

# Experimental Study of Additional Food and Materials Merchant Knowledge in The Tenk Central Market District of Mimika

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**Abstract - Background:** Tested Ingredients Ingredients In Chicken Meatballs, Tofu Raw, Chicken Noodles, Sauces Tomato, Shrimp Terasi Prawns sold in Market and Trader's Knowledge in particular at Pasar Sentral Timika Kabupaten Mimika. From the results of Laboratory Test showed that food samples contain no Preservative Substance in the form of Borax, Formalin and Rodhamin B and Knowledge Pedangan Well seen from education. **Research Objective:** To Identify Boron, Formalin, Rodhamin B Preservative and Trader Knowledge in Central Market Timika Kabuten Mimika.

**Research Method:** Quantitative descriptive survey using Purposive Sampling. The research was conducted on May 3 to May 17, 2018 at Timika Central Market and Water Laboratory of Mimika Regency Health Office with Population as many as 187 food traders of Chicken Meat, Tofu Raw, Chicken Noodle, Tomato Sauce and Terasi.dengan sample size 20 (20 samples traders knowledge of chicken meatball, 20 samples of knowledge about raw tofu, 20 samples of knowledge about chicken noodles, 20 samples of knowledge about tomato sauce, 20 samples of knowledge about shrimp paste.

**Result:** Based on laboratory test, it was found that the content of the substance of Borax preservative on the chicken meatballs 100% negative, Formalin on 100% raw crude, formalin on 100% negative chicken noodle, Rodhamin B on 100% tomato sauce Negative and Rodhamin B on shrimp paste 100% negative while the knowledge of traders in Central Market Timika has knowledge of borax on chicken meatball is said to be good 80%, formalin knowledge towards raw tofu is 85% said good, formalin knowledge to 100% chicken noodle, knowledge of Rhodamin B to tomato sauce 60% low or less, knowledge of shrimp paste 100% less.

**Keywords:** Preservatives, Dyestuffs, traders.

## 1. INTRODUCTION

Several government institutions to food circulating in the community, pointing out the fact that there are still many foods found containing hazardous substances until 2013. Hazardous materials that should be prohibited to use according to PerMenKes no. 033 Year 2012, it is still found in food in many regions in Indonesia, such as Sukoharjo Central Java, Karawang West Java, Malang, Semarang, Jakarta, Bandung and others. The findings are

borate / borax, rhodamine B formalin and methanil yellow dye. Based on data from the Health Laboratory of Mimika Regency in 2017, there are various kinds of snack foods containing chemicals related to Food Additives, red ice syrup, green syrup, ice cream, fruit ice, dawet ice and green banana syrup positive containing cyclamate while food snacks are served by street vendors in the form of cireng, tofu and positive frontman contains Boraks.

Mimika Regency is a district with a population of 201,677 people spread over 18 districts. The new Mimika District is one of the largest districts with a population of 100,956 people (BPS Kabupaten Mimika) in 2017. Based on the observations made in Central Market there is the sale of meatballs, raw tofu, wet noodles, tomato sauce and shrimp paste selling all day and always crowded by buyers, so that food is sold by traders in Timika Central market which is favored by all groups. Community there are prohibited food additives such as borax, formalin and rhodamin B which can be dangerous health.

Similar research in Mimika Regency in 2017 has been done so that researchers are interested to conduct more in-depth research on the content of preservatives in food and knowledge of traders in the Central Market Timika Mimika Regency, later can be known from the feasibility of food for consumers, especially the environment in the region Regency of Mimika.

## 2. MATERIALS AND METHOD

### a. Research design

This research uses quantitative research. This research is a research that aims to explain the existing phenomenon by using numbers to base individual or group characteristics (Syamsudin & Damiyanti: 2011).

### b. Type of Research

This research uses descriptive research type with quantitative approach. Quantitative Research Methods, as proposed by Sugiyono (2012: 8), namely: "Research methods based on the philosophy of positivism, used to

examine the population or specific samples, data collection using research instruments, quantitative / statistical data analysis, with the aim to test predefined hypothesis ". According to Sugiyono (2012: 13) descriptive research is, research done to determine the value of independent variables, either one variable or more (independent) without making a comparison, or connect with other variables. Based on the theory, quantitative descriptive research, is the data obtained from the sample population studied in accordance with statistical

c. Methods

This study describes the Trader's Knowledge of borax, formalin and rhodamin B and Laboratory Test on Chicken Meatballs, Raw Chicken, Chicken Noodle, Tomato Sauce and Terasi in Central Market Timika of Mimika Regency Year 2018.

