

Tomato Sauce Coliform Bacteria In The Hawker At Long Beach City Bengkulu

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Abstract- *Coliform is a type of bacteria that is often used as an indicator of contamination of food tomato sauce is a thick liquid made from a mixture of pureed tomatoes and spices. The tomato sauce has a long shelf life because it contains acid, sugar, salt, and often given a preservative. In open ketchup, packaging can increase the risk of contamination by microbes such as tomato sauce bacteria. Objective: This study aimed to determine the presence of bacteria of coliform contained in tomato sauce. Methods: This descriptive study aimed to determine the presence of bacteria of coliform contained in tomato sauce snacks five feet long along the coast of Bengkulu City area in 2017. The research was conducted at the Laboratory UPTD Bengkulu city health department using the MPN method. The units are inspected as many as 11 samples with a total sampling method. The results, conclusions, and suggestions: From the research results with the number of 11 samples, were obtained 4 (36.36%) samples were positive ketchup bacteria coliform and 7 (63.64%) samples were negative ketchup contains bacteria. coliform Sellerhawker street in the city of Bengkulu long beach should have to pay attention to processing, presentation, and storage of tomato sauce is used correctly. For the community is expected to choose excellent ketchup to be consumed so that no-bacteria coliform contamination.*

Keywords: *Ketchup, coliform*

I. INTRODUCTION

Indonesia is a country thrives, and a tomato plant is a plant that has been developed by the people of Indonesia [3]. The tomato sauce is a product that can last a long time because of the low pH products, the addition of acid *benzoate* and heat treatment during the production process. However, the production process of tomato sauce that does not meet the standard could result in microbial contamination of the tomato sauce and bottled. Tightly closed, tomato sauce can be shielded from any influences that come from outside such as microbes that cause rot, but if left open it will increase the risk of contamination of ketchup by microbes, such as bacteria. The tomato sauce will become the preferred medium by the bacteria to grow and multiply. *Salmonella*, *Bacillus* and *Enterobacter* are examples of *genus* food contaminating bacteria that could threaten or endanger human health [5]. One of the microbes that contaminate the tomato sauce is the class of bacteria, *coliform* contamination of microorganisms in a sauce can be obtained from the use of refillable bottles are used without washing, a bottle without a lid so that the potential bacteria can get in on it. It can also come from raw materials around the not hygienic and

dust or other factors that cause contamination of tomato sauce, so the quality of the sauce becomes damaged because of contamination from bacteria so that the sauce used on snacks usually unfit for use. One of the contaminations of microorganisms contained in the sauce is bacteria. *Coliform* [2] *Colie.* becomes pathogenic when the number of these bacteria in the digestive tract increases or out of their habitat, and will produce an enterotoxin that causes some cases of diarrhea [1]. cases of diarrhea that occurred in the city of Bengkulu based on data from Bengkulu City Health Department in 2015 the number of diarrhea cases as many as 7128 people, among them male and female as many as 3,508 people as much as 3,620 people. Most cases of diarrhea invention are as full as the health centers in the district BasukiRahmad and Betungan many as 1,054 people, while cases of diarrhea and the discovery of the smallest ones are in the Planer River District PuskesmasSukaMerindu many as 443 cases of diarrhea [2]. according to SNI 01-7388-2009 sauce ingredients must comply with the requirements parameters of *Staphylococcus aureus*, APM (most probable number) of coliform, ALT (total plate count) and molds. *Staphylococcus aureus* is a bacterial pathogen that could be used for indicator contaminated food. *Staphylococcus aureus* enterotoxin can produce poisoning in humans [1].

Long Beach is one of the attractions that exist in the province of Bengkulu, see the high public interest visited tourist attraction so that people snacks on the beach long containing tomato sauce, such as meatballs, dumplings, noodles chicken, roasted corn, dumplings, and others. A preliminary survey of the entire length of the coast will be held on October 1, 2016. The initial survey note that refills tomato sauce that had expired in the bottle will typically be recharged again by the seller without clearing the sauce bottle first. When merchants do not visit the buyer, then the sauce will not be replaced before it runs out of storage and packaging as well as the sauce was not clean so it provides opportunities microbes to proliferate. In general, it can be concluded that the treatment as it is unnoticed by street vendors and customers of the buyer, of course, has given rise to the development of microbes on the tomato sauce refill [4].

II. METHODS

This study was conducted using descriptive analysis. By using total sampling technique with the number of 11 samples of snack sauce in the capture with each container of street vendors, samples had been taken as much as 10% diluted in 100 mL of distilled water. This research has been conducted at the Regional Health Laboratory UPTD Bengkulu City in May-June 2017.

