

## **Analysis of organoleptic properties and consumer acceptance of frozen noodle products**

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### **ABSTRACT**

Frozen noodles are a type of noodles that undergo a boiling process after the noodle printing stage so that the moisture content reaches 52%. An organoleptic test is a sensory test with testing using human senses as the primary tool in measuring acceptance power. The purpose of writing this journal is to determine organoleptic properties and consumer acceptance of frozen noodle products. The method used was a hedonic test on 20 semi-trained panelists. The parameters tested were color, aroma, suppleness, softness, stickiness, taste, and degree of liking. The parameters that consumers most like are in terms of the color of the noodles, while the parameters that consumers do not like are the stickiness of the noodles.

**Keywords:** Frozen Noodles, Organoleptic, Panelists

### **INTRODUCTION**

Noodles can be used as an alternative to rice because noodles contain carbohydrates that contribute to the body's energy needs. The people's passion for consuming noodles in Indonesia is increasing. According to (Munarso & Haryanto, 2012), consumption of instant noodles has risen by 25% per year; this is because noodles have a more affordable price and a simple way of processing and serving.

Noodles are processed food products first created and developed by the Chinese state around 2000 years ago, namely oriental noodles. Then the noodle processing technology was introduced by Marcopolo to the Italian nobility and spread to France and Europe. Now, noodles are known all over the world, including in Indonesia. Based on the way of processing, noodles are divided into four types, fresh or raw, and are not processed or boiled after the dough molding stage. Fresh noodles have a water content of 35%; frozen noodles are a type of noodle that undergoes a boiling process after the noodle molding stage so that the water content reaches 52%; instant noodles are a type of noodle that has undergone a gelatinization process when it is produced so that the noodles can be processed in this way. Brewed, the cooking process is relatively short, namely  $\pm 4$  minutes for serving. The final stage in making instant noodles is the drying process so that the water content is only around 5-8%; dry noodles are a type of raw noodles that have been dried with a moisture content of less than 10%.

The raw material for making noodles is wheat flour. Wheat flour will be formulated with other ingredients. Wheat flour forms the noodles' structure, a source of protein and carbohydrates (Dessuara et al., 2015). The protein content in wheat flour plays a role in the manufacture of noodles is gluten. They made noodles with high amounts of wheat flour to become more elastic and resistant to pulling during the production process (Koswara, 2009).

Frozen noodles are processed food products made from flour as raw material without a drying process. Good quality frozen noodles are white or light yellow in color, has a chewy, smooth texture, don't break easily, have a distinctive noodle aroma, and taste good (no rancid smell and raw flour). Frozen noodles have a low shelf life, so it is better to store noodles in a freezer box or refrigerator to increase shelf life.

To ensure that the quality of the noodles is good, sensory testing is necessary. Testing the color parameters aims to determine the appearance of frozen noodles produced with the criteria of having a

yellowish-white color. Besides that, it can also be used as a sign of whether the noodles have black spots due to mold or yeast contamination. The aroma parameter is essential to determine whether there is damage to the noodles caused by microbial contamination so that the noodles become rancid. Textural parameters such as elasticity, softness, and stickiness can be affected by the dough mixing process, the use of raw materials, and the steaming process, thereby producing an excellent textured form of noodles such as noodles that do not break easily, have a smooth surface when it enters the mouth and hits the palate. Palate. The taste parameter is carried out to identify whether there is a sour taste so that it can be said that the noodle product has expired. Therefore, on this occasion, the authors would like to test the organoleptic properties of noodle products as a form of product quality parameters so that the product can be ensured that it is marketable.

**RESEARCH METHOD**

**Methods**

The materials needed in this research are frozen noodles and mineral water. The tools required for this study are print forms, pens, tissues, and cell phones.

**Data Analysis**

Data collection was carried out by organoleptic tests and interviews or asking panelists with age criteria 21 - 35 years, ten women and ten men, to answer regarding the organoleptic properties of frozen noodle products. The frozen noodles sampled have undergone a steaming process using a temperature of ± 100°C by conducting organoleptic testing using 20 semi-trained panelists. The method used is the hedonic test with seven parameters and four scales, shown in Table 1 below.

Table I. Organoleptic test rating scale

Rating Parameters							
Color	Scent	Elasticity	Softness	Stickiness	Taste	Preference level	Numerical scale
Really like	Really like	Really like	Really like	Really like	Really like	Really like	Really like
Like	Like	Like	Like	Like	Like	Like	Like
Normal	Normal	Normal	Normal	Normal	Normal	Normal	Normal
Do not like	Do not like	Do not like	Do not like	Do not like	Do not like	Do not like	Do not like

**RESULT AND DISCUSSION**

Table II. Description of the rating parameters for frozen noodles.

Description	Rating Parameters						
	Color	Scent	Elasticity	Softness	Stickiness	Taste	Preference level
	Yellowish White	Typical savory wheat flour	It can return to its original shape, not easily broken	Smooth, not gritty	Not too slimy	Slightly salty	Overall frozen noodle samples

Table III. Average rating of organoleptic test for frozen noodles.

