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Food Stamp
Hygiene control on food and food Environment

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1. Introduction

Simple-to-use

Food Stamp method can be used for hygiene control of bacteria on foodstuffs and working areas. It is a **simple-to-use** bacteriological method which indicates the presence of bacteria.

Easy-to-use

The test is also an **easy-to-use** method. The test can easily be conducted without any special equipment or knowledge.

Easy-to-read-results method

Food Stamp method is an **easy-to-read-results** testing method. The possible presence of bacteria can be detected by the growth of the colonies.

A stamp method utilizing an agar “sausage” was developed in response to the needs and has been widely used in Great Britain.

In Japan The Ministry of Health and Welfare and The Food Sanitation Association conducted research by organizing a special research team to simplify foodstuff test methods.The stamp method was verified to be satisfactory for practical use as an indicator of the degree of bacterial contamination of foodstuffs and environment, based on the results of reliability study of the stamp method, stability of the medium used, and practical applicability of the method when used by inexperienced persons.

2. Features and benefits

Practical advantages versus wiping method

■No special instruments or equipment required.
■Time saving as no time for preparation is needed.
■Simple and easy test leads to reliable results.

Practical advantage

■Unique products utilizing a chromogenic reaction give more distinctive color development for easy reading.
■Agar inside the container is firmly attached to prevent the disintegration.
■More compact and easy to handle.
■Portable incubator is available, which is specially designed for Food Stamps (up to 30 plates).

General advantage

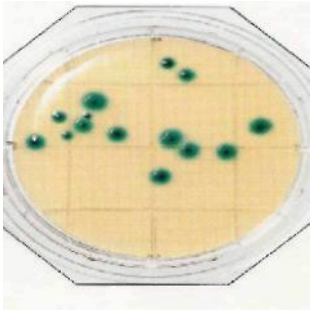
■Long shelf-life (app. 6 months after production).
■Two different package sizes depending on customer needs (30 pieces or 100 pieces).
■Broad menu – 10 different Food Stamps available for different bacteria.

