TRANSPUBLIKA
Precise. Resilience. Felicitous.

Jurnal Ekonomi Kreatif dan Manajemen Bisnis Digital
https://transpublika.co.id/ojs/index.php/JEKOMBITAL
Online ISSN 2961-8428

https://doi.org/10.55047/jekombital.v4i1.966

Original Article

Analysis of Adult Consumer Perceptions in Surabaya Toward the Use of Natural Non-MSG Flavoring

Mahmudi[1*], Bawa Mulyono Hadi[2], Eureka Milky Setiawan[3]

[1-3]Akademi Sages, Surabaya, Indonesia
Email: [1)] mahmudi@sages.ac.id, [2)] bawamh@sages.ac.id, [3)] eurekasetiawan@gmail.com

Received : 31 May - 2025
Accepted : 28 June - 2025
Published online : 05 July - 2025

Abstract

Monosodium glutamate (MSG) has long been used as a flavoring in various food products. However, concerns regarding the health impacts of MSG consumption, including sensitivity symptoms such as headaches and high blood pressure, have prompted many consumers to seek healthier alternatives. This study aims to evaluate adults' interest in the use of non-MSG natural flavorings and identify factors that influence this preference. The research method used was a quantitative survey with a sample of 53 adult respondents selected randomly. The research results showed that 56.6% of respondents preferred natural non-MSG flavorings for health reasons, while another 43.4% expressed a desire to use or prefer products made from artificial MSG. Natural alternatives such as anchovies, mushrooms, seaweed and cheese proved popular among respondents. The study concluded that there is significant interest among adults in switching to natural, non-MSG flavorings. Recommendations for food manufacturers include developing products with natural flavors, educating consumers about health benefits, and transparency in product labeling. In this way, manufacturers can meet the needs of a growing market and support healthier eating patterns.

Keywords: Non-Monosodium Glutamat, Flavoring, Product, Health Benefits.

1. Introduction

Flavoring circulating in society are very varied in various brands and flavoring base ingredients. MSG (*monosodium glutamate*) is the sodium salt of *glutamic acid* (the most abundant non-essential amino acid) that forms naturally. Flavorings are taste enhancers used to add delicious flavor and suppress unwanted tastes in food. Indonesian people on average consume MSG around 0.6 mg/kg body weight. If consuming MSG 30 mg/kg body weight, glutamic acid levels in human blood will increase and exceed the body's metabolic capacity (Rangkuti et al., 2012). However, after the Chinese Restaurant Syndrome (CRS) incident caused by the use of artificial flavorings, the safety of using flavorings from synthetic materials began to be questioned (Brodkey et al., 2024). Flavorings should be produced from cooking spices made from natural base ingredients, because savory taste can be obtained through animal and plant proteins so that negative effects given by synthetic flavorings can be avoided.

Recently, more and more people are becoming aware of the importance of maintaining eating patterns for healthy living and realizing the negative impacts of consuming MSG on health (Noer et al., 2024). This drives consumer interest to seek natural and healthier flavoring alternatives. Consumers increasingly realize that health and enjoyment can be obtained simultaneously. Therefore, there is demand for flavorings that not only provide delicious taste but are also safe for consumption. One example is the use of spices, for instance, the use of

garlic, shallots, ginger and lemongrass can add special flavor to food. Another example is the use of natural ingredients such as: Shrimp heads, Mushrooms, and Anchovies. Shrimp heads contain many active compounds, including *ribonucleotides* and amino acids that provide savory taste to food (Hong et al., 2022). Additionally, mushrooms also become a popular alternative as natural flavorings. Mushrooms contain *inosinate* and *guanylate* which taste the same when combined with MSG. *Inosinate* and *guanylate* are types of *nucleotides* that can enhance food flavor in a way similar to MSG, but come from natural sources and are often used to enhance taste in cooking without adding artificial MSG (Redmond, 2016). For example, dried shiitake mushrooms contain very high levels of inosinate and guanylate, making them very effective in adding umami flavor depth to dishes (Sugimoto, 2020).

This research focuses on analyzing how adults in Surabaya perceive natural non-MSG flavorings. The objective is to gain a deeper understanding of their perceptions toward natural flavorings made from non-MSG base ingredients. Practically, this study aims to determine the extent of adult perceptions regarding natural flavorings and to provide valuable information about the importance of consuming non-MSG flavorings for maintaining health. Theoretically, the findings are expected to serve as a reference and source of insight for readers and future researchers interested in the benefits of natural, non-MSG-based flavorings.

