QUALITATIVE EXAMINATION OF BORAX IN RELIEF MEATBALLS IN CENTRAL CITY DISTRICT OF GORONTALO CITY

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ABSTRACT

The Food and Drug Monitoring Agency (BPOM) in Gorontalo in 2015 obtained results that 15% of food products were positive for containing dangerous BTP such as borax, formalin, rhodamine B and methanyl yellow. Then in 2017, through the mobile car program, BPOM Gorontalo found four samples that did not meet the consumption requirements out of 412 samples examined. This research aims to determine the prese+ nce of borax content in food sold in the district. Central City, Gorontalo City. The method in this research uses a qualitative approach with the type of research used is descriptive. The type of data used is primary data in the form of research results and secondary data in the form of data search results and various literature and government policies regarding food additives. with a total sample of 15 samples. The results of this research show that of the 15 meatball samples that were examined, 13 samples or 86.7% of meatballs did not contain borax and two samples contained borax or 13.3%.

Keywords: Borax, Meatballs, Borax Test Kit**.**

INTRODUCTION

In health development, everyone has the same right to obtain the highest degree of health. This can only happen by implementing national development in all aspects of life and levels of society, from childhood to adulthood. One aspect that needs to be considered is food issues (Trihono et al, 2019).

Food additives that are not good will actually have an impact on consumer health. Among the several types of dangerous chemicals that are most often used freely in society are borax and formaldehyde. There are several purposes for adding borax to meatballs, including: providing a dense texture, crispiness, increasing chewiness and providing a savory and long-lasting taste (Langi and Yoakhim, 2019). Meanwhile, the function of borax as explained by Lestari and Misnati, (2018) is used in the non-food industry as a cleaning agent, wood preservative, soldering agent, antiseptic, and cockroach control.

One food ingredient that is often bought and sold is meatballs. Meatballs are a product made from beef, chicken, fish and shrimp. In processing meatballs, food additives are often added with the aim of extending shelf life, improving the appearance of the food, preventing damage to the appearance of the food (BBPP, 2018). Indirectly consuming borax in meatballs does not have a direct negative impact, but it accumulates little by little in body organs such as the brain, testicles and liver (Lestari and Misnati, 2018).

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In Indonesian National Standard Number 3818:2014 concerning quality requirements for meatballs, it states that meatballs must not contain borax because meatballs containing borax can cause health problems such as poisoning, with symptoms of skin irritation, respiratory tract and digestive disorders such as nausea, persistent vomiting, pain. stomach and diarrhea (BSN, 2014). Indirectly consuming borax in meatballs does not directl have a bad impact, but it accumulates little by little in body organs such as the bra

in, testicles and liver. Borax that is absorbed in the body in small amounts will be excreted through feces and urine, and very little through sweat. Apart from interfering with metabolic enzymes (Lestari & Misnati, 2018).

Based on the 2020 BPOM RI report, 45 extraordinary incidents of food poisoning (KLB KP) were found, with a total of 3276 people exposed and 1528 of them experiencing symptoms of illness (attack rate of 46.62%). Meanwhile, 6 people died (case fatality rate was 0.18%). The most common cause of KP outbreaks was microbiology (suspected) with 24 incidents (53%) and 1 incident (2%) was confirmed (BPOM RI, 2020).

In Gorontalo City, according to research by the Gorontalo City Food and Drug Monitoring Agency (BPOM) in 2011 which tested several types of food for dangerous chemicals, the results showed that some foods contained borax (Intan, 2018). Subsequent research carried out again by the Food and Drug Monitoring Agency (BPOM) in Gorontalo in 2015 showed that 15% of food products were positive for containing dangerous BTP such as borax, formalin, rhodamine B and methanyl yellow. Then in 2017, through the mobile car program, BPOM Gorontalo found four samples that did not meet the consumption requirements out of 412 samples examined.

Borax consumed high enough can cause symptoms of vomiting, dizziness, loose stools, kidney damage, stomach cramps and loss of appetite. Frequent consumption of foods containing borax causes liver, brain, kidney and fat disorders. In large quantities, borax can cause stimulation of the central nervous system, fever, anuria (no urine formation), coma, apathy, cyanosis, decreased blood pressure, fainting, kidney damage and even death (Eryani, 2022).

Based on the results of initial observations made by researchers, in Gorontalo City, especially in Kec. Kota Tengah, a famous meatball product in Kec. In Central City, this is based on data and the fact that there are 10 (ten) favorite meatball places in Gorontalo City, of which 4 (four) places are located in Kec. Central City. Apart from this, the results of the research survey also found that the largest meatball producers were in Kec. Central City has 12 (twelve) producers, this makes itinerant meatball sellers also have the largest number among all the sub-districts in Gorontalo City because these mobile meatball traders get their meatballs from producers in the district. Central City. This is the reason for researchers to conduct research in Kec. Central City of Gorontalo City.

RESEARCH METHODS

The method in this research uses a qualitative approach with the type of research used is descriptive. The type of data used is primary data in the form of research results and secondary data in the form of data search results and various literature and government policies regarding food additives. with a total sample of 15 samples.