3. Product Overview

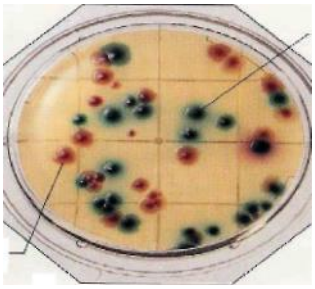
Standard Agar
Total viable counts

Desoxycholate Agar
Detection of Coliforms

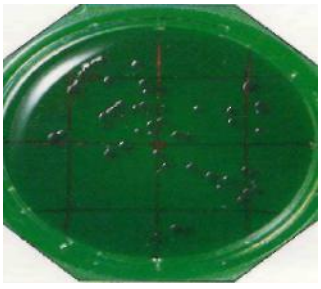
X-GAL Agar
Coliforms



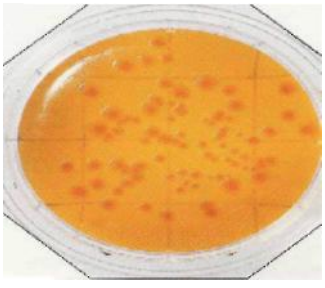
XM-G Agar
E. coli & Coliforms



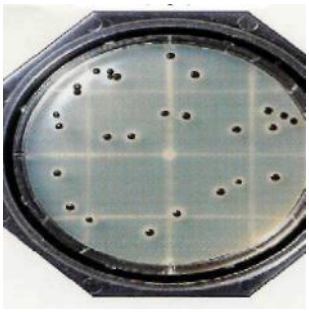
TCBS Agar
Vibrio parahaemolyticus



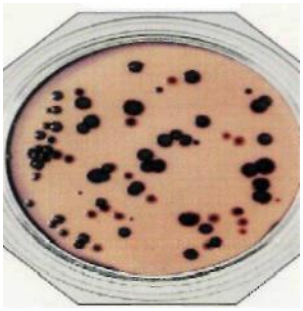
TCBS Agar
Vibrio alginolyticus



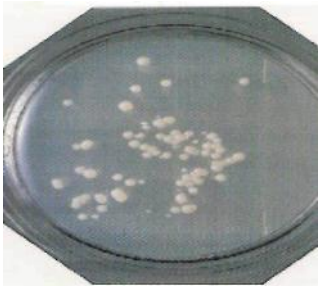
TGSE Agar
Staphylococcus aureus



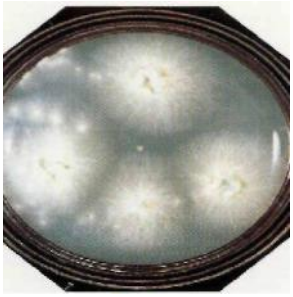
MCLB Agar
Salmonella



Potatoe Dextrose Agar with CP
Yeast



Sabouraud Agar
Fungi



4. Instructions for use Testing procedure

Specimen suitable for Food Stamp-testing:

- Food stuffs.
- Carcasses.
- Also suitable for testing the hands and fingers of people working on production sites.
- Kitchen tables and apparatus (like board and knife).

Specimen not suitable for Food Stamp testing
- Liquid materials.
- Materials with rough surface.
- Materials with much fat or oil.

Preparation of testing

1. One clean film bag contains 5 Food Stamps connected in series.

2. Cut off a side of bag and take out Food Stamp from the bag
   (One clean film bag contains 5 Food Stamps connected in series).

3. Hold the cap of Food Stamp and cut off each of them by bending. Take out only Food Stamps needed.
4. Put remaining Food Stamps back into the bag, and store in dark cool place.

Test method

1. Take off the cap of Food Stamp and gently press the medium against the surface of specimen. The surface of medium/agar is elastic enough to be pressed firmly against the specimen.

2. Press against the different parts of the specimen when several kinds of Food Stamps are tested simultaneously.

3. Close the cap again immediately after pressing.

Precautions:

1. Food Stamps should not be used for specimens soiled with oozing water on its surface. Moisture does not affect the testing, even some moisture may help to detect bacteria i.e. on the palm.

2. Do not press too hard or scrub.

3. If there were any water drops inside the cap, shake down the drops from the container just before the testing. Do not touch medium surface.

4. With oil felt pen or pencil for glass, write down on the cap the date of test and the name of specimen. All other information should be also recorded in the separate recording sheet. Recording of all key information at this point of testing is critically important.

5. Put the Food Stamp into the incubator. If an incubator is not available, it may be possible to keep them at room temperature for about 1.5 – 2.0 hours before incubation at the desired temperature.

6. Incubate for 2 – 5 days for Sabouraud and PDA Agars,
   1 - 2 days for all other Food Stamps except XM-G Agar in +35°C, 20 ± 2 hours.

FoodStamp	Temperature (°C)	Incubation duration
SABO, PDA	+20° – +25°	2 – 5 days
Others	+35° – +37°	1 – 2 days
XM-G Agar	+35°	20 ± 2 hours

5. How to read colonies

Colony means an aggregate of bacteria, which grows big enough, so that they can be observed by the naked eye.

Viable Bacterial Count

Medium:	Standard Agar (clear light yellow medium)
Colony reading:	Count all colonies grown on the surface.
Assessment:	Refer to the section of Interpretation of the results.

Coliform Group

Medium:	Desoxycholate Agar (clear reddish-orange medium)
Colony reading:	Coliform group develops pink/red colonies grown on the surface with diameter of1 – 3 mm. In case of heavy contamination,red color may not be so distinctive due to too many colonies on the surface.Usually many colonies grow on the surface without red-color, and one to several red colonies are observed among them if Coliforms are present.
Coliform group:	Whole colony is pink – red , or center of colony shows pink – red color.
Non Coliform group:	Clear, white or yellow colony is not Coliform. It is recommended to test again with X-GAL Agar. When only part of colonies shows pink color the determination is difficult.

Medium:	X-GAL Agar (clear light yellow medium)
Colony reading:	Coliform group develops blue/blue-green colonies grown on the surface with diameter of 1 – 3 mm. Usually many colonies grow on the surface without blue-color, and blue colonies are easily distinguished among them if Coliforms are present.
Coliform group	Whole colony is blue – blue green, or center of colony shows blue – blue green color.:
Non Coliform group:	Clear, white or yellow colony is not Coliform.

