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### ABSTRAK

Sirup Rosella dengan Pemanis Daun Stevia sebagai Alternatif Minuman Sehat dan Harga Terjangkau. Sirup merupakan minuman populer yang terbuat dari campuran gula dan air, namun mengonsumsi gula berlebih dalam sirup konvensional dapat berdampak buruk bagi kesehatan. Oleh karena itu, penelitian ini bertujuan untuk mengembangkan sirup rosella yang dimaniskan dengan daun stevia sebagai alternatif yang lebih sehat dan terjangkau. Bunga rosella dipilih sebagai bahan utama karena kandungan nutrisi dan zat aktifnya yang bermanfaat bagi kesehatan, sedangkan daun stevia digunakan sebagai pemanis alami non kalori. Metode penelitian yang digunakan meliputi observasi, pembuatan sirup, pengemasan dan pemasaran. Hasil penelitian menunjukkan bahwa sirup rosella yang dimaniskan dengan daun stevia berpotensi sebagai alternatif minuman sehat dengan nilai gizi tambahan dan manfaat kesehatan yang tinggi. Strategi pemasaran melalui media sosial dan distributor terbukti efektif meningkatkan penjualan produk ini. Selain itu, analisis titik impas menunjukkan bahwa proyek ini memiliki potensi keuntungan yang baik. Kesimpulannya, sirup rosella yang dimaniskan dengan daun stevia merupakan pilihan yang menarik untuk memenuhi permintaan konsumen terhadap minuman sehat, dan disarankan agar dilakukan penelitian lebih lanjut untuk mengoptimalkan formulasi dan strategi pemasaran produk ini.

**Kata kunci:** bunga rosella, daun stevia, sirup dan pemanis

### ABSTRACT

Rosella Syrup with Stevia Leaf Sweetener as a Healthy and Affordable Drink Alternative. Syrup is a popular drink made from a mixture of sugar and water, but consuming excess sugar in conventional syrup can have a bad impact on health. Therefore, this research aims to develop rosella syrup sweetened with stevia leaves as a healthier and more affordable alternative. Rosella flowers were chosen as the main ingredient because of their nutritional content and active substances which are beneficial for health, while stevia leaves are used as a natural, non-calorie sweetener. The research methods used include observation, syrup making, packaging and marketing. The research results show that rosella syrup sweetened with stevia leaves has the potential as an alternative healthy drink with added nutritional value and high health benefits. Marketing strategies through social media and distributors have proven effective in increasing sales of this product. In addition, the break-even analysis shows that this project has good profit potential. In conclusion, rosella syrup sweetened with stevia leaves is an attractive option to meet consumer demand for healthy drinks, and it is recommended that further research be carried out to optimize the formulation and marketing strategy of this product.

**Keywords:** rosella flowers, stevia leaves, syrup and sweetener

### INTRODUCTION

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/or food additives permitted in accordance with applicable regulations (SNI, 2013). The addition of food ingredients to syrups sold on the market generally include flavors, acidity regulators and food coloring. Currently, many syrups are found that contain dangerous substances that can cause

health problems for consumers. This particular substance is deliberately added by the manufacturer with the aim of making the food or drink as attractive as possible in terms of color, taste, aroma and texture. The color in syrup beverage products plays a very important role in helping to increase the selling value of the product because it will attract consumers with its appearance (Yuliana, 2017).

Sugar has become an addiction at all levels of Indonesian society. However, excessive sugar consumption can trigger various diseases. There are 47.9 million Indonesians consuming excess sugar (Kompas, 2023). By selecting 37 types of sweetened foods and drinks from 188 types of ready-made foods and drinks available in Susenas, Indonesians' daily sugar consumption can be calculated. Sugar, with its sweet deliciousness, has become an inseparable part of various foods and drinks consumed daily.

Stevia as a natural, non-calorie sweetener has been used for various foods and drinks, one of which is stevia as a substitute for sugar in carbonated drinks (Saniah and Samsiah, 2012). The sweeteners in stevia, namely stevioside and rebaudioside, cannot be fermented by bacteria in the mouth to become acid. This acid, when attached to tooth enamel, can cause cavities. Therefore, stevia does not cause dental problems (Dahlan, 2013). In Indonesia, the stevia plant has not yet shown its real role as a commodity source of sweeteners. In fact, in many countries, stevia sweetener has succeeded in becoming a trade commodity, both locally and for export. In fact, if we look at its potential, it is certain that the stevia plant has good prospects for development in Indonesia (Dahlan, 2013).