The study was conducted on 3 to 5 May of May 2018 sampling and interviewing, Date 7 to 12 mei examination of the sample test at the Laboratory. The sampling location is food trader located in Timika Central Market and the sample examination is done at the Health Laboratory of Mimika Regency Health Office.

d. Population and Sample Research

1. Population

Population is the set of all the objects or individuals to be studied or the group of origin from which a sample is selected (Tiro, 2011). According to sugiono in 2009 that the population is a generalization region consisting of objects / subjects that have certain qualities or characteristics set by the researchers to be studied and then drawn conclusions. In general population in this study were 100 traders (chicken meatball, tofu, noodles, tomato sauce and terasi) selling in Timika Central Market of Mimika Regency.

2. Sample

The sample is a part of the number of characteristics possessed by that population. If large populations and researchers are not able to study all existing populations then the researcher can use the sample with the reason that the limitations of funds, manpower and time and what is studied in the sample can be generalized to the population, with the sample requirements taken from the population really representative ( Sugiono, 2009). The samples in this study are the traders selling foodstuffs (meat meat, tofu, noodles, tomato sauce and shrimp paste) in New Market of Mimika Regency, taken by purposive sampling which is sample determination technique for certain purpose and certain consideration made by the researcher based on the characteristics or the nature of previously known populations (Hasmi, 2016)

3. RESULTS OF RESEARCH

Bivariate analysis is used to determine whether there is a statistically significant relationship between independent variables with dependent variable with Chi Square test using SPSS program version 22.0. In this research will examine whether or not there is influence between education level to merchant knowledge related to borax food content, formalin and Rhodamin B especially in Mimika Regency. This analysis will be tested through Chi Square test with value  $\alpha = 0,05$ , if p value  $<0,05$ , hence there is correlation and if value  $p > 0,05$  hence no relation. For more details can be seen in the following table 1 exposure.

Table 1. Bivariate Analysis Education Level Knowledge of Borax related Traders

| Education Level             | Knowledge of Borax Content in Meatballs |           |          |           | Total     |            |
|-----------------------------|---|-----------|----------|-----------|-----------|------------|
|                             | Good                                    |           | Less     |           | N         | %          |
|                             | n                                       | %         | n        | %         |           |            |
| Basic school                | 1                                       | 5         | 3        | 15        | 4         | 20         |
| Junior high school          | 15                                      | 75        | 1        | 5         | 16        | 80         |
| <b>Total</b>                | <b>16</b>                               | <b>90</b> | <b>4</b> | <b>10</b> | <b>20</b> | <b>100</b> |
| <i>Chi-square p = 0,002</i> |   |           |          |           |           |            |

Based on table 1 shows that from 20 respondents who made the sample, there are 4 respondents with junior high school education level, which 1 respondent or 5% who have good knowledge related to the content of borax in meatballs and as many as 15% or 3 respondents who have a level of knowledge was less the existence of the borax content. A total of 16 respondents who have high school education level, of which as many as 75% or 15 respondents have a good level of knowledge about the content of borax in meatballs, while the remaining 5% or 1 respondent has a level of knowledge that less the content of food in meatballs. Based on Chi Square test obtained p-value value 0.002. Because p-value = 0.002 less than 0.05 as the test level (5%), it can be said that there is a significant influence between the level of education and the merchants knowledge of the existence of borax content in the foodstuff of meatballs especially in Mimika Regency.

