Test Kit for Bacterial Count in Food

Self Food Quality Care

Consumption of unclean food can cause gastrointestinal diseases. Numbers of bacterial population in food indicates quality of food. Ministry of Public Health issued specified the numbers of bacteria in various kinds of food. At present, the numbers of bacteria in food have still been found over the standard. Therefore, the Department of Medical Sciences has developed test kit for determination of bacterial count in food, which can be used outside the laboratory, and get result within 24 hours.

Health Impact

Food with excess amount of bacteria may indicated the contamination of food-poisoning bacteria, which can cause diarrhea, nausea, vomiting, fever, headache or even death.

Target Sample

- Ready-to-cook food, raw food.
- Ready-to-eat food: milk and milk products, ice-cream, sauce, infant food, instant food, vended food, street food, street food, food in restaurant, school, etc.

Number of Tests/Kit

12 Tests

Sensitivity of Test Kit

Lowest detected amount 10 colonies or 10 cells in 1 gram (gm.) of food

Test Kit Tool
A. Tools in Test Kit
- 12 Sachets of test paper (in black envelope)
- 48 Sterile syringes
- 12 Sterile plastic bags
- Reagent 1, 2, 3 and 4; 12 bottles each
- 1 Bag of cotton balls with alcohol
- 1 Bottle of disinfectant
- 1 sheet of test kit manual

B. Other Necessary Tools
- Balance with 1 gram scale
- Stainless spoon, scissors, and lighter

Grouping of Food for Tests
- Food under control of Ministry of Public Health’s Act

Group 1
- **Sterilized or UHT**: fresh milk, recombined milk, fat-modified milk, flavored milk, dairy products, modified milk for infant, infant food, and supplementary food for infant
- **Non-sweetened**: condensed milk

*For food in Group 1, follow all test procedure except step 5-7*

Group 2
- **Powdered or pasteurized**: whole milk, recombined milk, fat-modified milk, flavored milk, dairy products, modified milk for infant, supplementary food for infant, infant food, cream and ice cream.
- **Sweetened**: condensed milk
- **Instant food**: noodles, vermicelli
• **Sauce**: chili sauce, tomato sauce, and papaya sauce.  
*For food in Group 2, follow all test procedure except step 6.*

**Group 3**

- **Liquid**: Ice cream  
- **Seasoning powder of instant food**: Noodles, vermicelli  
*For food in Group 3, follow all test procedure except step 7*

**Group 4**

- **Ready-to-cook food, raw food, street food, vended food, food stalls, food in restaurant, school, etc.**  
*For food in group 4, follow all test procedure.*  
- Other foods can request for details at Department of Medical Sciences.

**Procedure**

1. Examiner uses cotton ball soaked with alcohol to rub both hands, spoon, scissors, and food container at the opening area.

2. Use lighter to flame cutting part of scissors, hold it to be cooled down and cut opening area of container. Flame at spoon, and hold it to be cooled down.

3. Weigh 11 grams of food in a sterile plastic bag.

4. Pour all Reagent 1 in the plastic bag. Tightly close, and vigorously shake at least 25 times. Draw 1 ml. of solution by using a syringe.
5. Inject solution into Reagent 2 bottle. Vigorously shake at least 25 times. Draw 1 ml. of solution by using a new syringe.


8. Touch tip of syringe to test paper in the sachet, and inject all solution.

9. Gently remove air from test paper sachet. Tightly close the sachet. Keep test paper in the dark at room temperature for 24 hours.

Evaluation

Count number of red spot on the test paper, and interpret results as the following table.
<table>
<thead>
<tr>
<th>Types of Food</th>
<th>No.of red spot</th>
<th>Interpretation</th>
<th>Bacterial count in 1 gm. of food</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sterilized : fresh milk, fat –modified milk, recombined milk, flavored milk, daily products</td>
<td>0</td>
<td>√</td>
<td>No. of red spot x 10</td>
</tr>
<tr>
<td></td>
<td>1 or &gt; 1</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>2. Sterilized : Modified milk for infant, infant food</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Sterilized : Supplementary food for infant</td>
<td>0-1</td>
<td>√</td>
<td>No. of red spot x 10</td>
</tr>
<tr>
<td>4. Non-sweetened : Condensed milk</td>
<td>&gt;1</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>5. UHT : Food in 1,2,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Pasteurized: Food in 1 at the factory</td>
<td>0-1</td>
<td>√</td>
<td>No. of red spot x 10,000</td>
</tr>
<tr>
<td>Powdered : food in 2.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweetened : food in 4</td>
<td>&gt; 1</td>
<td>×</td>
<td></td>
</tr>
<tr>
<td>Instant noodles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sauce: chili sauce, tomato sauce, flour sauce, papaya sauce</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>No. of Red Spot x</td>
<td>Condition</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>-------------------</td>
<td>-----------</td>
<td></td>
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<tr>
<td>7. Instant: rice vermicelli, glass vermicelli</td>
<td>10,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Pasteurized: food in 1 when out of factory until expiry date</td>
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<td></td>
<td></td>
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<tr>
<td>Food in 3: Powdered</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>And no boiling needed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Powdered: food in 3 which need boiling, food in 1, cream and ice cream</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Condiments of instant noodles and vermicelli</td>
<td>100,000</td>
<td></td>
<td></td>
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<tr>
<td>11. Ice Cream (liquid)</td>
<td>1,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Ready-to-eat food: Street food, vended food, food stalls, food in restaurant, school, etc.</td>
<td>1,000,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Ready-to-cook food, Raw food</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note

- Food in 1-11 are interpreted according to food regulations of The Ministry of Public Health of Thailand.
- Food in 12-13 are interpreted according to food guidelines of Department of Medical Sciences.

Procedure After Test

Pour disinfectant into the test paper sachet about 1/3 of sachet to destroy microorganisms. Tightly close and discard.

Precaution

- Keep the kit out of reach of children.
- Do not contact disinfectant. Wash immediately if contact any part of the body.
- Beware of using lighter, not close to cotton ball with alcohol.

Keeping/Age

- Keep test paper (in black envelope), sterile syringe, plastic bag, and bottles of Reagent 1-4 in refrigerator/3 months.
- Tightly close bottle of alcohol all time to prevent evaporation.

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