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Nutrition Content of Rose Nugget as Vegetarian Comestible

H. Hasbiyati, D. Sudiarti, S. R. Hikamah¹

Jember Islamic University
Jl. Kyai Mojo 101 Jember, INDONESIA

Corresponding author: haninghasbiyati@gmail.com

Abstract. Nugget is a type of food consumed by vegetarians. Rose flowers' contents such as Linalool in essential oil, malate acid, tartaric acid, and citrate acid have potentials in lowering blood pressure. By developing an innovation of rose petals into nuggets with a tasty flavor, it will attract the society to make vegetarians as a healthy food alternative or Lacto-ovo vegetarian. The research method used in this study was a quantitative method. This research was conducted to observe the nutrition content in the petal rose nuggets (*Rosa sp*) as a vegetarian comestible commodity. A nutritional analysis was performed in a chemistry laboratory at State Vocational High School of Lumajang 1 (SMKN 1 Lumajang). Based on the research results, it can be concluded that Rose Nugget is very appropriate to be used as a Vegetarian comestible due to its abundant nutrition content which is beneficial for health.

Keywords: *nutrition content, rose nugget, vegetarian comestible.*

1. Introduction

Vegetarian refers to an individual who selects vegetable diet or is known as anti-animal foods. According to a study in America, vegetarians are healthier, live longer, and even stay young longer. They are also free from heart disease. A vegetarian diet has shown an effect to lower a blood pressure on hypertension patients and prevent the occurrence of hypertension to normal people. This research also shows that vegetarian women who have entered the menopause cycle will have less risks of heart disease, endometrium cancer, and breast cancer compared to women with a normal diet. Vegetarian cooking is the type of cooking using vegetables or non-animals and does not use meat as its cooking ingredient [1].

One of the types of food consumed by vegetarians is nuggets. Nugget is one of the many forms of frozen fast food products, which is a product having experienced a heating process until precooked, then frozen [2]. The people's enthusiasm to consume nuggets occurred due to its practicality and good taste. All this time, the nuggets consumed by vegetarians are mushroom nuggets which are basically nuggets made of oyster mushrooms as its main ingredients. Oyster mushrooms as vegetable ingredients are rich in essential amino acids such as valine, leucine, isoleucine, tryptophan, threonine, and phenylalanine. Oyster mushrooms have a soft and chewy texture and are rich in fiber so that they have the potential as a source of dietary fiber and protein substitute for meat [3]. However, sooner or later the flavor of mushroom nuggets can be boring. There needs a new innovation to substitute the main ingredients of nugget originating from plants and has a good taste, one of them is a rose flower.

¹ Jember Islamic University



Rose flowers are believed to have benefits in curing various diseases. The content of roses such as Linalool in the essential oil, malate acid, tartaric acid, and citrate acid have potentials in lowering a blood pressure. All this time, roses are only used as sprinkle flowers. Karangpring Village, Sukorambi District, Jember Regency is the center of Rose flowers, located about 15 kilometers from Jember downtown. Precisely in Pakel Hamlet, Karangpring Village, Sukorambi District. Hundreds of people in three neighborhoods in the hamlet turned out to be Rose flower farmers, both red and white roses. Unfortunately, there is still no serious attention to the existence of rose garden farmers in the region. In 2017, the students of Faculty of Teacher Training and Education at the Islamic University of Jember in Community Service Program were capable of creating a new invention which is utilizing rose flowers as tea and nuggets. So that the utilization of rose flowers all this time which is as sprinkle flowers at graveyard can be beneficial food and beverages and can be a product with a high selling value. Besides that, innovation of rose petal to be nuggets with a good taste attracts the society to choose vegetarian diet culture.

Several motivations of the society to become vegetarians are health factor, more appealing appearance, and reducing global warming on earth. The livestock industry is one of the causes of global warming on earth and also contributes to abundant pollution, especially methane gas contributing to air pollution [4]. In addition to global warming and pollution generated in the industry, pollution is also generated from the process of making food for animals. Therefore, the processed products of rose petal nuggets can be an alternative to Lacto-ovo vegetarian healthy food. Thus, it was needed to conduct a laboratory testing of nutrition content from rose petal nuggets (*Rosa sp*) as a vegetarian comestible.