Table 2. Bivariate Analysis Education Level Knowledge of Formalin-related Merchants

| Education Level | Knowledge of Formalin in Raw Knowledge |    |      |    | Total |    |
|-----------------|--|----|------|----|-------|----|
|                 | Good                                   |    | Less |    | N     | %  |
|                 | n                                      | %  | n    | %  |       |    |
| Basic school    | 5                                      | 25 | 3    | 15 | 8     | 40 |
| Junior high     | 6                                      | 30 | 0    | 0  | 6     | 30 |

|                             |           |           |          |           |           |            |
|-----------------------------|-----------|-----------|----------|-----------|-----------|------------|
| school                      |           |           |          |           |           |            |
| Senior high school          | 6         | 30        | 0        | 0         | 6         | 30         |
| <b>Total</b>                | <b>17</b> | <b>85</b> | <b>3</b> | <b>15</b> | <b>20</b> | <b>100</b> |
| <i>Chi-square p = 0,071</i> |           |           |          |           |           |            |

Based on table 2 shows that of 20 respondents who made the sample, there are 8 respondents with primary education level, of which 5 respondents or 25% who have good knowledge of formalin content in raw tofu and as many as 15% or 3 respondents who have a level of poor knowledge will be the content of formaldehyde. A total of 6 respondents who have education level of each junior and senior high school, each of which as much as 30% have a good level of knowledge about the presence of formalin content in raw tofu.

Based on Chi Square test obtained p-value value 0.071. Because p-value = 0.002 greater than 0.05 as test level (5%), it can be said that there is no significant influence between educational level and merchant knowledge about the formalin content in raw tofu raw material especially in Mimika Regency.

Table 3. Bivariate Analysis Education Level Knowledge of Formalin-related Merchants

| Education Level             | Knowledge of Formalin In Chicken Noodles |           |          |          | Total     |            |
|-----------------------------|--|-----------|----------|----------|-----------|------------|
|                             | Good                                     |           | Less     |          | N         | %          |
|                             | n  | %         | n        | %        |           |            |
| Basic school                | 9  | 45        | 1        | 5        | 10        | 50         |
| Junior high school          | 7  | 35        | 0        | 0        | 7         | 35         |
| Senior high school          | 3  | 15        | 0        | 0        | 3         | 15         |
| <b>Total</b>                | <b>19</b>                                | <b>95</b> | <b>1</b> | <b>5</b> | <b>20</b> | <b>100</b> |
| <i>Chi-square p = 0,591</i> |  |           |          |          |           |            |

Based on table 3 shows that from 20 respondents who made the sample, there are 10 respondents with primary education level, of which 9 respondents or 45% who have good knowledge related to formalin content in chicken noodles and as much as 5% or 1 respondents who have a level of poor knowledge will be the content of formaldehyde.

A total of 7 respondents who have junior high education level, of which 35% have a good level of knowledge about formalin content in chicken noodles and as many as 3 respondents who have high school education level and have a good knowledge of the formalin content in chicken noodle food. Based on Chi Square test obtained p-value value 0,591. Because p-value = 0.591 greater than 0.05 as the test level (5%), it can be said that there is no significant

influence between the level of education with the knowledge of the traders will be formalin content in chicken noodle food especially in Mimika Regency.

Table 4. Bivariate Analysis Education Level Trader Knowledge related to Rhodamin B in Terasi

| Education Level             | Knowledge of Rhodamine B in Terasi |           |           |           | Total     |            |
|-----------------------------|------------------------------------|-----------|-----------|-----------|-----------|------------|
|                             | Good                               |           | Less      |           | N         | %          |
|                             | n                                  | %         | n         | %         |           |            |
| Basic school                | 0                                  | 0         | 2         | 10        | 2         | 10         |
| Junior high school          | 0                                  | 0         | 7         | 35        | 7         | 35         |
| Senior high school          | 1                                  | 5         | 10        | 50        | 11        | 55         |
| <b>Total</b>                | <b>8</b>                           | <b>40</b> | <b>12</b> | <b>60</b> | <b>20</b> | <b>100</b> |
| <i>Chi-square p = 0,650</i> |                                    |           |           |           |           |            |

Based on Table 4 shows that from 20 respondents who were sampled, there are 2 respondents with primary education level, of which 2 respondents or 10% who have less good knowledge related to Rhodamine B content in terasi. In addition, 7 respondents with junior secondary education level or 35% have less knowledge related to the content of Rhodamin B in shrimp paste. While at the level of high school education there are 11 respondents 55% of which 1 respondent or 5% have good knowledge and 50% or 10 respondents have a poor knowledge of the presence of Rhodamine in food paste terasi. Based on Chi Square test obtained p-value value 0.650. Because p-value = 0.650 greater than 0.05 as test level (5%), it can be said that there is no significant influence between education level and merchant knowledge of Rhodamine B content in food of terasi especially in Mimika Regency.