Parameters	Average
Color	3.40
Scent	3.15
Elasticity	3.20
Softness	3.20
Stickiness	2.75
Taste	2.85
Preference level	3.35

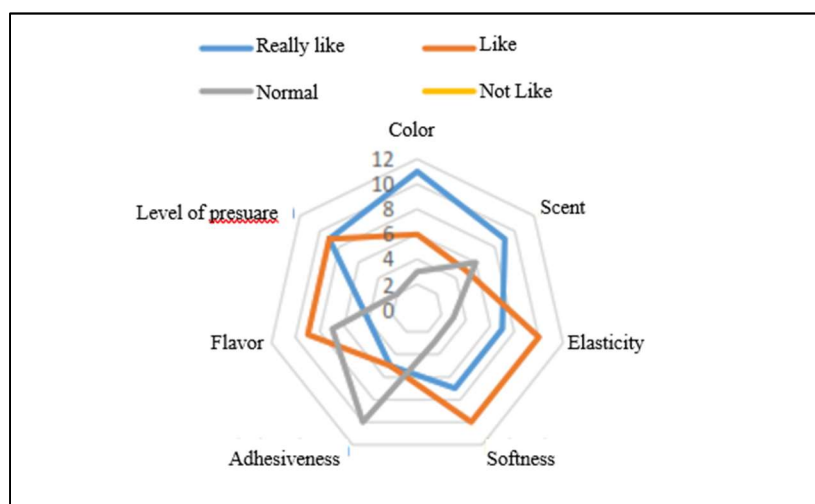


Figure 1. Radar Graph of Organoleptic Test Results on Frozen Noodles

### Noodle Color

Color is a visualization of a product that can be seen directly and can affect one's perception. The color in food can be caused by pigments, the effect of heat on sugar or caramelization, the reaction between sugar and amino acids (Maillard), and the mixing of other raw materials. Based on the results of testing the color of noodles for 20 panelists, it can be seen in Figure 1 states that 11 panelists said they liked the color of the noodles, and six panelists said they wanted the color of noodles. Three panelists said they were okay with the color of the noodles. The color of frozen noodles is yellowish-white. The color is formed from the noodles' raw material, wheat flour.

### Noodle Scent

Aroma is an odor that arises from chemical stimuli and is smelled by nerves in the nasal cavity. The aroma of food is one of the parameters in determining the quality of a product. It is used as a consumer determination in determining the delicacy of a processed food product (Asmaraningtyas et al., 2014). Based on the results of testing the aroma of noodles for 20 panelists, it can be seen in Fig 1 shows that nine panelists said they liked the aroma of noodles, and five panelists indicated that they liked the aroma of noodles. Five panelists said that they wanted it. Six panelists stated that they were okay with the aroma of the noodles. The aroma produced from these noodles is the typical aroma of noodles formed from wheat flour.

## **Noodle Elasticity**

Elasticity is one of the rheological (texture) properties of food ingredients related to hardness and cohesiveness, where the combination of a food texture is related to the property of "returning" when an ingredient or food product is given pressure or touch. Based on the results of tests on the elasticity of noodles on 20 panelists, it can be seen in Figure 1, which states that seven panelists like the elasticity of noodles, ten panelists say they like the elasticity of noodles, and three panelists say they are mediocre. Frozen noodles have pretty good elasticity; this happens because of a component in wheat flour, namely in the form of gluten. Gluten has elastic properties, affecting frozen noodles' elasticity. If the protein content in the noodles is high, it will produce noodles that are chewy and not easily broken (Winarno, 1986).

## **Noodle Softness**

What does softness mean when it has a smooth shape, not rough or gritty? The softness of the noodles when they hit the tongue and palate and chew the noodles in the mouth (Aurum & Elisabeth, 2015). Based on the results of testing the softness of the noodles for 20 panelists, it can be seen that Figure 1 states that seven panelists liked the softness of the noodles, and ten panelists liked the softness of the noodles. Three panelists indicated that they were okay with the softness of the noodles. The softness of the noodles was acceptable to the panelists, meaning that the softness was entirely good or average. This softness occurs due to the gelatinization of starch and coagulation of gluten, so the dehydration of water from gluten will cause elasticity and produce fine pores delicate to the noodles' surface.

## **Noodle Stickiness**

Adhesiveness is the force needed to overcome the attractive forces between food surfaces that are in contact with the material's surface, such as the tongue, teeth, and the roof of the mouth. Based on the test results on the stickiness of noodles to 20 panelists, it can be seen. Figure 1 states that five panelists like the stickiness of noodles, five panelists like the stickiness of noodles, and ten panelists say they are okay with the stickiness of noodles. Thus, the stickiness of the noodles was favored by the panelists. The stickiness is typical, not too sticky. Gluten levels can influence stickiness; the higher the gluten content, the tackier the noodle dough will be.

## **Noodle Taste**

Taste is the sensation produced by a material put into the mouth. Taste can be influenced by several factors, namely chemical compounds, temperature, concentration, and interactions with other flavor components. The result is an increase in the decrease in intensity or an increase in the power of taste. Based on testing the taste of noodles with 20 panelists, it can be seen in Figure 1 shows that four panelists like the taste of noodles, nine panelists say they like it, and seven panelists say it tastes normal. The taste of frozen noodles is savory due to the presence of salt as a mixed ingredient in the manufacturing process.

## **Preference Level**

The results of the average preference value of each tested parameter can be seen in Figure 1 above, where the panelists liked the color of the noodles. In contrast, the least preferred parameter was the stickiness of the noodles. From the color to the taste of the noodles, it can be said that they comply with the quality requirements set by SNI 2987-2015 on the condition that the color, taste, and texture of the noodles must be standard. Thus the Mi product can be accepted by consumers.

## **CONCLUSION**

Based on the results of the research that has been done, it can be concluded that frozen noodle products have a standard color according to SNI, namely yellowish white, average aroma like noodles in general, namely the distinctive aroma of wheat flour, no rancid smell, has a normal texture with a state of

stickiness that is not too sticky, everyday softness, with average elasticity, does not break easily, and has a typical taste, namely a good taste salty and savory. The most preferred parameter by consumers is in terms of color, with an average preference of 3.40. The parameter most disliked by consumers is the stickiness of noodles, with an average of 2.75. Based on testing of 20 panelists, it was stated that the level of preference for the frozen noodle product was that it liked it – mediocre so that consumers could accept it.

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