2. Materials and Methods

The research method used in this study was a quantitative method because this type of research is experimental research and organoleptic tests to panelists at University Islamic Jember by giving three samples to panelists with the criteria tested were physical appearance, color, aroma, texture, and taste to produce the best formulation of several treatments. Then, the products from the best formulation were analyzed its nutrition content (nutrient adequacy ratio, water content, ash content, fat, carbohydrate, food fiber, mineral, fatty acid, and protein digestibility). A nutritional analysis was performed in a chemistry laboratory at State Vocational High School of Lumajang 1 (SMKN 1 Lumajang).

2.1. Procurement of Raw Materials for Rose Petal Nugget

The ingredient procurement was the rose petals obtained from Karangpring village Sukorambi District Jember Regency. The area was selected because in that area there are many rose farmers and is the largest supplier of roses in the area around Jember Regency. From the survey results, it was obtained that the price of roses changes in each month. On a certain month, the price of rose flowers is very high, the highest price was 200,000 Rupiahs/kg and the lowest was 15,000 Rupiahs/kg.

2.2. Production of Rose Petal Nugget

The production of rose petal nuggets was conducted with several tryout testing until an appropriate formulation was found. Based on the tryout results of rose petal nugget production for eight-time repetitions, the formula is as follow:

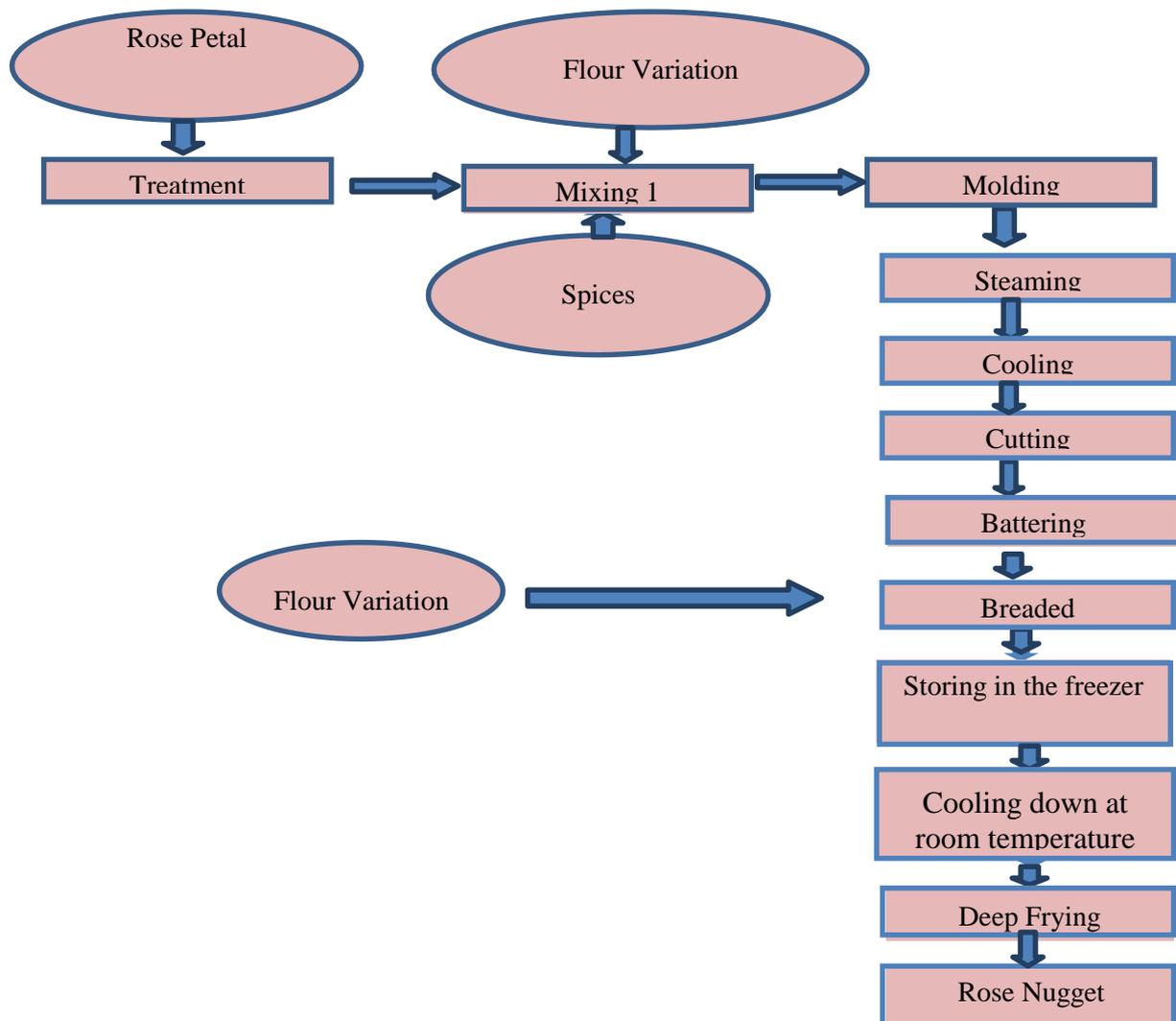


Figure 1. Flowchart Diagram of Rose Petal Nugget Processing

2.3. Nutrition Content Testing

From the one sample chosen, the nutrition content tests conducted were:

2.3.1. Test of nutrition contribution using a method according to SNI 01-2891-1992 and then analyzed descriptively based on the obtained results. A nutritional analysis was performed at Sucofindo laboratory to get certificate.

2.3.2. Test of nutrition content including water content, ash content, protein content, fat content, carbohydrate content, and food fiber content.

2.3.3. Test of compound linalool content on the product of rose petal nuggets.