2. Literature Review

2.1. Flavoring

Flavorings are additional ingredients used to add food flavor and provide certain savory taste to food commonly known as "*umami*". In the early 1920s, Kikunae Ikeda, a chemistry professor at Imperial University of Tokyo, discovered MSG for the first time. He said that he was eating soup and then realized that the broth tasted better than usual. After investigation, he realized the flavor addition was caused by the addition of seaweed, then he was inspired to start studying its entire chemical structure. In 1908, Professor Ikeda established that the savory taste was caused by L-Glutamic acid, a non-essential amino acid, which when combined with Sodium becomes MSG.

MSG consists of glutamic acid components bonded with sodium. This glutamic acid component is responsible for the savory taste obtained when consuming ingredients with added MSG (Khodjaeva et al., 2013). Free glutamic acid is known to enhance taste in food ingredients. Free glutamic acid can be found naturally in various types of food ingredients (Jinap & Hajeb, 2010). The free glutamic acid content in various types of food ingredients can be seen in Table 1.

Table 1. Free Glutamic Acid Content in Various Types of Food Ingredients

Food Items	Free glutamic acid (g / 100 g)
Meat and poultry	
Beef	0.010
Pork	0.009
Chicken	0.022
Seafood	
Scallop	0.140
Snow crab	0.019
White shrimp	0.020
Milk	
Cow	0.001
Goat	0.004
Human breast milk	0.019

Food Items	Free glutamic acid (g / 100 g)
Vegetables	
Cabbage	0.050
Tomato	0.246
Mushroom	0.042
Potato	0.010
Fruits	
Avocado	0.018
Apple	0.004
Kiwi	0.005

Source : Healthdetik.com

2.2. Anchovies

Anchovies are a group of small marine fish belonging to the *Engaulidae* family (Apriliani, 2019). Anchovies are one type of marine food commonly found in coastal areas of the Atlantic, Indian, and Pacific Oceans. Anchovies are categorized as oily fish. The classification of anchovies based on fish that are cartilaginous or bony, the classification of rice anchovies is as follows:

Table 2. Anchovy Classification

Phylum:	*Chordata*
Sub-Phylum:	*Vertebrae*
Class:	*Actinopterygii*
Order:	*Clupeitormes*
Family:	*Engraulididae*
Genus:	*Stolephorus*
Species:	*Stolephorusspp*

Source: Scribd.com

Anchovies have many nutritional contents. In 100 grams of dried anchovies contains 170 calories with 33.4 grams Protein, 3 grams Fat, 1.2 grams Calcium, 1.5 grams Phosphorus, 3.6 mg Iron, 0.15 mg Vitamin B1 and 64 mg Vitamin A (Dharmayanti, 2014). Anchovies are also known to be rich in selenium and omega-3 fatty acids. In fact, the omega-3 fatty acid content in anchovies is comparable to salmon, tuna and sardines. Types of anchovies are also very diverse, for example:

1) Medan Anchovies (*Stolephorus sp.)*

Figure 1. Medan Anchovies

Medan Anchovies are a type of anchovy with small size with length 5-7 cm with silver or bluish color. In general, Medan anchovies have a savory taste and are rich in nutrients. Medan anchovies are also often considered a good and cheap protein source in the area.

2) Jengki Anchovies (*Engraulis sp.*)

Figure 2. Jengki Anchovies

Jengki anchovies have a fairly large size compared to Medan anchovies or rice anchovies. Jengki anchovies have a long and slender body, with a length of about 8-10 cm. Their body color tends to be silvery or yellowish black. This type of anchovy is very popular in Indonesia. So far, dried jengki anchovies are among the dried fish that are underutilized as raw materials for processed food, therefore to enrich the processing of these fish, efforts must be made in the processing of dried jengki anchovies that can produce high-quality products including natural non-MSG flavorings.

3) Argentine Anchovies (*Engraulis anchoita*)

Figure 3. Argentine Anchovies

These fish are widely found in Brazilian, Uruguayan, and Argentine waters. The size of these anchovies is 17-22 cm. Their main food is zooplankton and sometimes even their own eggs.