1. Pre Analytics

   The test method is a qualitative borax test with a borax test kit. The tools and materials used in this research are: measuring cup, Erlenmeyer, beaker

glass, test tube, dropper pipette, analytical balance, petri dish, measuring flask, filter paper, Borax test kit. The ingredients used in this research were meatballs, borax I and II reagents.

2. Analytic
   a. Prepare the tools and materials that will be used.
   b. Prepare food samples to be tested.
   c. 1 mL of Borax I reagent was added to the sample that had been put into a test tube, adding 10-20 drops of Borax I reagent.
   d. Shake for 5 minutes.
   e. Dip the end of reagent II Borax (paper) into the test tube.
   f. Take the Borax II reagent paper then let it air and leave it exposed to sunlight for 10 minutes.
   g. Observe the reaction that occurs and then record the results.
3. Post Analytics
   Interpretation of borax identification results in accordance with Minister of Health Regulation no. 86 of 2019 is negative. If the test results change to red, then the sample is positive (+) for containing Borax. If the result is positive (+), then repetition is carried out 3 (three) times so that the results obtained are accurate.

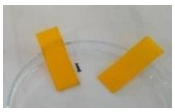
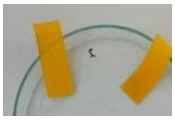
RESEARCH RESULT

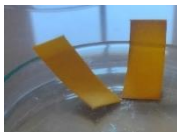
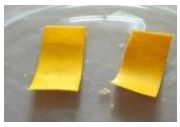
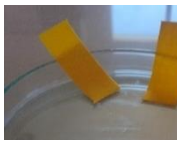
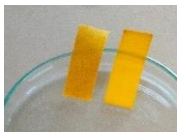
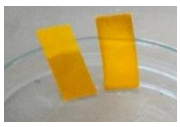
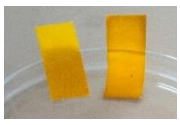
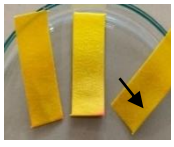
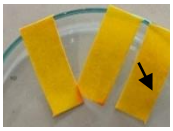
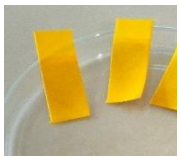
Based on research conducted on the borax content found in meatballs qualitatively using the rapid method (Test Kit Borax) on mobile meatballs in Kec. Central City, Gorontalo City, from 05 September to 02 October 2023, results were obtained according to those shown in the table below.

1. Description of Respondent Characteristics

a. Frequency Analysis Results

Table 4.1. Identification results of borax examination in mobile meatballs in Kec. Central City of Gorontalo City.

No	Sample Code	Sample Origin	Borax test image	Borax Test Results
1	Sample 1	Trader 1		Negative
2	Sample 2	Trader 2		Negative
3	Sample 3	Trader 3		Negative
4	Sample 4	Trader 4		Negative
5	Sample 5	Trader 5		Negative
6	Sample 6	Trader 6		Negative

7	Sample 7	Trader 7		Negative
8	Sample 8	Merchant 8		Negative
9	Sample 9	Trader 9		Negative
10	Sample 10	Trader 10		Negative
11	Sample 11	Trader 11		Negative
12	Sample 12	Trader 12		Negative
13	Sample 13	Trader 13		Positive
14	Sample 14	Trader 14		Positive
15	Sample 15	Trader 15		Negative

(Source: Primary Data, 2023).

Based on the research results shown in table 4.1 above, research data was obtained that of the 15 meatball samples identified, there were 2 (two) samples that were positive for containing borax, namely sample codes 13 and 14.

DISCUSSION

This research was carried out by In this research, researchers conducted a qualitative examination of borax on 15 (fifteen) traders who sold meatballs, each seller took one meatball sample using the Borax Test Kit method. The research results obtained were that from 15 samples, the results of borax examination in meatballs in Kec. Central City, Gorontalo City, namely 13 meatball samples were found that were negative or did not contain borax with a percentage of 86.7% and 2 meatball samples were found to be positive or contained borax with a percentage of 13.3%.

The results of this research are in line with research conducted by Suseno (2019), that nine out of 12 tested positive for borax with the largest concentration in sample B1 at 2414,375 µg/mL. Another research that is in line with the results of this research was conducted by Noor (2021) which found that one of the seven samples tested contained

borax, which was indicated by the change in the color of the tumeric paper to brownish red and the color of the flame green. As for the results of the research that has been carried out, it was found that the color of the test paper changed from yellow to brownish red which occurred in two test samples, this indicates a positive result.

By conducting research by researchers, it was found that there are still several mobile meatball traders in the district. Central City, Gorontalo City, which adds the preservative borax to the meatballs it sells. This was proven by the borax examination carried out in the laboratory. Integrated Bina Mandiri University Gorontalo by researchers in sample codes 13 and 14 tested positive for borax. From these results, the abuse of borax preservatives is caused by several things, one of which is a lack of public understanding and knowledge regarding preservatives for food and is possibly caused by economic and practical factors, where the price of borax is relatively low compared to other preservatives. So meatball manufacturers took the route of adding borax to their meatballs.