Table 5. Bivariate Analysis Education Level Trader Knowledge related to Rhodamin B in Tomato Sauce

| Education Level             | Knowledge of Rhodamine B in Tomato Sauce |           |           |           | Total     |            |
|-----------------------------|--|-----------|-----------|-----------|-----------|------------|
|                             | Good                                     |           | Less      |           | N         | %          |
|                             | n  | %         | n         | %         |           |            |
| Basic school                | 0  | 0         | 1         | 5         | 1         | 5          |
| Junior high school          | 1  | 5         | 1         | 5         | 2         | 10         |
| Senior high school          | 6  | 30        | 11        | 55        | 17        | 85         |
| <b>Total</b>                | <b>7</b>                                 | <b>35</b> | <b>13</b> | <b>65</b> | <b>20</b> | <b>100</b> |
| <i>Chi-square p = 0,692</i> |  |           |           |           |           |            |

Based on table 5 shows that of 20 respondents who made the sample, there is 1 respondent with the level of primary education, of which 1 respondent or 5% who have poor knowledge related to the content of Rhodamin B in tomato

sauce. In addition, 2 respondents with junior high school education level where 5% have less knowledge related to the content of Rhodamin B in tomato sauce and 5% also have good knowledge related to the content of the material in tomato sauce. While at the level of high school education there are 17 respondents or 85% of which 6 respondents or 30% have good knowledge and 55% or 11 respondents have a poor knowledge of the presence of Rhodamine B in tomato sauce food. Based on Chi Square test obtained p-value 0.692. Because p-value = 0.692 greater than 0.05 as test level (5%), it can be said that there is no significant effect between education level and merchant knowledge of Rhodamine B content in tomato sauce food especially in Mimika Regency

#### 4. DISCUSSION

##### 4.1. Test Result of Borax Content on Chicken Meatballs

Based on the results of qualitative test in the laboratory of Mimika Regency Water Service by using reagent reaction, it is known that 20 samples of unbranded packed meatballs from several samples in Timika Central Market of Mimika Regency, stated negative does not contain borax. This result is in line with Efrilia (20016) study showing that the negative samples containing borax with the characteristics of meatballs are not elastic, stale in one day, color is not white, and slimy in one day. In contrast to the results of research Imaningsih and Handayani (2006) that samples of meatballs packaging showed positive results mengandung borax with both characteristics of the meatball is a chewy texture, white and have a shelf life of five days. Meatballs containing textile preservative textures are more supple and durable while the use of natural preservatives will last no longer than two to three months (Eka, 2013). The characteristics that can be seen to distinguish meatballs containing borax and not are:

- a. Meatballs contain borax more chewy than meatballs without borax.
- b. Meatballs contain borax when bitten slightly harder than meatballs without borax.
- c. Meatballs contain durable or durable borax for three days medium that does not contain borax in one day is slimy.
- d. Meatballs contain borax color look more uneven white. Meatball is safe gray fresh in all sections, both on the edge and in the middle.
- e. Meatball containing borax feels unnatural. There was another odor that appeared.
- f. When thrown to the floor will bounce like a ball bekel. (Ephilia, 20016).

##### 4.2. Formalin Content Test Result on Tofu Raw

Based on the results of qualitative tests in the laboratory of Water Health Office of Mimika Regency using reagent reaction, to 20 samples of Tofu Raw, declared negatively do not contain formalin. According to Minister of Health (Menkes) Regulation No. 33 of 2012 on food additives, formalin is a chemical whose use is prohibited for food products. Quality requirement to know raw according to SNI 01-3142-1998, white color, soft texture, soft, uniform shape, when eaten feels smooth, and feel neutral, solid, and not easily broken.