3. Results and Discussion

The implementation of this research began with a procurement of ingredients which was rose petals. And then it proceeded with the process of making rose petal nuggets followed by a production trial to

determine the characteristics of the final product so that the process can be improved from the shortcomings of the products made. Production trials included organoleptic properties of rose petal nuggets. After obtaining the best formulation which was obtained from the results of the trial production, then the testing of rose petal nugget nutrition content was conducted. The purpose was to find out the appropriateness of rose petal nugget as a vegetarian comestible.

3.1. Analysis Results of Nutrition Content

The analysis of nutrition content on rose petal nugget product covers three stages as follows:

Analysis of Nutrition Contribution

Nutrient Content Ratio is the amount of nutrition needed by an individual to make them healthy. The analysis if nutrition testing was performed at SUCOFINDO Laboratory Surabaya. On the nutritional fact, the results obtained are as follows:

Serving size: 100 g = 5 nugget pieces

Table 1. Analysis Results of Rose Nugget Nutrition Adequacy

Total Energy	230 kcal	Energy from Fat 90 kcal
% Daily Value		
Total Fat	10 g	15%
Saturated fat	4,5 g	23%
Cholesterol	10 mg	3%
Protein	8 g	13%
Total Carbohydrate	27 g	8%
Food fiber	6 g	20%
Sugar	0 g	
Sodium	290 mg	19%
Potassium	55 mg	1%
Iron		10%

% Daily Value based on

Table 2. Results of Advanced Analysis Nutritional Adequacy of Rose Nugget

Energy		2,150 kcal
Total Fat		67 g
Saturated fat		20 g
Cholesterol	More or less	300 mg
Protein		60 g
Total Carbohydrate		325 g
Food fiber		30 g
Sodium	More or less	1,500 mg
Potassium		4,700 mg
Energy each gram:		
Fat 9	Carbohydrate 4	Protein 4

3.2. Nutrition Content

The testing included water content, ash content, protein, fat, carbohydrate, food fiber, Mineral, fatty acid, and protein digestibility. The testing was carried out at the chemistry laboratory at SMK 1

Lumajang. The test was carried out using a predetermined raw sample and repeated 5 times. The testing results are as follows:

