Tryptone Glucose Extract Agar (Tryptone Glucose Yeast Extract Agar) M014

Intended use

Tryptone Glucose Yeast Extract Agar is recommended for enumeration of bacteria in water, air, milk and dairy products.

Composition**

Ingredients	Gms / Litre
Tryptone	5.000
Yeast extract	3.000
Glucose	1.000
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 24 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Tryptone Glucose Yeast Extract Agar was originally developed by Bowers and Hucker (3) which they called as Tryptone Glucose Skim Milk Agar. Later on it was modified to the present composition for the cultivation and enumeration of bacteria in air, water (2), milk and dairy products (8). Various authors have studied different aspects of this medium like study of thermophilic bacteria in milk (7), influence of incubation temperature (4) etc. It is used as a standard medium for the bacteriological plate count of milk and dairy products (1).

Tryptone, yeast extract provide nitrogenous and carbonaceous compounds, long chain amino acids, vitamin B complex and other essential growth nutrients. Glucose is the energy source. For the enumeration purposes, pour plate method is suggested. Medium must be quickly poured into Petri dishes if milk sample is to be tested, because the milk may get flocculated if the medium remains hot for longer period of time.

Type of specimen

Food and dairy samples; Water samples

Specimen Collection and Handling

For dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (8).
For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(2)
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. This medium is general purpose medium and may not support the growth of fastidious organisms.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium
Light yellow coloured clear to slightly opalescent gel forms in Petri plates.

Reaction
Reaction of 2.4% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH
6.80-7.20

Cultural Response
Cultural characteristics observed after an incubation at 35-37°C for 18- 48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
Bacillus subtilis subsp. spizizenni ATCC 6633 (00003*)	50-100	good-luxuriant	>=70%
# *Klebsiella aerogenes* ATCC 13048 (00175*)	50-100	good-luxuriant	>=70%
Escherichia coli ATCC 25922 (00013*)	50-100	good-luxuriant	>=70%
Enterococcus faecalis ATCC 29212 (00087*)	50-100	good-luxuriant	>=70%
Lactobacillus casei ATCC 9595	50-100	good-luxuriant	>=70%
Pseudomonas aeruginosa ATCC 27853 (00025*)	50-100	good-luxuriant	>=70%
Staphylococcus aureus subsp.aureus ATCC 25923 (00034*)	50-100	good-luxuriant	>=70%

Key : (*) Corresponding WDCM numbers.
(#) Formerly known as *Enterobacter aerogenes*

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition Seal the container tightly after use. Use before expiry date on the label.
Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Reference

1. Abele C. A., Am. J. Pub. Health, 1939, 29: 821.
2. Baird R.B., Eaton A.D., and Rice E.W., (Eds.), 2015, Standard Methods for the Examination of Water and Wastewater, 23rd ed., APHA, Washington, D.C.
3. Bowers and Hucker, 1935, Tech. Bull., 228, N.Y.State Agr. Expt. Station.
4. Dennis and Weiser, 1937, J.Dairy Science, 20 : 445.

5.Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.

6. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

7. Pickett, 1928, Tech. Bull. 147, N.Y. State Agr. Expt. Station.

8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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