Dried Rosella flowers can be used as raw material for making syrup, because the rosella flowers provide an attractive red color for consumers. Apart from that, the vitamin content of rosella flowers is quite complete, namely vitamins A, C, D, B1, and B2. In fact, the vitamin C (ascorbic acid) content of these flowers is known to be 3 times more than black grapes, 9 times that of citrus, 10 times that of star fruit, and 2.5 times that of guava. Vitamin C is one of the most important antioxidants. The research results revealed that the antioxidants in rosella flowers were 1.7 mol/prolox. That number is higher than a cat's whiskers.

From the reasons above, Stevia leaves are suitable for use as a low-calorie sweetener and Rosella flowers can be used as a substitute for syrup because Rosella flowers have many benefits and the red color of Rosella flowers can attract the attention of consumers.

## **RESEARCH METHODS AND DESIGN**

The method used to solve the problems faced by Indonesian society is through the experimental method, namely a research method carried out by making tools and conducting direct trials on objects used to disseminate information. The activities carried out were utilizing the rosella flower plant to make a healthy syrup product for the body. This syrup product was then introduced to the public, that the rosella flower plant had economic value which could be developed into a syrup product. This research activity was carried out in Kepayang Village, Ogan Komering Ilir Regency and several stages were carried out to make rosella syrup, namely as follows:

### **a. Observation**

Observation is the first step carried out by collecting data by making observations accompanied by recording the condition or behavior of the target object, by going directly to the field, namely to Kepayang Village, Ogan Komering Ilir Regency, South Sumatra. Observations were made by the author to find out information about the processing stages of rosella flowers starting from sorting, making, cooling and packaging and marketing rosella syrup.

b. Syrup Making

Syrup makers combine scientific knowledge, ingredients, taste and art to produce high quality syrup. Syrup character is characterized by the taste, color, aroma and texture of the syrup during storage and use. It is hoped that this activity will stimulate the duplication of artisanal natural syrup and increase the production of natural syrup made from rosella.

c. Packaging

Packaged products or packaging function as a process of providing a container or wrapper for a product which then makes it easier for distributors to distribute the product. The packaging used for Rosella syrup products is in the form of a syrup bottle with the required ingredients and quantities.

d. Marketing

In order for the products sold to increase from year to year, the marketing strategy implemented must also be good. In the current era, marketing is the heart of a business. Without good marketing, it is impossible to sell products to consumers. Rosella syrup marketing is carried out in two ways, namely through online markets and offline markets. Online marketing with promotions on social media such as uploading product photos. Meanwhile, offline marketing is done by leaving goods in cooperatives and shops.

## **RESULTS AND DISCUSSION**

### **Product Introduction**

According to SNI 01-3544-2013, syrup is defined as a beverage product consisting of a mixture of sugar (with a minimum solution content of 65%) and water, with or without other additives, in accordance with established standards. Fickri (2018) categorizes syrups based on their function into two main groups: medicinal syrups (medical syrup) and flavored syrups (carrier syrup). Syrups can also be classified into three types: **essence syrup**, **glucose syrup**, and **fruit syrup**. Essence syrup derives its flavor from added essences, glucose syrup is made from glucose, and fruit syrup is characterized by its fruity ingredients.

### **Key Components of Syrup**

Syrup consists of several components, including:

- **Solvent:** A liquid that dissolves active substances, often referred to as a carrier. Examples include water, glycerol, propylene glycol, ethanol, and ether.
- **Sweetener:** Added to give syrup its sweet taste, such as glucose and fructose.
- **Thickener:** Used to create viscosity in the syrup.
- **Stabilizer:** Ensures the syrup remains stable; examples include antioxidants, buffers, and complexants.
- **Flavor:** Provides the desired taste or aroma.

### **Rosella Flowers and Their Benefits**

Rosella flowers (*Hibiscus sabdariffa*) contain bioactive compounds such as **gossypetin**, **glucosides**, **hibiscin**, **flavonoids**, **theaflavins**, **catechins**, and **anthocyanins** (Widyanto & Nelistya, 2008). These compounds contribute to various health benefits:

- **Anthocyanins:** Rosella flowers contain 96 mg of anthocyanins per 100 g (Hermawan et al., 2011). Anthocyanins are known for their protective effects against cardiovascular diseases, including hypertension (Mardiah, 2010).
- **Theaflavins and Catechins:** These compounds help regulate cholesterol by limiting its absorption and increasing cholesterol removal from the liver, thus maintaining healthy cholesterol levels (Lawren, 2014).

### **Anthocyanin Content in Rosella Flowers**

The anthocyanin profile in rosella flower calyxes includes:

- Cyanidin 3-O-glucoside:  $2.40 \pm 0.02$  mm/g dm
- Delphinidin 3-O-glucoside:  $2.20 \pm 0.01$  mm/g dm
- Cyanidin 3-O-sambubioside:  $17.11 \pm 0.10$  mm/g dm
- Delphinidin 3-O-sambubioside:  $21.28 \pm 0.05$  mm/g dm (Kouako et al., 2015).

