Analysis Content Boraks in Rice Cake Soid in the Region of Banda Aceh

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Abstract: This study aims to analysis the possible presence of borax content in rice cake sold in the region of Banda Aceh and determine the shelf life of rice cake. This research is quantitative research type experiments. Identification of rice cake made of borax in laboratory Chemistry FKIP Unsyiah. Identified cake obtained from the three market region of Banda Aceh namely Peunayong Market, Setui Market, and Ulee Kareng Market. From the research that has been conducted in the laboratory, produces four samples of rice cake (B, D, E, and F) positively identified borax circulating in the market area Peunayong and 5 samples of rice cake (A, C, G, H, and I) negative borax. The observation of the shelf life of rice cake is done for five days, the sample A, C, G, H, and I started to change on the second day. Samples B and D began to change on the fourth day, the samples E to survive until the third day, while samples F did not experience any change from the first to the fifth day.

1. Introduction
Indonesia is an archipelago country with diverse cultures, one of which is culinary. Indonesia is rich in traditional food such as pecanl, gado-gado, satay, soto, lontong, and many more. One of the traditional foods that most people enjoy is lontong. Lontong is a food made from rice that is wrapped in banana leaf rolls, then boiled until cooked. Lontong boiling process takes a considerable time ± 4-5 hours.

With the lives of people now working more outside the home, people prefer to buy ready made rice cake because it is considered more practical and does not require a long time. Lontong can usually last 1-2 days at normal temperatures, and 3-5 days when put in a refrigerator. Lontong sellers try to display the rice cake they sell to make it look attractive to consumers both in terms of physical, color, and taste. To obtain maximum results, many traders add additional ingredients to the rice cake, so that the eaten rice has the risk of being unsafe to eat because it is likely to be contaminated by hazardous ingredients such as microbes, chemicals, or other objects. The government has actually set food additives that can be used and which is prohibited from being used in food. However, there are still producers who use improper preservatives, one of which is borax.

Borax is Sodium Tetraborate Salt (Na2B4O7) which is widely used in various non-food industries, especially the paper industry, glass, solder materials, cleaning agents, wood preservatives, antiseptics, cockroach control and ceramics. Orpijer which is often used to preserve rice for food called legendar or gendar [1].

Actually the use of borax has been strictly forbidden by the government to be used as food additives as stipulated in Minister of Health Regulation No. 033 of 2012 concerning Food Additives which are prohibited from being used in food ingredients. [2] state that, Borax is usually used in the
glass industry, porcelain polyethylene, cleaning tools and antiseptics. The actual use of borax as an antiseptic is eye wash medicine (barie acid 30%) ointment (boorsalp) to cure skin diseases, ointments to treat lip disease (borax gliceron) and ant killers (barie acid borax).

[3] states the chronic effects or symptoms of borax on health in the form of decreased appetite, indigestion, CNS disorders (central nervous system), anemia, hair loss, and cancer. This study aims to: a) identify the possible presence of borax in lontong sold in the Banda Aceh City region. b) knowing the shelf life of lontong sold in the Banda Aceh City area.

2. Methodology

This type of research is experimental, the materials used are food samples, concentrated H2SO4, methanol and aquades. The equipment used to identify borax in rice cake is mortar and stamper, glas beaker, porcelain cup, drop pipette, matches, tube clamp, filter paper, and oven.

Data from the identification of borax contents carried out through examination at the Laboratory and the results of observations of rice cake for 5 days, were made in table form, discussed and concluded. The results of this study indicate whether there is borax content in the rice cake studied and how changes occur in rice cake from the first day to the fifth day.

Borax identification process in the laboratory is carried out in accordance with the diagram in Figure 1.

![Figure 1. Diagram of How to Identify Borax in Lontong](image_url)
3. Results and Discussion

The results of the borax identification study carried out on nine lontong samples yielded four samples (B, D, E, and F) positively identified by borax, with flame producing blue and 5 samples (A, C, G, H, and I) negative (Borax is not identified) with a red flame (not green or blue). For more details can be seen in the following table.