Medium:	XM-G Agar (clear light yellow medium)
Colony reading:	E.coli develops colony of blue (blue – blue purple) color on the surface.Coliform group develops colony of red (pink – red) color on the surface. Combined number of both colonies is the total number of Coliform group.
	As long as an incubation time is strictly observed, almost all other bacteria do not grow on this medium. Even if some of them grew, they develop white colonies and do not develop any colored colonies.
	Observe strictly the specified time (*35° C
	for 0 ± 2 hours) since over-time incubation may faster growth of microorganisms other than E. coli and Coliform group.
Assessment:	Since an existence of Coliform group indicates a possible contamination with faeces, no Coliform group should be detected as an ultimate goal of sanitation management. Soil may contain certain Coliforms, and vegetables should be well washed before cooking.

Vibrio parahaemolyticus

Medium:	TCBS Agar (clear greenish-blue medium)
Colony reading:	Vibrio parahaemolyticus develops green colonies grown on the surface with diameter of 1 – 3 mm. Vibrio alginolyticus develops yellow colonies on the surface, and changes whole medium to yellow color when a lot of V. alginolyticus grow. Though V. alginolyticus is not pathogenic, their existence, if too many, implies a risk of contamination by V. parahaemolyticus.
	Usually many yellow colonies grow on the surface, and one to several green colonies is observed among them when V. parahaemolyticus are present.
V. parahaemolyticus:	Whole colony is green.
Non V. parahaemolyticus:	Yellow or white colonies are not
V. parahaemolyticus.	Whole medium becomes yellow in case of many such colonies grow.
Assessment:	Contamination of V. parahaemolyticus comes mainly from fish products. Check thoroughly the process of disinfection for cooking tools with at most care for mutual contamination.

Staphylococcus aureus

Medium: TGSE Agar (clear light yellow medium)

Colony reading: Staphylococcus aureus develops black colony with an opaque ring around with diameter of 1 – 3 mm. Usually many black colonies without any opaque ring grow on the surface, and one to several black colonies with an opaque ring are observed among them when S. aureus are present.

Staphylococcus aureus:

Whole colony is black with opaque ring and milky surrounding (positive egg yolk reaction).

Non Staphylococcus aureus:

The colonies of black color are not Staphylococcus aureus unless they have an opaque ring around them. The colonies that have a black center and clear white ring around them are also not S. aureus. Also black colonies with negative egg yolk reaction are not S. aureus.

Assessment: Contamination of Staphylococcus aureus comes mainly from person (fingers, hairs, saliva etc.). Repeat the inspection of working dresses and washing procedures until no S. aureus are detected.

Salmonella

Medium:

Colony reading:

Salmonella: Non Salmonella:

Assessment:

MLCB Agar (clear purple medium)

Salmonella develops black colonies and/or center black colonies with diameter of 1-3 mm. Usually many purple colonies without black color grow on the surface and one to several black colonies are observed among them when Salmonella is present.

Whole colony is black and/or center is black.

Some clear purple colonies may turn to center black after long incubation, but they are not Salmonella.

Purple colonies grown on MLCB Agar are not Salmonella. Citrobacter may also develop black colony just like Salmonella. It is recommended that certain identification tests be performed simultaneously.

In general, only few numbers of Salmonella contaminate the foodstuffs, it is still recommended that the conventional method test would be regularly performed even though no Salmonella were detected by the Stamp method.

It is serious if Salmonella was detected by Food Stamp. It is recommended that the conventional method test should be performed concurrently with stamp method, as Salmonella contamination of foodstuff contains just few Salmonella bacteria.

Bacillus cereus

Medium:
Colony reading:
B. cereus: Non B. cereus:
Assessment:

Cereus Agar (opaque orange)
B. cereus develops white, slightly thick colonies with an irregular rim grown on the surface with diameter of around 5 mm. The colonies form an opaque zone around, and the color of medium around the colonies changes to red.
Usually small colonies grow without forming any opaque zone around them. Among them B. cereus develops white, slightly thick colonies with an irregular rim, and forms opaque zone around, while the color of medium around them changes to red.
White colonies with irregular rim. Medium around the colonies forms opaque zone, and turns medium red.
Bacteria other than B. cereus hardly grow on this agar. Small colonies with negative egg yolk reaction may grow, but they are not B. cereus.
Many B. cereus exist in natural world and all of them are not necessarily source of food poisoning. Nevertheless sanitary condition should be carefully reviewed once B. cereus are detected.