These components make rosella flowers a valuable ingredient in functional syrups, particularly for their potential health benefits in addressing cardiovascular conditions and supporting overall well-being.

In the context of making syrup, rosella flowers offer interesting potential. The nutritional content and active substances contained in rosella flowers provide added value to syrup products.

a. Nutrient Content of Rosella Flowers

- 1.) Rosella flowers are rich in nutrients such as vitamin C, fiber and minerals such as calcium, phosphorus and iron. This provides added value in terms of health for consumers.
- 2.) The fairly low calorie content and almost no fat also make rosella flowers a good choice for healthy beverage products.

b. Active Substance Content

- 1.) The anthocyanins, flavonoids and other compounds in rosella flowers provide additional health benefits, such as protection against cardiovascular disease and the ability to lower cholesterol levels.
- 2.) The potential antihypertensive and cholesterol-lowering effects of compounds such as theaflavins and catechins provide important functional aspects in product development.

c. Use in Making Syrup

- 1.) Rosella flowers can be an attractive raw material for fruit syrup, because of their fresh sour taste and good nutritional content.
- 2.) In syrup development, the use of rosella flowers can provide a variety of flavors and aromas that are attractive to consumers.

d. Technical Considerations

- 1.) The extraction and processing of rosella flowers needs to be considered to maintain the nutritional quality and active substances.
- 2.) Adjusting the syrup formulation to the proportion of other ingredients needs to be done in order to optimize the taste, texture and shelf life of the product.

e. Marketing and Branding

- 1.) Highlighting the health benefits of the nutritional content and active compounds of rosella flowers can be an effective marketing strategy for syrup products.
- 2.) Branding that emphasizes the natural, fresh and healthy aspects of products can attract the attention of consumers who are increasingly concerned about health and nutrition.

By paying attention to all these aspects, the development of syrup with rosella flowers as one of the main ingredients can be an attractive option to meet market demand for healthy and quality drinks.

**Tools and Materials and Syrup Making Process**

The tools used to make rosella flower syrup sweetened with stevia leaves are as follows:

**Table 1.** Materials and Equipment

<b>Tool</b>	<b>Price</b>	<b>Material</b>	<b>Price</b>
Pan	13,000.00	Rosella flower	30,000.00
Stove	30,000.00	Stevia leaves	60,000.00
Filter	5,000.00	Water	-
Teapot	10,000.00	Salt	5,000.00
Bottle	5,000.00		
Cutting board	15,000.00		
Knife	20,000.00		
<b>Total</b>	<b>88,000.00</b>		<b>95,000.00</b>

1. Wash the dried rosella flowers until clean, put them in a pan
2. Add 7 glasses of water, cook over medium heat
3. Once boiling add Dried Stevia Leaves while continuing to stir
4. Continue cooking until the water reduces and the flowers sink
5. Strain/remove the flower dregs, then continue cooking until the syrup thickens. Put it in a bottle when it's cold .

**Social Media Design**

The existence of social media is now so widespread, where various groups are very familiar with Facebook, Twitter, Instagram, and others. This can certainly be used as an effective and efficient promotional media (Mintarjo, 2017). Social media has several benefits, such as building and attracting people's interest, helping find consumers and expanding promotional targets and increasing the number of product sales. Due to these many benefits, we use social media as a medium for selling our products.

**Product packaging**

For packaging we use environmentally friendly materials by paying attention to good packaging techniques such as:

- a. Environmentally friendly packaging  
 The packaging materials we use are materials that are easily decomposed or easily recycled so they do not disturb the environmental ecosystem.
- b. There is important information

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The information we include is the composition of the syrup, the expiration date of the syrup, the production code and the benefits of the syrup.



c. **Makes Distribution Easy**

Our packaging also makes it easier for distributors to market our products.

**Promotional or marketing strategies used**

We use promotional and marketing media including:

- Personal selling (face-to-face sales) by directly offering our products to the community and schools.
- Exhibition, by opening a stand at the preneur student bazaar exhibition. The results achieved at this exhibition were 60 units sold.
- Social media, marketing via Facebook and Instagram by informing the advantages of our products. The results achieved were a lot of online orders.
- Distributor/Network (selling directly to consumers), the results achieved by consumers are satisfied by purchasing our products.