| No | Origin of sample    | code | Test result | Information         |
|----|---------------------|------|-------------|---------------------|
| 1  | Peunayong market    | A    | -           | Does not produce blue|
| 2  | Peunayong market    | B    | +           | Produce blue        |
| 3  | Peunayong market    | C    | -           | Does not produce blue|
| 4  | Peunayong market    | D    | +           | Produce blue        |
| 5  | Peunayong market    | E    | +           | Produce blue        |
| 6  | Peunayong market    | F    | +           | Produce blue        |
| 7  | Peunayong market    | G    | -           | Does not produce blue|
| 8  | Peunayong market    | H    | -           | Does not produce blue|
| 9  | Peunayong market    | I    | -           | Does not produce blue|

Source: Chemical Laboratory FKIP Unsyiah
Information: Negative: (-), Positive: (+)

Shelf life is a period of time when a stored food product will remain safe, maintain certain sensory, chemical, physical, and microbiological properties. From the results of observations of lontong shelf life for five days, samples A, C, G, H, and I negative (not containing borax) began to change on the second day. Samples of B and D were positive for borax, changes began on the fifth day. Borax E samples were positive until the third day but the aroma changed slightly. While in the F sample was positive for borax, there were no changes from the first day to the fifth day.

Borax identification study on rice cake which was carried out in the laboratory through a flame test, resulted from nine samples of lontong four samples of lontong which were identified as positive containing borax which was indicated by a blue flame when the samples were burnt. As stated by [4], that the identification of borax with flame test is done by burning the sample to be identified, if the burned sample produces a green flame color then the positive sample contains borax.
Borax is a chemical called NatriumTetraborate (Na2B4O7) which is widely used in various non-food industries, especially the paper, glass, wood preservatives and ceramics industries. Borax is also used to preserve corpses. Borax is very dangerous for health, as explained by [5] that repeated use or excessive absorption can cause toxic (poisoning). The absorption is through the gastrointestinal tract while the excretion is through the kidneys. Symptoms can include nausea, vomiting, diarrhea, decreased body temperature, weakness, headaches, and even shock.

The regulation on food additives prohibited by the Ministry of Health has been regulated by the Regulation of the Minister of Health of the Republic of Indonesia Number 033 of 2012 concerning food additives. If the use of preservatives is not regulated and monitored, it is likely to cause harm to consumers, both direct and poisonous, or indirect or cumulative, for example the preservative is carcinogenic.

[3] stated that the characteristics of lontong containing borax are very chewy in texture, feel sharp in the aroma, as it is very tasty and makes the tongue vibrate, and gives a bitter taste. Lontong can usually last 1-2 days at normal temperatures and 3-4 days when put in a refrigerator. The shelf life of lontong from the results of the research that has been carried out yields five negative borax samples (A, C, G, H, and I) up to the second day with different characteristics / changes between each other. Changes that occur can be seen in terms of color, aroma, and appearance. While the four samples of rice cake (B, D, E, and F) positively contain borax, can last more than two days with different characteristics / changes. Changes that occur in borax positive rice cake can be seen in terms of appearance.

Lontong can actually also be preserved using traditional methods, as stated by [1] that Calcium Hydroxide (betel lime) is safe to use for preservative meatballs and rice cake and hardener crackers and various other foods. So that food can last longer than usual. Besides that it can also be done by means of cooked rice cake which is drained until the water from the rice cake is completely dry so that the water content is less and does not make the rice cake quickly stale or rotten. [6] states that the presence of large amounts of water will provide opportunities for life and development for all types of microbes, including microbes that cause decay. [7] stated that moisture content is also one of the most important characteristics in food, because water can affect the appearance, texture, and flavor of foodstuffs. In addition, high water content also results in easy bacteria, mold and yeast to breed, so that changes in food.

4. Conclusion
Conclusions from the results of this study are: a) Out of nine samples of rice cake that have been examined four samples (B, D, E, and F) are positively identified by borax and five samples (A, C, G, H, and I) are negative (do not contain borax). b) From the results of the observations on the durability of rice cake sold in three markets in the city of Banda Aceh, samples A, C, G, H, and I began to change on the second day. Samples B and D last until the fourth day. Sample E lasted until the third day but the aroma changed slightly. While in sample F there was no change from the first day to the fifth day. Suggestion. Do not carelessly buy rice cake because it is more practical, rice cake with chewy texture or very hard means it contains borax. To be safer you should make it yourself, because food purchased is not necessarily safe from harmful chemicals. Need to provide information to the public about hazardous chemicals that are widely used in food / food products through certain methods such as counseling and so on by involving relevant agencies such as POM centers, Consumer Institutions, and Information and Communication Services.

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