Use of L.Bulgaricus and L.Casel Bacteria Which Function as Fermentation Media for Ginger Flavored Yogurt
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ABSTRACT
Yogurt is a drink made from fermented bacteria, namely L.Bulgaricus and L.Casel, but from this research, the researchers want to conduct research on yogurt which consists of ginger which contains antioxidants. This research aims to see the level of liking of this yogurt. This yogurt has benefits that are quite helpful in health problems, namely preventing: colds, coughs, headaches, aches, rheumatism, nausea, motion sickness, impotence, Alzheimer's, cancer, and heart disease. As for the physical form, the panelists liked it, except for the texture/viscosity which seemed a little lumpy. For the organoleptic test, the following are the results: 6.5% of the panelists think to choose SS (like very much) 7.25% of the panelists believe to choose S (like) 0.75% of the panelists think to choose TS (don't like) 0, 5% of the panelists thought to choose STS (strongly dislike it). The technique used in this research is interviews with research subjects and panelists who will fill out an organoleptic test questionnaire with a hedonic scale in the form of a checklist.
INTRODUCTION

Indonesia is a fertile land and is a tropical country, therefore Indonesia has diverse flora and fauna. In fact, around our house many plants or ingredients have many benefits, one of the benefits is that they are used as raw material for yogurt. Plants or ingredients that are useful as raw materials for yogurt include ginger.

Then it was introduced to Europe in the form of cookbooks that used various spices. In Greece, ginger was first used as a herbal medicine to treat vertigo, nausea, and motion sickness (Goulart, 1995; Reader’s Digest, 2004). In the 16th century, in England, King Henry VIII recommended ginger to treat the plague (Plague). ). While Queen Elizabeth I recommended ginger to increase sexual desire (Goulart, 1995). In the Asian region, ginger has been used as a cooking spice and traditional medicine ingredient for thousands of years (Ware, 2017). In Indonesia, there are three types of ginger (Sunti ginger, elephant ginger, and imprint ginger) that are widely cultivated intensively in the Rejang Lebong (Bengkulu), Bogor, Magelang, Yogyakarta, and Malang areas and are used for cooking spices, herbal medicines and for drinks (Santoso, 2008). Cooking spices, the nutritional content of ginger can complement the nutrients in the main menu and help smooth the digestive process (Ware, 2017). Sunti ginger (red ginger) with an essential oil content of 2.58 -2.72%, is most widely used for the pharmaceutical industry, followed by elephant ginger with an essential oil content of 0.82 -1.68%, and Emprit ginger with 1.5 -3 .3% essential oil (Santoso, 2008). The active substances in essential oils, including shogaol, gingerol, zingeron, and other natural antioxidant substances have properties for preventing and treating various diseases from mild to severe, such as colds, coughs, headaches, aches, rheumatism, nausea, motion sickness, impotence, Alzheimer's, cancer and heart disease. As a traditional medicine ingredient, ginger can be used alone or combined with other herbal medicine ingredients that have mutually reinforcing and complementary functions (Nala, 1992; Santoso, 2008). In the discussion, the nutritional content, active chemical compounds that have pharmacological effects on health, and various diseases treated with ginger or ginger concoctions with other herbal medicinal ingredients will be described.

LITERATURE REVIEW

Yogurt

Yogurt is a dairy product made by a fermentation process using the lactic acid bacteria Lactobacillus bulgaricus and Streptococcus thermophilus with or without the addition of other lactic acid bacteria.

Ginger

Sunti ginger (red ginger) with an essential oil content of 2.58 -2.72%, is most widely used for the pharmaceutical industry, followed by elephant ginger with an essential oil content of 0.82 -1.68%, and Emprit ginger with 1.5 -3 .3% essential oil (Santoso, 2008). The active substances in essential oils, including shogaol, gingerol, zingeron, and other natural antioxidant substances have properties for preventing and treating various diseases from mild to severe, such as colds, coughs, headaches, aches, rheumatism, nausea, motion sickness,
impotence, Alzheimer’s, cancer and heart disease. As a traditional medicine ingredient, ginger can be used alone or combined with other herbal medicine ingredients that have mutually reinforcing and complementary functions (Nala, 1992; Santoso, 2008).

**Milk**

If milk is not handled properly, it will create conditions where the number of bacteria in the milk can grow rapidly. Other microorganisms will enter milk during the milking, transportation, and storage processes if the equipment used during these three processes is not clean, maintained, and sterile. On the one hand, with its complete nutritional content, milk is a high-value food, on the other hand, milk is also the best-growing medium for the proliferation of microorganisms that can cause disease in humans.