2.3. Potential Benefits of Reducing or Limiting MSG on Body Health

Monosodium glutamate (MSG) is a flavoring commonly used in processed foods and restaurants to enhance umami taste. Despite being widely used, there is controversy and concern about MSG's effects on body health. The following are some effects that may occur if reducing or limiting MSG consumption:

1) Reducing Risk of Allergic Reactions and Sensitivity

Some people experience symptoms such as headaches, sweating, nausea, and chest pain after consuming MSG, a condition known as "Chinese Restaurant Syndrome" (David C. Dugdale, 2022) or MSG sensitivity. Reducing MSG consumption can help prevent these reactions in people sensitive to MSG.

2) Lowering Sodium Intake

MSG contains sodium, although in lower amounts compared to regular table salt. Reducing MSG can help lower total sodium intake, which is beneficial for people who must control high blood pressure or cardiovascular disease risk (Ariani, 2018). Additionally, consuming too much excessive sodium can burden the kidneys and reduce their ability to function properly. This can cause kidney disorders, including kidney stones and chronic kidney disease, and increase the risk of gastritis and stomach cancer (Purwono et al., 2020).

3) Improving Diet Quality

Reducing or eliminating MSG from the diet often encourages people to choose more natural and less processed foods. This can increase intake of important nutrients and reduce consumption of unnecessary food additives. Besides improving diet quality, limiting MSG

consumption can also Improve Nutritional Quality. Because the body consumes more whole foods.

4) Avoiding Potential Long-term Effects

Although research on MSG's long-term health effects is still ongoing, some studies suggest that excessive MSG consumption may be related to obesity, metabolic disorders, and neurodegenerative diseases. MSG consumption exceeding 0.5–2.5g will cause other manifestations from various organs, namely heart, neurological, respiratory, gastrointestinal, muscle, genital and urinary tract, skin, and vision disorders, symptoms caused are called MSG complex syndrome (Iswara & Yonata, 2016).

3. Methods

This research was conducted from April to May 2024, with the research activities carried out in a private kitchen, while questionnaire distribution took place in Surabaya City. The study employs a descriptive quantitative method, which is a systematic and structured approach to obtain knowledge or solve problems by collecting numerical data (Nasehudin & Gozali, 2012). In this research, questionnaires were used as the main data collection tool to gather measurable information from respondents that could be analyzed statistically.

3.1. Types and Sources of Data

This research uses quantitative and descriptive qualitative data. Data sources in this research use primary data sources. According to Sugiyono (2018) primary data is a data source that directly provides data to data collectors. Data is collected by researchers directly from the first source or place where the research object is conducted. This research uses primary data taken from questionnaires given to respondents.

3.2. Research Subjects

In the context of qualitative research with questionnaires, research subjects are respondents who provide data through filling out questionnaires. Proper selection of research subjects is very important to ensure validity and reliability of research results. The following are some important aspects for Authors that need to be considered in selecting research subjects:

1) Subjects aged 18 – 45 years.
2) Subjects understand about flavorings that do not contain MSG.

3.3. Research Product Characteristics

In this study, a single type of product is developed, namely shrimp powder or seasoning powder derived from anchovies. The resulting anchovy powder exhibits a fine texture and high solubility in water, making it particularly suitable for use as a base in broths and soups. Furthermore, it can be utilized as a food topping or as a complementary food component for infants and young children. The production process is described as follows:

1) Washing Anchovies.
2) Weighing Anchovies.
3) Cooking (roasting) until water content in anchovies is reduced and gone.
4) Grinding Anchovies with blender.
5) Sieving / filtering ground Anchovies.
6) Anchovy powder is ready, and must be stored in a closed container or in the refrigerator.

Figure 4. Anchovy Powder Making

3.4. Data Collection Method

The author uses data collection with Questionnaire method using Google Forms platform because it is considered an efficient and effective approach in quantitative research (Febriadi & Nasution, 2017). Respondents can also fill out questionnaires anytime and anywhere, increasing participation rates. The questionnaire guidelines used by Researchers are as follows:

1) Respondent Age.
2) Respondent Occupation.
3) Content characteristics of Products often consumed and liked by Respondents.
4) Respondent Interest in Anchovy Powder (Natural Non-MSG Seasoning).
5) Respondent's reasons for choosing MSG or non-MSG for consumption.