Fungi
Medium:
Medium:
Colony reading:

Sabouraud Agar (clear light yellow)
Potato Dextrose Agar with Chloramphenicol (clear light white)
Fungi develop characteristic fluffy colonies on the surface. All colonies should be counted for evaluation.

Sabouraud Agar, and Gram's stain.

Assessment

6. Interpretation of the results

Food Stamp has a medium surface of 10 cm2. After incubation the colonies grown on the surface should be counted. When there are many colonies grown on the surface, it may be recommended to use the squares imprinted on the back of the container. Each square of 4 squares in center has 1 cm2.

Following rules can be used to evaluate the degree of contamination based on the number of colonies detected, which applies for the test of:

■Standard Method Agar (SMA) for viable bacterial count

■Sabouraud Agar (SABO) for fungi

■Potato Dextrose Agar with Chloramphenicol (PDA) for food-borne fungi

0	Not contaminated	-	Well kept clean. Maintain these conditions.
10 – 29	Slightly contaminated	+	Contamination is detected. More hygiene controls are requested.
More than 100	Heavily contaminated	+++	

NB: These rules are based on J. Appl. Bact., 28, 221-223, 1965

Following is a criterion to evaluate the degree of contamination based on the number of colonies detected, which applies for the test of

■Desoxycholate Agar (DESO) for Coliform

■X-GAL Agar (XGAL) for Coliform

■TCBS Agar (TCBS) for Vibrio parahaemolyticus

■TGSE Agar (TGSE) for Staphylococcus aureus

■MLCB Agar (MLCB) for Salmonella

■Cereus Agar (CERE) for Bacillus cereus

■XM-G Agar for E. coli and Coliform

Number of colonies per plate	Evaluation		Comments
0	Not contaminated	-	Well kept clean. Maintain these conditions.
>1	Contaminated	+	Contamination is detected. More sever hygiene controls are requested

Notes:

The number of colonies on Food Stamp does not represent an absolute number of contaminating bacteria. The number of contaminating bacteria calculated does not necessarily agree with that of the wiping method. Food Stamp indicates merely the degree of cleanliness of a surface of specimen, and by no means indicates the whole pictures of the specimen out¬side and also inside inclusive. Limitation of Food Stamp should be always taken into account when food specimen is handled.

7. Storage, disposal and warnings Storage

Store at +4° – +10° C. Do not freeze.

Disposal of Food Stamp

1.Do not dispose the Food Stamp direct into garbage box after testing, as microorganisms grown on the Food Stamp are alive and may be pathogenic even for those that grow on Standard Method Agar.

2.Boil them well in boiling water before dispose, or destroy them by fire.

3.It is highly recommended to dispose them after autoclaving

Precautions for use

1.Read and observe the instruction described in the package insert.

2.Do not use the product after expiry date.

3.Carefully check the product before the test to ensure that there are no breakage, contamination, change in color, foreign body and drying.

4.Do not freeze the product to keep the quality.

5.Once a bag is opened, the remaining Food Stamps should be placed back into the bag, and stored in a dark and cool place to prevent them from drying.

8. Ordering Information

Standard Method Agar (SMA)	1 000 029 (100plates) 1 000 030 (30 plates)	Viable bacterial count	6 months after production
X-GAL Agar (XGAL)	1 000 041 (100 plates) 1 000 042 (30 plates)	Coliform group	5 months after production
TCBS Agar (TCBS)	1 000 031 (100plates) 1 000 032 (30 plates)	Vibrios	6 months after production
MLCB Agar (MLCB)	1 000 039 (100 plates) 1 000 040 (30 plates)	*Salmonella*	3 months after production
Sabouraud Agar (SABO)	1 000 027 (100 plates) 1 000 028 (30 plates)	Fungi	6 months after production

9. Contact information

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