III. RESULTS

Bacteria test results from *coliform* with MPN method: In the research that has been done MPN values obtained *Coliform* in tomato sauce pavement hawker great seaside city of Bengkulu 2017. It is the highest is 17/100 mL in 1 sample, and other samples which MPN value 2/100 as much as 1 ml of the sample to 7/100 mL MPN value by 1 sample, to the value of 9/100 mL whereas MPN MPN value 0 / 100 mL of 7 samples.

Results Bacteria Coliform In Tomato Sauce Hawker On the Outskirts Pantai Panjang Bengkulu City Year 2017 on 11 samples with results of frequency distribution gravy hawker pavement at present in table 4.2 below

TABLE I DISTRIBUTION OF FREQUENCY IN TOMATO SAUCE HAWKER STREET ON THE EDGE OF A LONG BEACH BENGKULU CITY IN 2017.

Examination	Frequency	Percentage
Positive bacteria		
Coliform	4	36.36%
bacteria Coliform		
Negative	7	63.64%
Total	11	100%

From table I showed that the total sellers who put ketchup on the edge of a long beach of Bengkulu city area contained bacteria *coliform* by four samples (36.36%). It is not by the regulations of the Minister of Health No. 429 / Menkes / per / IV 2010, dated April 19, 2010, that safe drinking water must be protected from possible contamination bacteria *coliform* with standard 0 in 100 ml of water.

IV. DISCUSSION

Based on the observations that have been conducted, positive results in these tests contain bacteria. *coliform* This is evident because the gas bubbles are captured by the Durham tube. The presence of gas bubbles in this test showed that bacteria *coliform* in the water that can ferment lactose produce acids and gases if the tomato sauce was positive bacteria *coliform* then unfit for consumption [2].

The study's examination of the tomato sauce microbial test conducted by the method of MPN, MPN method is generally used to calculate the

some bacteria in particular for *coliform* bacteria. *Coliform* is the naturally good indicator in the water that looks clear or dirty water from the soil and the water itself. The MPN method used in the examination with a two-stage test that presumption test and the confirmation test. At the time of confirmation test, the medium used is BGLB, because BGLB media are selective media for bacteria. *coliform* In this study, researchers used a negative control with the treatment without the use of samples. Is the purpose of the negative controls is to ensure research results are positive contaminated bacteria *coliform* was derived from the sample is not from the media or the way the process? If the tubes are gas bubbles, then the sample is positive *coliform* because gas bubbles are lactose fermentation by bacteria group. *coli* In the study sample used 11 samples and got different results - different from any merchant in the capture of the sample number of bacteria. Some of the factors causing the high contamination of the tomato sauce are about environmental hygiene conditions less intact, tomato sauce containers were rarely cleaned and are often left in open conditions. Positive samples there are four, and the number of bacteria that is negative there are seven samples while the number of bacteria *coliform* is highest in sample 5 is numbered 17/100 mL

V. CONCLUSIONS

In the research that has been done obtained the value of MPN *Coliform* in tomato sauce hawker street on the edge of the long coast of Bengkulu in 2017 is the highest is 17/100 mL in 1 sample, and other samples MPN value is 2 / 100mL much as 1 of the sample, for 7/100 mL MPN value by 1 sample, to the value of MPN 9 / 100 mL while the value of MPN 0/100 as much as 7 mL sample.

bacteria *Coliform* in tomato sauce hawker street in the beachside city of Bengkulu length bacterial is contained of *coliform* by four samples (36.36%), and seven samples (63.64%) were not contained bacteria. *coliform*

REFERENCES

- [1] Dwiyantri, 2016 (2016). Available online at: [http://ejurnal - Bacteriological Quality analiskesehatan.web.id](http://ejurnal-BacteriologicalQuality.analiskesehatan.web.id) PeDIIntolBanjarbaru Tomato Sauce, 2(1), 1-5.
- [2] Falamy, R., Citizenship, E., & Apriliana, E. (2013). Detection of Coliform Bacteria in Black Cincin Snacks Market in Traditional Markets and Supermarkets Bandar Lampung. *A majority*, 1-Fatimawali, & Kojong, N. (2014).

Analysis of coliform bacteria contamination in tomato sauce meatball skewers snacks circulating in Manado. *Journal of Pharmaceutical Science*, 3(2), 37-44.

- [3] Gea, SI (2009). *Sanitation and Hygiene Analysis of Microbial Contamination that is in Tomato Sauce and Chili Sauce Refill Used in Environmental Diner North Sumatra University*.
- [4] Divine, 2014 (2014). Against Tomato Sauce mengosumsi influence pH of mouth.
- [5] Sugiyono. (2013). RESEARCH METHODOLOGY, (November 2012), 40-62.