
Test for Bacterial Content in Soy Sauce and Tomato Sauce at Masomba Market, Palu City

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ABSTRACT

The development of industrial food products that are growing rapidly and are ready-to-eat, make people increasingly fond of complementary food products, namely sauces and soy sauce. Even the food consumed is of particular concern because it causes many losses, such as patients who are poisoned or whose digestion is disrupted due to the food being consumed has been contaminated by materials or microorganisms. This study aims to determine the bacterial content of various brands of soy sauce and tomato sauce in Masomba market, Palu City. The method used in this research is descriptive research using an observational approach where in practice this study aims to determine the presence or absence of bacteria in soy sauce and tomato sauce of various brands in Masomba Palu market. Based on the results of research conducted on ten samples of soy sauce and tomato sauce sold at the Masomba market in Palu which was carried out at the Environmental Health Laboratory of Poltekkes, the Ministry of Health, Palu, it was found that one positive sample contained *Escherichia coli* and *Staphylococcus* bacteria, namely the soy sauce sample E with MPN number 43, and *Staphylococcus aureus* with 12 colonies. This study suggests that soy sauce producers should increase the selection of good raw materials and improve the sanitation of soy sauce making. For the community, it is expected to be more careful in choosing the soy sauce snacks that will be consumed. For further researchers, it is hoped that they will be able to examine other pathogenic bacteria and check the content of other food additives contained in soy sauce such as preservatives, thickeners.

INTRODUCTION

The development of industrial food products that are growing rapidly and are ready-to-eat, make people more and more fond of complementary food products, namely sauces and soy sauce. Besides being served with meatball noodles or chicken noodles, sauce and soy sauce are also used as complementary ingredients for fried noodles, fried rice and various fast food (1).

The addition of sauce and soy sauce can make the taste of food more delicious. The sauce also has a striking color so that it can add to the attractiveness of consumers to consume it (2). It is not surprising that public demand for sauce continues to increase from year to year. Therefore, sauce is one of the common flavorings consumed by Indonesian people (3).

Microbial contamination in tomato sauce has a standard according to SNI 01-7388-2009 with the parameter *Salmonella* sp negative/25g (1). If these microbes are present in food, they will produce toxins that can cause food poisoning, with general symptoms of nausea, vomiting, fever, chills, diarrhea, and cramps in the stomach. This can lead to death, especially in infants and the elderly (4).

The brands of soy sauce sold at the Masomba market in Palu are Soy Sauce, Bango Soy Sauce, National Soy Sauce, SK Soy Sauce and Shrimp Sweet Soy Sauce. The brands of sauces sold at the Masomba market in Palu City are Sambal Sauce, Tomato Sauce, Special Sauce, National Sauce and Happy Lombok Sauce.

Given the high public interest in consuming tomato sauce and soy sauce as a complementary food, the researchers were interested in conducting research to determine the presence of bacteria in tomato sauce and soy sauce sold at Masomba Market in Palu.

METHODOLOGY

This research is a descriptive study using an observational approach (5), where in the implementation of this study the aim was to determine the presence or absence of bacteria in various brands of soy sauce and tomato sauce at Masomba Market, Palu.

RESULTS

Table 1. Laboratory Test Results Five Soy Sauce Samples and Five Sauce Samples

No.	Sample Code	Total Coliform	E.coli	Staphylococcus
1	Brand sauce A	0	0	0
2	Brand sauce B	0	0	0
3	Brand sauce C	0	0	0
4	Brand sauce D	0	0	0
5	Brand sauce E	0	0	0
6	Brand soy sauce A	0	0	0
7	Brand soy sauce B	0	0	0
8	Brand soy sauce C	0	0	0
9	Brand soy sauce D	0	0	0
10	Brand soy sauce E	43	23	12

DISCUSSION

From the results of research that has been carried out on soy sauce and tomato sauce snacks sold at the Masomba market in Palu which were carried out at the Environmental Health Laboratory of the Poltekkes Kemenkes Palu, the results of these examinations showed that out of 10 samples examined, 1 sample was contaminated with *Escherichia coli* and *Staphylococcus aureus* bacteria. Namely Soy Sauce E. Based on the analysis, there were *Escherichia coli* and *Staphylococcus aureus* bacteria in soy sauce, positive results were obtained in the Durham tube, with the number of *Escherichia coli* (43/100 ml) which experienced turbidity and gas formed in the Durham tube, and there was *Staphylococcus aureus* with a total colony of 12.

From the results above, it is known that the soy sauce sample E has been contaminated with *Escherichia coli* and *Staphylococcus aureus* bacteria and prove that the soy sauce does not meet the requirements specified by SNI. Based on SNI 7388-2009 concerning the Maximum Limit of Microbes in soy sauce for MPN *Escherichia coli* 100/ml and the Regulation of the Head of the Food and Drug Supervisory Agency of the Republic of Indonesia Number HK.00.06.1.52.4011 concerning the Determination of Maximum Limits of Microbial and Chemical Contamination in Food as follows: Tomato sauce, chili sauce and other non-emulsified sauces *Staphylococcus aureus* 1x10² colonies/g.

The results of the examination on the samples of Sauce A, Sauce B, Sauce C, Sauce D, Sauce E, Soy Sauce A, Soy Sauce B, Soy Sauce C and Soy Sauce D showed that the samples were not contaminated with *Eschericia coli* and *Staphylococcus aureus* bacteria. This is likely due to a mixture of other substances that can inhibit bacterial growth, such as preservatives, dyes, thickeners, pH of bacterial growth.

CONCLUSION

Based on the results of research conducted on 10 samples of soy sauce and tomato sauce sold at the Masomba market in Palu which was carried out at the Environmental Health Laboratory of Poltekkes, the Ministry of Health, Palu, it was found that 1 positive sample contained *Eschericia coli* and *staphylococcus* bacteria in the brand E soy sauce sample with MPN number 43, and *Staphylococcus aureus* with the number of colonies 12.

REFERENCES

1. SYARIS SR. Analysis of *Salmonella* sp Bacteria in Tomato Sauce Traded at Simpang Limun Market Medan. 2019;
2. TARMIZI NIM. Analysis of Rhodamine-b Dyes in Tomato and Chili Sauce Plastic Packaging Circulating in Meulaboh City. Universitas Teuku Umar Meulaboh; 2014.
3. Dwiyanti RD, Lutpiatina L. Bacteriological Quality of Pentol Tomato Sauce in Banjarbaru. *Med Lab Technol J.* 2016;2(1):1–5.
4. Sopandi T. Wardah. *Food Microbiology–Theory and Practice* Yogyakarta Penerbit ANDI. 2014;
5. Oktavia I. Incomplete Abortion Midwifery Care in NY. D P0A4 AGE 22 YEARS OLD POST CURETARY DAY 1 WITH A HABITUAL ABORTUS HISTORY IN SLEMAN Hospital. UNIVERSITAS ALMA ATA YOGYAKARTA; 2018.