperature.
- d. Color appearance test. Evaluation of the color and visual appeal of the beverage. Differences in color intensity and color uniformity are observed.
- e. Aroma test. The aroma of the drink is tested by the sense of smell. The tester must be able to describe the intensity and quality of the aroma of the turmeric tamarind drink.
- f. Beverage taste test. Evaluation of the taste profile, including the balance between turmeric and tamarind, sweetness, and unpleasant tastes.
- g. Instant drink powder texture test. The texture of the powder is tested using a tongue taste sensor in the mouth of the drink. The tester's tongue must pay attention to softness, roughness, and overall texture.

The hedonic test population is all consumers who have ever purchased this tamarind turmeric product. Consumers are given the choice between so-so, like, and really like for the color, aroma, and taste indicators. The results of the hedonic test are calculated as a percentage of each response obtained.

RESULTS AND DISCUSSION

Tamarind turmeric instant herbal products are gaining popularity due to their potential health benefits, including antioxidant, anti-inflammatory, and digestive properties. Organoleptical research and hedonic tests are essential to evaluate the sensory attributes and consumer acceptability of these products. Organoleptical research involves the evaluation of the sensory

properties of a product, including appearance, color, texture, aroma, and taste (Ariska et al., 2022).

Table 1. Organoleptic indicators of the tamarind turmeric instant herbal drink

Indicator	
Color	Yellowish-brown
Aroma	tangy, citrusy with a warm and earthy undertone
Taste	tangy and slightly sour with warm and mildly spicy
Texture	smooth crystal and easily dissolvable in water

Appearance or visual appeal of the product is assessed, including factors such as color, consistency, and uniformity. A visually appealing product is more likely to attract consumers. The color of the product is evaluated to ensure it meets consumer expectations and indicates the presence of active ingredients like curcuminoids in turmeric. Color affects consumer preference because color is a very important indicator of assessment by consumers because consumers often choose food products based on color. Processed food products that have an unattractive color are often considered to have a bad taste. The beverage obtained from the tamarind turmeric instant herbal drink has a yellowish-brown hue with CMYK (0%, 32%, 100%, 24%) and RGB (195, 133, 0) color composition.



Figure 3. Tamarind turmeric herbal drink

Aroma is one of the parameters that greatly affects consumer acceptance. The aroma of a tamarind turmeric instant herbal drink is a complex blend that's both inviting and soothing. It typically carries a tangy, citrusy note from the tamarind, coupled with a warm, earthy undertone from the turmeric. There's also a subtle sweetness mingling with the mildly spicy scent, which makes for a fragrant experience that's both refreshing and comforting.

Taste is a sensory response on the tongue to sweet, bitter, sour, and salty stimuli. The taste of the product greatly affects a person's preference. The taste of a tamarind turmeric herbal drink is a unique blend of flavors. It starts with the tangy and slightly sour notes from the tamarind, which give it a refreshing kick. This is balanced by the warm, earthy bitterness of turmeric, which adds depth and complexity. There's also a hint of natural sweetness that rounds out the profile, making it a harmonious mix of sour, spicy, and sweet (Rusmalina et al., 2024).

The distinct taste of turmeric primarily comes from its secondary metabolites, particularly curcuminoids such as curcumin, bisdemethoxycurcumin, and demethoxycurcumin. These compounds are responsible for turmeric's characteristic bitter, earthy, and slightly spicy flavor. Curcumin, the most active component, not only gives turmeric its yellow color but also contributes significantly to its taste and therapeutic properties. The bitterness and earthiness are due to the presence of these curcuminoids, while the slight spiciness comes from other compounds like gingerols and zingerone, which are also present in turmeric (Khasanah et al., 2023).

The sour taste of tamarind comes from its high content of organic acids, particularly tartaric acid and malic acid. These acids are responsible for the characteristic tangy and sour flavor of tamarind. In addition to these acids, tamarind also contains polyphenols and flavonoids, which contribute to its complex flavor profile. The combination of these compounds gives tamarind its unique sour taste, which is both refreshing and slightly astringent (Sari et al., 2024).

The texture of tamarind turmeric instant herbal drink is smooth and easily dissolvable in water. It typically has a fine, powdery consistency that mixes well, creating a pleasantly homogeneous beverage without any gritty or grainy residue. The texture of this tamarind turmeric instant jamu is in accordance with the results of research that has been done before (Khasanah et al., 2023; Rusmalina et al., 2024; Sari et al., 2024). Hedonic testing involves the assessment of consumer preferences and acceptability of a product based on sensory attributes. It provides valuable insights into how well the product is received by potential consumers (Dewi & Lestari, 2016).

Table 2. Hedonic testing of the tamarind turmeric instant herbal drink

Indicator	Dislike	Neither like nor dislike	Like	Like very much
Color	0	0	10 (50%)	10 (50%)
Taste	0	0	8 (40%)	12 (60%)
Aroma	0	0	16 (80%)	4 (20%)

The color of food and beverages significantly influences consumer perception and acceptance, often guiding their expectations about taste and quality. Tamarind turmeric drinks, known for their distinctive yellowish-brown hue, might not appeal to young people as much as other, more vibrant-colored beverages. Therefore, the hedonic test shows the same results (50% - 50%) between respondents who like and like very much the color of this tamarind turmeric drink. One of the primary reasons young people might not favor the color of tamarind turmeric drinks is the lack of vibrant and attractive colors. Today's youth are constantly exposed to visually striking beverages like bright-colored sodas, energy drinks, and juices that catch their eye on store shelves and social media. The yellowish-brown color of tamarind turmeric drinks, though natural and indicative of the ingredients used, may appear dull or unappealing in comparison. Colors play a crucial role in psychological responses and can evoke certain emotions and perceptions. Bright colors such as red, blue, and green are often associated with excitement, freshness, and energy—qualities that appeal to younger

demographics. On the other hand, brown and yellow hues might be subconsciously linked to more traditional, medicinal, or less exciting products.