3.5. Data Presentation Method

According to Miles & Huberman (1994), data presentation is an activity of collecting structured information that provides possibilities for drawing conclusions and taking action. In this research, the author presents data using tables. The author presents data in the form of numbers into rows and columns to make it easier for the author to get information to draw conclusions. The type of table used in data presentation is a one-way table, which is a table that only shows one respondent characteristic.

3.6. Data Analysis Method

Data analysis techniques with descriptive statistics are approaches used to summarize and describe the main characteristics of data sets (Nasution, 2017). Through this method, researchers can identify general patterns, distributions, and data variability in an easily understood way. This method is very useful in the early stages of data analysis to get a general overview before conducting deeper analysis. According to Sudijono (2005) the formula used in measuring percentages is:

$$P = \frac{f}{N} \, x \, 100\%$$

Where:

f = Data frequency
N = Total respondents
P = Percentage result

Mode is the value that appears most frequently in statistical data. Meanwhile, to find the average, the following formula is used:

$$Mx = \frac{\sum x}{N}$$

Where:
Mx = Average
X = Sum of data
N = Total respondents

4. Results and Discussion

4.1. Results

The research results are viewed from the perspective of respondent characteristics to understand the characteristics of respondents, which is very important in accurately interpreting research results and ensuring that the selected sample is representative of the studied population. This allows researchers to draw more accurate conclusions and make more targeted recommendations. This research aims to determine the interest of adults (18-45 years old) in non-MSG flavoring agents. To achieve this goal, the author collected data from respondents with appropriate criteria. Based on questions asked to 53 respondents, information about occupation, status, gender, and age of the respondents was obtained.

4.1.2. Age Characteristics of Respondents

Table 3. Age Characteristics

Age	Frequency	Percentage
18 – 24 years old	48 people	90.6%
25 – 30 years old	2 people	3.8%
30 – 45 years old	3 people	5.7%
Total	53 people	100%

Based on Table 3, the majority of respondents are aged 18-24 years, totaling 90.6%. Meanwhile, the 25-30 years age category totals 2 people with 3.8%, and the 30-45 years age group totals 3 people with 5.7%.

4.1.2. Occupation Characteristics of Respondents

Table 4. Occupation Characteristics

Occupation	Frequency	Percentage
Student	38 people	71.7%
Private Employee	6 people	11.3%
Entrepreneur	4 people	7.5%
Housewife	2 people	3.8%
Civil Servant	1 person	1.9%
Barista	1 person	1.9%
Freelancer	1 person	1.9%
Total	53 people	100%

From Table 4, it can be concluded that students dominate with 38 people at 71.7%, followed by private employees with 6 people at 11.3%. Then, entrepreneurs with 4 people at 7.5%, housewives with 2 people at 3.8%. Civil servants, baristas, and freelancers each account for 1 person at 1.9%.

4.1.3. Product Preference Characteristics of Respondents

Table 5. Product Choice Characteristics of Respondents

Product Chosen	Frequency	Percentage
Anchovy Powder (Non-MSG)	30 people	56.6%
MSG	23 people	43.4%
Total	53 people	100%

From Table 5, the total number of respondents who prefer to consume non-MSG based flavoring in the form of anchovy powder is much higher than those who choose to consume MSG. The number of respondents who choose to consume non-MSG in the form of anchovy powder totals 30 people with a percentage of 56.6%. This indicates that reducing or avoiding MSG and switching to natural flavoring agents is good for the body and health.

4.1.4. Respondent Interest in Anchovy Powder (Natural Non-MSG Flavoring)

Table 6. Respondent Interest in Anchovy Powder

Interest Level	Frequency	Percentage
Very Interested	15 people	28.3%
Quite Interested	7 people	13.2%
Interested	12 people	22.6%
Slightly Interested	7 people	13.2%
Neutral	7 people	13.2%
Not Interested	1 person	1.9%
Very Not Interested	4 people	7.5%

From Table 6 above, it can be seen that there are 15 respondents or 28.3% who are interested in anchovy powder as a natural flavoring agent and want to start using non-MSG flavoring. However, it can also be seen that there are still 4 respondents, or 7.5%, who feel very uninterested in anchovy powder as a natural flavoring substitute for MSG.