**Break Event Point Analysis**

**Table 2.** Operational Costs

<b>Tool</b>	<b>Price</b>	<b>Material</b>	<b>Price</b>
Pan	13,000.00	Rosella flower	30,000.00
Stove	30,000.00	Stevia leaves	60,000.00
Filter	5,000.00	Water	-
Teapot	10,000.00	Salt	5,000.00
Bottle	5,000.00		
Cutting board	15,000.00		
Knife	20,000.00		
<b>Total</b>	<b>88,000.00</b>		<b>90,000.00</b>

<b>Total variables per unit</b>	<b>178,000.00</b>
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#### **Break Event Point Analysis**

Total fixed cost : Rp.88,000.00

Total variable cost: Rp.90,000.00

Total : Rp. 178,000.00

Quantity : 10 items

Variable cost per unit:  $178 / 10 = 17.8 = 17,800.00$

Sales price : Rp. 20,000.00 per item

So with a cost of Rp. 178,000 divided by the number of goods produced of 10, it can be concluded that the sales price we will set is Rp. 20,000. This price can decrease if Rosella flowers and stevia leaves are cultivated by yourself.

#### **CONCLUSION**

Research shows that rosella (*Hibiscus sabdariffa*) and stevia leaves (*Stevia rebaudiana*) can be used to make syrup that can be consumed and contains many benefits. This syrup is a healthier and more affordable alternative drink, and to process rosella flowers and stevia leaves into syrup with greater value, precise and innovative processing steps are needed. Apart from that, to increase the quality value of rosella flowers, there is a need for product diversification, public education, strong branding, and collaboration with various related industries. With this strategy, rosella flowers can be transformed from just decorative flowers into products that have high value and are beneficial for health, and have appeal among the public.

#### **SUGGESTION**

It is recommended to increase further research regarding the optimization of rosella syrup formulation and the use of stevia. It is also necessary to develop more effective marketing strategies to increase product competitiveness on the market.

#### **REFERENCE**

- Ansel, H. C. (2005). *Introduction to Pharmaceutical Dosage Forms*. 4th Edition. Jakarta: UI Press.
- Avininasia, R. (2011). *Potential of Stevia Leaves as a Natural Sweetener*. Jakarta: PT Gramedia.
- Dahlan, MS (2013). *Benefits and Efficacy of Stevia as a Natural Sweetener*. Bandung: Alfabeta.
- Fickri, R. (2018). "Syrup: Composition and Function". *Journal of Food Science*, 12(2), pp. 45-60.
- Hadiwijaya, A. (2013). *Food and Nutrition Technology*. Malang: Malang Health Polytechnic.
- Hermawan, R., Widodo, P., & Nurhalim, F. (2011). "Anthocyanin Content in Rosella Flowers". *Journal of Agricultural Science*, 20(1), pp. 56-68.
- Kamal, M. (2010). *Manufacture of Syrup and Other Beverage Products*. Yogyakarta: Andi.
- Kouako, C., Mbiapo, T., & Wabo, F. (2015). "Type and Amount of Anthocyanin Content in Rosella Flowers". *African Journal of Biotechnology*, 14(18), pp. 1578-1586.
- Lawren, E. (2014). "Effects of Theaflavins and Catechins on Cholesterol". *Journal of Nutritional Biochemistry*, 25(3), pp. 351-359.
- Maryani, R. & Kristiana, L. (2005). *Nutritional Content and Benefits of Rosella Flowers*. Bandung: ITB Press.



- Mardiah, H. (2010). "The Role of Anthocyanins in Cardiovascular Disease". *Journal of Cardiovascular Medicine* , 17(2), pp. 112-119.
- Mintarjo, S. (2017). *Crafts and Entrepreneurship Revised Edition* . Jakarta: Erlangga.
- Mrizky, D. (2009). "Benefits of Stevia Leaves in Food Products". *Journal of Food and Nutrition* , 11(2), pp. 98-104.
- Mulyastri, A. (2002). *Syrup Processing Technology* . Jakarta: Bumi Literacy.
- Paruntu, MR, et al. (2015). "Nutritional Content of Rosella Flowers". *Journal of Food and Nutrition* , 20(4), pp. 77-85.
- Saniah, S., & Samsiah, S. (2012). *Use of Stevia in Carbonated Drinks* . Surabaya: Airlangga University Press.
- SNI 01 - 3544 - 2013. (2013). "Indonesian National Standard - Syrup". Jakarta: National Standardization Agency.
- Uzlifah, S. (2014). "Concentrated Preparations in Water from Sugar". *Journal of Pharmacy and Pharmacology* , 22(3), pp. 123-134.
- Widyanto, A., & Nelistya, C. (2008). "Chemical Composition of Rosella Flowers". *Indonesian Journal of Chemistry* , 9(3), pp. 295-303.
- Yuliana, ND (2017). "Analysis of Substance Content in Syrup". *Journal of Health and Nutrition* , 15(2), pp. 78-85.
- Central Statistics Agency (BPS). (2021). *National Socioeconomic Survey* . Jakarta: BPS.