This is in line with the theory put forward by Ariani (2017), that knowledge is influenced by a person's level of education. A low level of education is assumed to be related to a low level of knowledge, including knowledge about borax. A person's knowledge is not only influenced by the environment, but sources of information, experience and outreach activities also influence a person's level of knowledge. Knowledge is the result of knowing, and this occurs after people sense certain objects. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste and touch. Most human knowledge is obtained from the eyes and ears (Notoatmojo, 2019)

Based on the results of interviews, it is known that the seller's level of knowledge about the properties and dangers of borax is classified as good. Because all meatball snack sellers can answer the questions given appropriately and correctly. So if someone's knowledge is good, then the behavior they produce will also be good in accordance with the knowledge they have gained so far. The sellers admitted that they only knew about the preservative borax and understood that it was dangerous. But even though they understand that the preservative borax is dangerous, they do not fully understand what dangers it can cause.

This is also in accordance with the theory expressed by Suseno (2019) that there are times when just to get a lot of profit or the food being sold does not spoil quickly, producers add dangerous chemicals to the food. In fact, if these chemicals are added, they will endanger the health of consumers who consume them.

According to Lestari and Misnati (2018) that repeated and excessive use of borax can result in toxicity (poisoning). Symptoms that arise include nausea, vomiting, diarrhea, decreased body temperature, weakness, headaches, and can cause shock. Using 15-25 grams can cause death in adults, while in children around 5-6 grams. If the use is relatively large, it can damage the brain, liver and kidneys. So, judging from its toxicological effects, boric acid is prohibited for use in food. In large doses it can cause tachycardia, cyanosis, delirium, convulsions and coma. Because it has a serious impact on human health, the government issued a regulation prohibiting the use of borax as a food additive in Minister of Health Regulation No. 033 of 2012 concerning Food Additives, stating that borax is a dangerous and toxic substance (B3) so it should not be used as an additive. in food.

Even though in this study it was found that there were meatball samples that contained borax, if we reviewed all the

samples, there were still more meatballs that did not contain borax, namely of the 15 meatball samples that were identified as borax, 13 samples (86.7%) contained negative. This is in line with research by Santi (2018) that there are snacks that have been analyzed in the laboratory with negative values, which means that all foods do not contain the preservative borax. In Lestari and Misnati (2018) it was stated that seven samples of meatballs in Moodu Village, East Kota District, Gorontalo City, did not find any meatballs containing borax.

According to Harimurti & Setiyawan (2019), the results of the research carried out stated that the borax content detection test using tumeric paper showed that 36 samples were detected to contain borax which was indicated by the color change of the tumeric paper becoming brick red. Likewise, research conducted by Efrilia, Prayoga, & Mekasari (2016), using tumeric turmeric paper, showed that the 15 meatball samples tested did not contain borax. The method for detecting borax content using natural ingredients in the form of turmeric is a simple and easy method to carry out. According to Fitri et al. (2018), the duration of color change on turmeric toothpicks in the detection of borax in food ingredients varies according to the level of borax contained in the food sample.

Other research that is in line with the results of this research is research by Rahma et al. (2023), where out of 12 samples of meatballs circulating in the Traditional Market in Tambun Selatan District, 3 samples (25%) were found to contain borax. Meanwhile, the results of research by Darmawati et al. (2022) on meatball samples obtained from stalls and cart meatball sellers in 3 (three) sub-districts, namely Baru Village, Tambun Village, and Tuweley Village in Baolan District, Tolitoli Regency, concluded that none of the meatball samples were positive for containing borax.

From the results of the research, researchers found that the number of negative samples was more dominant, indicating that it is possible that some traders already understand and are aware of the dangers of adding this type of borax preservative, so they do not dare to use it in the process of making meatballs. Mobile meatball traders get information from various sources, such as social media, electronic media and other information sources. Knowledge of the dangers of borax can also be obtained from reading materials such as magazines, newspapers, pamphlets about the dangers and impacts caused by adding dangerous substances to food.

The results of this research as well as several previous research results show that various foods containing borax are found in the household processed food industry, such as meatballs. Meanwhile, based on Government Regulation of the Republic of Indonesia Number 86 of 2019 concerning Food Safety Article 47 (Paragraph 3) states that Supervision of the fulfillment of Food Safety, Food Quality and Food Nutrition requirements for home industry processed food is carried out by the Head of the Agency and/or the Regent/ Mayors individually or jointly, thus the role of local government is very necessary to ensure the safety of food consumed by the community.

CONCLUSION

Identification of borax using the Borax Test Kit method on mobile meatballs in the district, Kota Tengah, Gorontalo City based on the results of research conducted on 15 samples of meatballs sold by mobile meatball traders in the district. Central City, Gorontalo City. Two samples (13.3%) were positive for containing borax and 13 samples (86.7) were negative for not containing borax. It can be concluded that from the 15 samples that have been examined, the number of samples that are negative for not

containing borax is more dominant than the meatballs that are positive for containing borax, so this shows that it is possible that some traders already understand and know the dangers of adding this type of borax preservative, so they do not dare to use in the process of making meatballs.

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