4.1.5. Reasons for Respondents Choosing MSG or Non-MSG Flavoring

Table 7. Reasons for Respondents Choosing MSG or Anchovy Powder (Non-MSG) Flavoring

MSG	Anchovy Powder (Non-MSG)
"To give a savory taste to food, and I also think MSG itself can be an alternative to increase appetite/eating desire."	"Healthier, reduces hair loss, doesn't make you thirsty quickly"
"Choosing MSG as a salt substitute, because MSG can provide a savory taste without having to add excessive sodium levels."	"Non-MSG is better for health and nowadays people who know about cooking and health will definitely not use MSG."
"Because MSG can increase the intensity of sweet, salty, bitter, savory, and sour tastes, but if consumed excessively it's also not good and will give side effects like headaches."	"It's better to eat natural food without needing to add artificial seasonings or ingredients made by humans. They may taste better in the mouth but NOT when processed, and frequent MSG consumption will cause diseases. I also learned from my own family to start healthy eating patterns, especially since my mother never consumed MSG. So, in my family we don't use artificial seasonings or MSG."

MSG	Anchovy Powder (Non-MSG)
"To enhance food taste without needing to add lots of salt or other seasonings, helps preserve food and makes it last longer, and is a relatively cheap and easily found seasoning."	"The savory taste can indeed replace MSG and is also healthier although not as savory as MSG. Mushroom broth is also rich in nutrients like protein and vitamins, antioxidants that help fight cell damage in our body from free radical exposure, although each variant has different nutrients."
"To strengthen the flavor of food so it becomes more full-flavored and the taste produced isn't just salty, sweet, or sour - maybe by adding a little MSG it can enhance the taste more."	"Because I usually use Royco products, there are mushroom broth variants that don't contain MSG. Similarly, with the Totole brand which doesn't have added MSG in its composition. Meanwhile, mushroom broth itself is non-MSG broth. Using mushroom broth can replace the role of vetsin or MSG as a cooking seasoning."

From Table 7 above, it can be concluded that respondents who frequently consume MSG choose to consume MSG because, as the name suggests, it provides a "flavor booster." Some respondents even use MSG as a salt substitute because MSG can provide savory taste, not just saltiness. Several respondents also understand and personally experience the effects of consuming food with excessive MSG content, namely feeling thirsty quickly, hair loss, and disrupting diet patterns. On the other hand, non-MSG respondents also appear to understand very well that MSG, if consumed excessively, is unhealthy and can cause diseases. Non-MSG respondents also understand that there are many other alternatives to replace MSG, which may not be as savory and strong in taste as MSG produces, but provide many additional nutrients that are good for the body, such as antioxidants and vitamins.

4.2. Discussion

The discussion results show that there are still quite a few respondents who feel that limiting MSG consumption is not important for the body. This can be concluded to occur due to several factors: First, MSG is a very effective and cheap flavoring agent, so it is widely used in the food industry to enhance the taste of processed foods, fast food, and restaurant dishes. This affordability and ease of access make MSG difficult to avoid in daily life. Second, many consumers are not fully aware of or understand the potential side effects of MSG consumption, because information about MSG health risks is not always widely or clearly disseminated. Third, for some people, negative symptoms associated with MSG may not be immediately felt or significant enough to change their eating habits. Additionally, there is a perception that food without MSG is less tasty, so established taste preferences also play an important role. The lack of affordable and practical alternatives also causes many people to continue using MSG despite potential negative health impacts.

However, there are still many respondents interested in natural flavoring or non-MSG flavoring. They understand the effects of consuming MSG excessively, for example: giving negative impacts on health and diet. Furthermore, limiting or replacing MSG encourages better awareness of food choices and their composition, which can improve overall diet quality. With time adaptation, taste preferences can also develop to better appreciate the natural taste of food without artificial flavorings.

5. Conclusion

Based on the conducted research, it can be concluded that the interest of adults in Surabaya towards natural non-MSG flavoring agents shows a positive trend. Most respondents support the use of natural flavoring agents and understand the negative impacts of excessive MSG consumption, thus preferring healthier non-MSG flavoring alternatives. In terms of quality and economics, there are still challenges that must be overcome, especially related to established taste preferences and the affordability of non-MSG flavoring products that are relatively more expensive.

Many consumers continue to use MSG because of its effectiveness in enhancing taste, widespread availability, and lack of clear information about its side effects. Overall, despite obstacles, awareness and interest in natural flavoring among adults in Surabaya shows promising growth potential, which can contribute to improving healthier and more sustainable eating patterns.