Table 3. Nutrition Content of Rose Nugget

Rose Nugget Testing	Statistical Analysis Results
Water Content	62.94 ± 2.20
Ash content	1.38 ± 0.22
Fat Content	7.54 ± 0.36
Fiber Content	0.89 ± 0.068
Iron Content	0.05 ± 0.00
Carbohydrate Content	1.46 ± 0.11
Protein Content	26.68 ± 2.31

3.3. Linalool Content of Rose Nugget

The testing of Linalool compound was conducted in the chemistry laboratory at SMKN 1 Lumajang. The testing was performed twice. The first testing was conducted on the red rose petal extract, and the second testing was conducted on raw rose nuggets. From the testing, the results obtained were as follow:

Table 4. Testing results of Linalool compound content on Rose Petal Extract

Sample	Color		Conclusion
	Standard	Test Results	
Rose Petal extract	Pink – Deep red	Brick Red	Positive containing Linalool compound

Table 5. Testing results of Linalool compound content on Rose Nugget

Sample	Color		Conclusion
	Sample	Test Results	
Rose Nugget	Yellowish White	Pink	Positive containing Linalool compound

Rose is a flowering plant which generally used in the cut-flower industry, cosmetics, perfume, medicine, and aromatherapy as well as food ingredients, beverages, or additives for processed foods, because the content of vitamin C is not inferior to the content of vitamin C in citrus fruits, rose petals can be processed into syrup, jam, or additional vitamin elements added to processed food. However, behind its distinctive aroma and beauty, roses also contain polyphenol and flavonoid components with antioxidant activities [5].

The rose crown can sure various diseases such as coughing up blood, tuberculosis, dysentery, measles, menstrual pain, and others. Rose oil is one type of essential oil which is a secondary metabolic product from a rose. Actually, all parts of the organ of roses contain oil, but the tissue that produces the most essential oils is the leaves and flowers with the greatest concentration on the flower crown. No less than 300 chemical components found in rose essential oil including *Citronellol*, *Geraniol*, *nerol*, *Linalool*, *phenyl ethyl alcohol*, *farnesol*, *stearoptene*, *a-pinene*, *β-pinene*, *a-terpinene*, *limonene*, *p-cymene*, *camphene*, *β-caryophyllene*, *neral*, *citronellyl acetate*, *geranyl acetate*, *neryl*

acetate, eugenol, methyl eugenol, rose oxide, damascenone, β -damascenone, benzaldehyde, benzyl alcohol, rhodinyl acetate, phenyl ethyl formate [6].

Based on this research results, rose nuggets contain Carbohydrates, Proteins, Fibers, Unsaturated Fats, Potassium, Sodium, and other substances. Where these substances have an active role in the human body, namely as a source of energy producing the human body (carbohydrates), as a building agent and body regulator (Protein) [1]. Besides those substances, it is known that rose nugget contains Linalool compound.

The content in a rose flower among others are alkaloids, citrate, Citronellol, Geraniol, Linalool, nerol, eugenol, farnesolnonaldehyde. The amount of contents in red roses is the reason this flower can be used as a raw material for medicine and food, such as aromatherapy treatment, anti-seizure, menstrual regulators, cure bile secretion, and reduce body heat (leaves and rose petals). Red roses can be used as antiseptic, antispasmodic, antiviral, and antibacterial [7].

The rose crown contains an antioxidant which functions to ward off free radicals. Rose crowns are also known to contain anthocyanin pigments which are classified as flavonoids and the type of anthocyanin is pelargonidin and cyanidin can function as free radical scavengers or antioxidants. The deep red rose flower contains cyanidin pigment and the pink rose flower contains pelargonidin pigment [8].

Based on that, it can be stated that rose nugget has nutrition content and give benefits for health. Therefore, rose nuggets are appropriate to be used as comestible for all ages.

4. Conclusion

Based on the research results, it can be concluded that Rose Nugget is very appropriate to be used as a Vegetarian comestible due to its abundant nutrition content (protein, fat, carbohydrate, food fiber, Mineral, fatty acid, protein digestibility, and linalool) which is beneficial for health.

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