**METHODOLOGY**

In this research, researchers used tools, namely, ladles, drinking bottles, and containers. The materials used in this research included Full Cream Milk, Ginger, L.Bulgaricus, and L.Casel bacteria.

The technique used in this research is interviews with research subjects and panelists who will fill out an organoleptic test questionnaire with a hedonic scale in the form of a checklist.

Then an interview was conducted with the subject. An interview is a data collection technique that is carried out using oral questions and answers based on the research results, meaning that the questions come from the person interviewing and the answers are given by the interviewee.

The data that has been obtained after carrying out the research is then collected and analyzed using qualitative methods. The use of qualitative research methods in this research aims to analyze research data to find a focus in answering research problems so that it will describe the meaning, description, clarification, and placement of data in their respective contexts. The data analysis technique used in the qualitative analysis has four stages, namely data collection, data reduction, data presentation, and the final step drawing conclusions and verification, then describe it by analyzing it with words in the form of a research report. The research data will be analyzed through a data reduction system, namely classifying data based on existing problems. So that the questions in the research can be answered precisely and accurately.
RESULTS

This yogurt has raw materials that contain many substances that are useful for maintaining the body's immune system. For example, ginger which contains Vitamin C, and milk which contains antioxidants. This yogurt also uses L.Bulgaricus bacteria and L.casel bacteria which contain lactic acid which functions as a starter (inoculum) in yogurt fermentation.

In this research, several elements were tested, namely, color, aroma, taste, and viscosity. The results were tested through a questionnaire. The panelists in this research were 15 students. The following are the results of the organoleptic test questionnaire.

Table 1. Color Results

<table>
<thead>
<tr>
<th>ANSWER</th>
<th>NUMBER OF LIKES</th>
<th>ANSWER SCORE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>8</td>
<td>6</td>
<td>17%</td>
</tr>
<tr>
<td>S</td>
<td>8</td>
<td>4</td>
<td>15%</td>
</tr>
<tr>
<td>TS</td>
<td>0</td>
<td>3</td>
<td>0%</td>
</tr>
<tr>
<td>STS</td>
<td>0</td>
<td>1</td>
<td>0%</td>
</tr>
</tbody>
</table>

This is in accordance with the results of research (Ningsih & Bimo, 2017) which shows that the sweet taste is preferred by the panelists because the sweet taste is easier for the panelists who consume the yogurt to taste.

Table 2. Aroma Results

<table>
<thead>
<tr>
<th>ANSWER</th>
<th>NUMBER OF LIKES</th>
<th>ANSWER SCORE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>10</td>
<td>8</td>
<td>17%</td>
</tr>
<tr>
<td>S</td>
<td>3</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>TS</td>
<td>2</td>
<td>2</td>
<td>0%</td>
</tr>
<tr>
<td>STS</td>
<td>1</td>
<td>10</td>
<td>1%</td>
</tr>
</tbody>
</table>

This is in accordance with research results which show that bright colors are preferred by panelists, because bright colors can increase appetite or desire to consume them.
Table 3. Viscality Results

<table>
<thead>
<tr>
<th>ANSWER</th>
<th>NUMBER OF LIKES</th>
<th>ANSWER SCORE</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS</td>
<td>10</td>
<td>8</td>
<td>17%</td>
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<tr>
<td>S</td>
<td>3</td>
<td>3</td>
<td>15%</td>
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</table>

This research results show that yogurt which has a high level of viscosity is more popular with the panelists because when the yogurt has a high level of viscosity the panelists have more desire for the taste of the yogurt.

DISCUSSION
As an influence, some panelists said that they did not like the taste of ginger that was too thick, but some panelists also said that they did not like the taste of ginger that was thick, but some panelists liked the taste of ginger that was thick, and some panelists said that after consuming the yogurt their bodies felt warmer. This yogurt has side effects for people with stomach acid, the side effect is that if they consume too much yogurt, their stomach acid will rise. That's why it is recommended that before consuming the yogurt, it would be better to have breakfast first.

CONCLUSIONS AND RECOMMENDATIONS
With several tests on ginger which contains antioxidant compounds and is then grated so that the ginger easily dissolves in yogurt, yogurt which has a distinctive aroma and has benefits that are useful for health and increases the body's immunity, yogurt contains L.Bulgaricus and L.Casel bacteria, had a fairly positive response, although, in terms of taste, it was still not satisfactory for the testers of this yogurt, but the impression of yogurt in general still had a slight raw taste resulting from the added ginger.

FURTHER STUDY
Based on testing using the questionnaire method, this yogurt is suitable for use to maintain the body's immune system, but side effects also appear in people who have symptoms of stomach acid. As for the physical form, the panelists liked it, except for the texture/viscosity which seemed a little lumpy.
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REFERENCES


