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ARTIKEL PENELITIAN

Qualitative Test of Identification of Borax in Wet Noodles at Traditional Markets in Palembang City

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Abstract: Food is a basic need of human life. Cases of food poisoning and infectious diseases caused by food continue to increase. Borax is a derivative of the heavy metal boron (B) and is generally used as a preservative and bactericidal. One of the tests that can be done to identify foods that contain borax is a test with curcumin paper and a borax test kit. **Aim:** This research is to identify the presence of borax in wet noodles with a qualitative test in a traditional market in the city of Palembang. **Method:** The type of research used in this research is descriptive qualitative. Is a type of research that provides an overview or description of the identification of borax in wet noodles. Sampling in this study used primary data by taking samples directly from food vendors who have wet noodles in the 16 Ilir market, Palembang. Sampling used a total sampling technique that met the inclusion criteria. **Result:** The physical test results showed 16 samples of noodles with a chewy texture, for the color parameter, 13 samples with yellow color were obtained, for the durability parameter, 12 samples lasted 24 hours, and for the olfactory parameter, 16 samples does not have a pungent odor, for the curcumin paper test, 16 samples were yellow and for the borax kit test, 16 samples were orange. **Conclusion:** The physical test and qualitative test with curcumin paper and the borax kit test showed that there were no wet noodle samples containing borax in 16 ilir market Palembang.
Keywords: Borax, Food, Wet noodles

INTRODUCTION

Food is a basic necessity of human life. Cases of food poisoning and infectious diseases caused by food continue to increase. The BPOM annual report found 107 (39.92%) out of 268 incidents of food and beverage poisoning in Samarinda City.[1] Children are often victims of this disease. One of the causes is that they

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do not pay attention to personal and environmental hygiene during food management.[2] Food is the main component that plays a very important role in the life of mankind. Food is often termed as everything that can be eaten or consumed by humans and does not cause harm to the people who consume it. Food is also commonly referred to as something that is needed by the body and brings benefits to the person who consumes it.[3]

Noodles are a food product made from wheat flour that is very popular among Indonesians. Noodle products are generally used as a source of energy because they have high carbohydrates. The noodle products on the market based on the presentation stage and water content are raw/fresh noodles, wet noodles, dry noodles, fried noodles and instant noodles. Wet noodles are raw noodles that before being marketed undergo a boiling process in boiling water, with a water content of about 35% and after boiling the water content increases to 52%. The relatively high water content results in a short shelf life. [4]

The spread of borax also occurs in Indonesia, based on the results of sampling analysis and laboratory testing in 866 elementary schools spread across 30 city in Indonesia, 4,808 samples were taken and as many as 1,705 (35.46%) samples did not meet quality safety requirements in food.[5] Testing of hazardous chemical content in snacks food samples was conducted at the Biomedical Laboratory of Alma Ata University, Bantul Yogyakarta, and found chemical content in 3,206 samples of snacks food products for school children including wet noodles, meatballs, and snacks. 94 samples (2.93%) were positive for borax and 43 samples (1.34%) were positive for formalin. Borax is still widely found in some Palembang traditional market areas such as the Cinde market. The very cheap price of borax and the ease with which it can be obtained by the public causes the possibility of a high level of borax abuse in foodstuffs. [6]

Qualitative test analysis of borax test in wet noodles is necessary, given the importance of this study to identify the presence of borax in wet noodles with several borax tests. Therefore, researchers are interested in conducting a qualitative test to identify

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borax in wet noodles in traditional markets in Palembang City

METHODS

This study uses descriptive qualitative research by collecting data directly from food traders who also sell wet noodles in 16 ilir markets in Palembang. The sample of this study was obtained through the total sampling method by taking samples from food traders who had wet noodles in the 16 ilir markets in Palembang.

RESULTS

In this study, 16 wet noodle samples were obtained from 16 food sellers who had wet noodles in 16 ilir markets Jln. Pasar 16 Ilir, Kel. 16 Ilir, Kec. Ilir Timur I, Palembang

Table 1. Physical characteristics test for wet noodle samples from food vendors that also contain wet noodles

No.	Sample Code	Texture	Durability	Color	Smell
1.	A	Chewy	24 Hours	Yellow	No pungent odor
2.	B	Chewy	24 Hours	Yellow	No pungent odor
3.	C	Chewy	48 Hours	Yellow	No pungent odor
4.	D	Chewy	24 Hours	Yellow	No pungent odor
5.	E	Chewy	24 Hours	Yellow	No pungent odor
6.	F	Chewy	24 Hours	Yellow	No pungent odor
7.	G	Chewy	24 Hours	Yellow	No pungent odor
8.	H	Chewy	24 Hours	Yellow	No pungent odor
9.	I	Chewy	24 Hours	Pale yellow	No pungent odor
10.	J	Chewy	24 Hours	Yellow	No pungent odor
11.	K	Chewy	24 Hours	Yellow	No pungent odor
12.	L	Chewy	48 Hours	Pale yellow	No pungent odor
13.	M	Chewy	48 Hours	Pale yellow	No pungent odor
14.	N	Chewy	24 Hours	Yellow	No pungent odor
15.	O	Chewy	24 Hours	Yellow	No pungent odor
16.	P	Chewy	48 Hours	Yellow	No pungent odor