##### 4.3. Formalin Content Test Result on Chicken Noodle

Based on qualitative test results in the laboratory of Mimika Regency Health Department by using reagent reaction, to 20 samples of Chicken Noodle, stated negative does not contain formalin. Wet noodles or chicken noodles are flour-based foods and widely consumed by the community because the processing is relatively easy. Access is easy and the number of noodle fans who encourage the use of chemicals such as formalin. The characteristics of wet noodles that contain formalin that looks shiny, not easily broken or non-sticky in addition to the flavor of flour is usually smelled like a drug, and durability bias two days or more. The use of formalin in food can cause health problems such as respiratory disorders, headaches and lung cancer (Cahyadi, 2008). Research data in 2004 by BPOM in Indonesia found that there are the highest amount of formalin chemicals in wet noodles. The results of shenna (2011) research on ten samples of wet noodles showed that wet noodles were bogged, Jakarta and depok contain formalin. The same is also stated by Habsah (2012), which is from 20 samples of wet noodles in depok, found 11 positive samples containing formalin, while the research by Ekki (2013) conducted on 36 traders of wet noodle in Semarang Traditional Market showed 41, 7% wet noodle contains formalin with grade average 795,71ppm.

##### 4.4. Observation results of Rhodamine B content in Tomato Sauce

Based on the results of qualitative test in the laboratory of Mimika Regency Water Service by using reagent reaction, to 20 samples of Tomato Saos, 100% stated negative does not contain formalin meaning there is no rhodamin b dye in tomato sauce. According to the Minister of Health RI Regulation of 2012 in the form of natural dyes, and synthetic dyes, when added or applied to food, or give or improve the color. Synthetic dyes most often added in food or food are methanyl yellow and rodhamin b. yellow methanol is a brownish yellow powder, while rhodamine b is crystalline, odorless and purplish-red (Yuliarti, 2007). Both dyes are dye substances prohibited by the government to be added to a food / panagn.

#### 4.5. Regamination Result of Rhodamine B on Shrimp Terasi

Based on the result of qualitative test in the laboratory of Mimika Regency Water Service by using reaction of reagent, to 20 samples of Shrimp Terasi, 100% stated negative does not contain formalin meaning there is no rhodamin b colorant in Shrimp Terasi. According Winarno (1992), color is one important aspect in terms of consumer acceptance of a food product. Color in food can be a measure of quality, color can also be used as indicator of freshness or maturity. If a food product has good nutritional value, excellent taste and excellent texture but having an unsightly color will give the impression that the food product has deviated.

#### 4.6. Trader's Knowledge of Food Additives In Timika Central Market of Mimika

Regency.

The knowledge of the traders of chicken meatball foodstuffs, raw tofu, chicken noodles, tomato sauce and shrimp paste in central market timika mimika district can be said good because the average level of education of respondents have graduated from SMA. Hal is seen based on the answers given by the traders of materials food that already know what food additives, function, understanding, characteristics and danger from harmful ingredients borax, formalin and rhodamin b on the food of meatballs, raw tofu, chicken noodles, tomato sauce and shrimp paste so as not to cause disturbance of human health or consumers. Based on the results of research that 60% of traders have a good knowledge of knowledge-related factors owned by traders about food additives have harmful substances that are prohibited by the government and lead to health for consumers. Based on research conducted Habsah (2012), factors related to the sale of these foods. Lack of knowledge related to food additives (BTP) will tend to make the habit of selling foods containing bad BTP. The same factor was also studied by Permanasari (2010), obtained 56.33% have negative attitude, and 50% proven to pass formalin food trade practice.

### 5. CONCLUSION

The results of research that has been done on the content of borax, formalin and rhodamin B and knowledge of traders in the Central Market Timika Mimika Regency then drawn some conclusions as follows:

1. The results of laboratory tests on borax content in chicken meatball food in the central market of Timika Mimika regency is not known as borax on the foodstuff.
2. Based on the results of laboratory tests obtained that the formalin content on 20 samples of crude tofu in the central market timika mimika district was not found any formalin on the foodstuff.

3. The result of laboratory examination on Formalin content on chicken noodle food in central market of Timika of Mimika Regency is not found formalin on the foodstuff.

4. Based on the results of laboratory tests obtained that the content of rodhamin b on 20 samples of tomato sauce in the central market timika mimika district did not find any formalin on the foodstuff.

5. Based on the results of laboratory tests obtained that the content of rodhamin b on 20 samples shrimp paste in the central market timika mimika district was not found any formalin on the foodstuff.

6. Trader's knowledge of borax, formalin and rodhamin b on foodstuff in central market of Timika of Mimika Regency is very good that is 60% from 100 respondents.

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