For future research, it is recommended that focus be directed towards two main aspects: consumer education about non-MSG flavoring and improving the quality of natural flavoring in terms of price and taste. This research can include comprehensive educational programs to increase public awareness about the health benefits of natural non-MSG flavoring agents as well as potential health risks associated with excessive MSG consumption. Additionally, this research also needs to collaborate with food producers to develop natural flavoring agents that are more affordable and have taste that is comparable or even better than MSG.

6. References

Apriliani, I. (2019). *Analisis penentuan harga pokok produksi dalam menetapkan harga jual ditinjau dari perspektif ekonomi Islam (Studi pada industri ikan teri asin Pulau Pasaran Bandar Lampung)*. UIN Raden Intan Lampung.

Ariani, N. K. D. (2018). *Pengaruh Pemberian Kombinasi Diet Tinggi Lemak Dan Msg Terhadap Jumlah Folikel De Graaf Dan Atretik Pada Ovarium Tikus Rattus Novergicus Galur Wistar Betina*. Universitas Brawijaya.

Brodkey, F. D., Dugdale, D. C., & Conaway, B. (2024). *MSG symptom complex*. MedlinePlus.

Dharmayanti, A. W. S. (2014). Manfaat ikan teri segar (Stolephorus sp) terhadap pertumbuhan tulang dan gigi. *ODONTO: Dental Journal*, *1*(2), 52–56.

Febriadi, B., & Nasution, N. (2017). Sosialisasi Dan Pelatihan Aplikasi Google Form Sebagai Kuisioner Online Untuk Meningkatkan Kualitas Pelayanan. *Jurnal Inovtek Polbeng Seri Informatika*, *2*(1), 68–72.

Hong, E.-S., Kim, J.-H., So, H.-J., Park, E.-A., Park, Y.-L., Lee, J.-H., Shin, J.-A., & Lee, K.-T. (2022). Compositional study of phospholipids from the dried big head and opossum shrimp, mussel, and sea cucumber using 31P NMR spectroscopy: Content and fatty acid composition of plasmalogen. *Molecules*, *27*(19), 6250.

Iswara, I., & Yonata, A. (2016). Efek toksik konsumsi monosodium glutamate. *Medical Journal of Lampung University [MAJORITY]*, *5*(3), 100–104.

Jinap, S., & Hajeb, P. (2010). Glutamate. Its applications in food and contribution to health. *Appetite*, *55*(1), 1–10.

Khodjaeva, U., Bojňanská, T., Vietoris, V., & Sytar, O. (2013). About food additives as important part of functional food. *Journal of Microbiology, Biotechnology and Food Sciences*, *2*(special issue 1), 2227–2237.

Miles, M. B., & Huberman, A. M. (1992). *Qualitative Data Analysis; A Methods Sourcebook*. SAGE Publications Ltd.

Nasehudin, T. S., & Gozali, N. (2012). *Metode Penelitian Kuantitatif*. Pustaka Setia.

Nasution, L. M. (2017). Statistik deskriptif. *Hikmah*, *14*(1), 49–55.

Noer, N. I. R., Hertati, L., & Asharie, A. (2024). Penciptaan Peluang Usaha Kuliner Pindang Ikan Patin Sebagai Makanan Khas Daerah Palembang. *JOURNAL OF SUSTAINABLE COMMUNITY SERVICE*, *2*(3), 157–166. https://doi.org/10.55047/jscs.v2i3.595

Purwono, J., Sari, R., Ratnasari, A., & Budianto, A. (2020). Pola konsumsi garam dengan kejadian hipertensi pada lansia. *Jurnal Wacana Kesehatan*, *5*(1), 531–542.

Rangkuti, R. H., Suwarso, E., & Hsb, A. Z. (2012). Pengaruh Pemberian Monosodium Glutamat (MSG) Pada Pembentukan Mikronukleus Sel Darah Merah Mencit The Effect of Monosodium Glutamate (MSG) In Mice Red Blood Cell Micronucleus Formation. *Journal of Pharmaceutics and Pharmacology*, *1*(1), 29–36.

Redmond, M. (2016). *Make Low-Salt Cooking Taste Amazing with an Umami Boost*.

Sudijono, A. (2005). *Pengantar statistik pendidikan*. PT Raja Grafindo Persada.

Sugimoto. (2020). *Dried Shiitake mushroom*. Sugimoto.co.

Sugiyono. (2018). *Metode Penelitian Kuantitatif, Kualitatif dan R&D* (p. 336).