In an age where social media heavily influences consumer preferences, the visual appeal of food and beverages is paramount. Products that photograph well and look enticing in pictures are more likely to be shared and recommended among peers. The tamarind turmeric drink's color, being less vibrant, might not stand out in social media posts, making it less attractive for young people who value share-worthy content. The color of a beverage often sets the expectation for its flavor. Bright colors are generally perceived to be more flavorful and sweet, aligning with the preferences of a younger audience. The muted tones of tamarind turmeric drinks may lead to the assumption that the flavor will be less exciting, more bitter, or medicinal. Young people may also associate the color of tamarind turmeric drinks with traditional or herbal remedies rather than trendy, contemporary beverages. While older generations might appreciate the traditional aspect, younger consumers often seek out new, innovative, and trendy products. The association with traditional medicine can thus create a perception barrier, making the drink less appealing to the youth.

The combination of tamarind and turmeric creates a distinctive taste experience that stands out from more conventional beverages. Therefore, the hedonic test shows the results of respondents who like very much (60%) are greater than those who like (40%) with the taste of this tamarind turmeric drink. Tamarind provides a tangy, slightly sour kick that is both refreshing and invigorating. Turmeric adds a warm, earthy undertone that balances the sourness with a mild bitterness. This unique flavor profile can be particularly appealing to young people seeking new and exciting taste experiences, deviating from the more common sugary and artificial flavors.

Young people today are increasingly health-conscious and inclined towards products that offer health benefits. Tamarind turmeric drinks align well with this trend, as both ingredients are known for their nutritional and therapeutic properties. Tamarind is rich in vitamins and antioxidants, while turmeric is famed for its anti-inflammatory and immune-boosting effects. The health benefits associated with these ingredients make the drink an attractive option for young consumers who prioritize wellness. In an era where authenticity and natural ingredients are highly valued, tamarind turmeric drinks offer a sense of purity and tradition. The use of natural, minimally processed ingredients appeals to young people who are wary of artificial additives and preservatives. The authentic taste of tamarind and turmeric resonates with those who appreciate the transparency and simplicity in their food and beverages.

Younger generations are often adventurous when it comes to food and drink, eager to explore new culinary experiences. Tamarind and turmeric, with their roots in various traditional cuisines, offer a taste of cultural heritage that can be intriguing and exciting. This exploratory mindset leads young people to appreciate the unique flavors and historical significance of tamarind turmeric drinks.

The growing popularity of functional beverages—drinks that offer additional health benefits beyond basic nutrition—has influenced young people's preferences. Tamarind turmeric drinks fit well within this category, providing not only a refreshing taste but also

functional benefits like improved digestion and enhanced immunity. This dual appeal of taste and functionality can significantly attract young consumers.

Aroma plays a crucial role in the overall sensory experience of food and beverages. While the taste of tamarind turmeric drinks might appeal to young people, their distinct aroma can be a deterrent. Tamarind and turmeric both have intense and characteristic aromas. Tamarind's scent is often tangy and somewhat sharp, while turmeric has a strong, earthy, and slightly bitter smell. These bold and unusual aromas may not align with the olfactory preferences of young people who are more accustomed to mild and familiar scents in their beverages, such as those found in sodas, fruit juices, or flavored waters. Aromas can evoke psychological responses and associations. The earthy and medicinal smell of turmeric might be subconsciously linked to traditional remedies or medicinal products, which may not be appealing to young people looking for trendy and modern beverages. Similarly, the tangy sharpness of tamarind might be perceived as too exotic or intense, creating a barrier to acceptance. Young people's preferences are often shaped by media and marketing, which typically promote beverages with fruity, sweet, or fresh aromas. The natural, potent smell of tamarind turmeric drinks does not fit the typical profile of these marketed beverages. Consequently, the unfamiliar and strong aroma can be off-putting compared to the more widely accepted scents of commercially popular drinks.

Aroma significantly influences the expectation of taste and the overall sensory experience. If the aroma of the drink is too intense or unfamiliar, it can create a negative expectation about the flavor, even if the taste itself is enjoyable. This mismatch between aroma and taste can lead to a less favorable perception of the beverage, making young people less inclined to enjoy it. Cultural background and social context play a role in shaping aroma preferences. Young people from different cultures may have varying levels of exposure to and acceptance of tamarind and turmeric aromas. In some cultures, these scents might be more familiar and accepted, while in others, they might be perceived as unusual or undesirable.

CONCLUSION

Turmeric tamarind has traditionally been used by the ancestors of the Indonesian nation. Instant turmeric tamarind drink is made for practicality and can be stored longer than in fresh form. The potential of instant turmeric tamarind drink as a student entrepreneurship project is proven by organoleptic and hedonic tests. The organoleptic indicators used are color, aroma, taste, and texture. The hedonic test is done with a questionnaire filled out by consumers and contains preferences for color, taste, and aroma. The results obtained from the organoleptic test of tamarind turmeric instant herbal products are yellowish-brown in color, with a tangy, citrusy aroma with a warm and earthy undertone, and tangy and slightly sour taste with warm and mildly spicy, and a smooth crystal texture that is easily dissolved in water. The results of the hedonic test showed that many consumers really liked the taste of the combination of sour and turmeric, while the color and aroma were less popular among young consumers. Based on these results, it can be concluded that instant turmeric tamarind drinks have the potential to be developed as a student entrepreneurial project.

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