In this study 16 wet noodle samples had a chewy texture as many as 16 samples. The results of the color parameter, samples that have a yellow color are 13 samples, and have a pale yellow color as many as 3 samples. The results of the olfactory parameters of 16 samples all have no pungent. The results of the durability there are 12 samples that have a durability of 24

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hours and 4 samples have a durability of 48 hours. In this physical test observation study, one sample of wet noodles made by the author as a comparison physical test was used without using a mixture of preservatives. Of the 16 samples obtained by researchers, no samples were found to be positive for borax in the physical test.

Tabel 2. Test Results for Wet Noodle Samples Using the Curcumin Paper Test and Borax Test Kit

No.	Sample code	Curcumin paper test		Borax test kit	
		Results	Description	Results	Description
1.	A	Yellow	—	Orange	—
2.	B	Yellow	—	Orange	—
3.	C	Yellow	—	Orange	—
4.	D	Yellow	—	Orange	—
5.	E	Yellow	—	Orange	—
6.	F	Yellow	—	Orange	—
7.	G	Yellow	—	Orange	—
8.	H	Yellow	—	Orange	—
9.	I	Yellow	—	Orange	—
10.	J	Yellow	—	Orange	—
11.	K	Yellow	—	Orange	—
12.	L	Yellow	—	Orange	—
13.	M	Yellow	—	Orange	—
14.	N	Yellow	—	Orange	—
15.	O	Yellow	—	Orange	—
16.	P	Yellow	—	Orange	—

Description: (+) Borax positive, (-) Borax negative

The test results above show that wet noodle samples suspected of containing borax are physically characterized by laboratory examination using the curcumin paper test and borax kit test. Of the 16 wet noodle samples that were tested, none of the wet noodle samples contained borax.

DISCUSSION

Around the 16 ilir market in Palembang, there are many food vendors who also sell wet noodles that are visited by buyers every day, so that snack foods that are favored by all age groups and groups of people are feared to have prohibited food additives, namely borax, which can endanger consumers of all age groups and

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groups of people, so research is carried out to ensure that local people consume safe food.

In the results of this study obtained from 16 wet noodle samples that have a chewy texture as many as 16 samples. For color parameters, samples that have a yellow color are 13 samples. and have a pale yellow color as many as 3 samples. For the olfactory parameters of the 16 samples all had a distinctive odor. For shelf life, 12 samples had a shelf life of 24 hours and 4 samples had a shelf life of 48 hours. The use of borax in noodles will produce a chewier, more durable texture that can be stored for up to four days[7].

The physical test results show samples that can last for 24 hours, this is due to the longer storage time causing the formation of mucus on the surface of the wet noodles, but the mucus formed does not differ much between one storage time and another storage time. The formation of mucus on the surface of wet noodles is caused by microbial growth which increases with increasing storage time[8]. The physical test results also show that there are several samples that can last for 2 days, this is due to the relatively short durability of wet noodles, generally wet noodles have a moisture content of 52% so that their durability can last 40 hours at room temperature[9]. The results showed that there were yellow noodles, wet noodles are noodles that in the manufacturing process added more eggs so that they are bright yellow and have a distinctive egg flavor, so the noodles appear lighter yellow[10].

Based on physical and laboratory tests with qualitative tests using the curcumin paper test and borax kit test that have been carried out on 16 wet noodle samples, 16 samples were obtained, all of which did not contain borax. From the theoretical explanation that the borax test kit in food is a qualitative rapid test tool to detect borax content in food within 10 minutes with a detection sensitivity limit of 100 mg/Kg (100 ppm) This curcumin reagent (reagent contained in the borax test kit) is a refinement of the borax detection tool that has often been used, namely tumic paper. The curcumin reagent is also a practical borax detection tool and the test can be conducted outside the

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laboratory[11]. As for the curcumin paper test, curcumin can detect the presence of borax in food because curcumin is able to break down the bonds of borax into boric acid and bind it into a rosa color complex or what is commonly called a boroniano curcumin complex compound. Research conducted by Lestari (2022) using a high concentration of turmeric will show the intensity of the color results on tumerik paper with the most intense color is a concentration of 10,000 ppm with orange yellow color results and with a concentration of 1,000 ppm the resulting color is not concentrated and there is no color change[12].

One of the natural preservatives that can be used as an alternative food preservative is chitosan. Chitosan has natural properties, so chitosan is non-toxic and has no side effects when consumed by humans[13]. Besides chitosan, carrots, waluh, and turmeric can also be used as preservatives. The use of carrots in wet noodles can increase the durability to 8 days, the use of waluh makes the durability of wet noodles to 5 days and the use of turmeric makes the durability of wet noodles to 5 days [14].

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CONFLICT OF INTEREST

The authors confirm there is no conflict of interest in this study.

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