S.T.A. Agar Base

M1299

Intended use

S.T.A. (Streptomycin Thallous Acetate) Agar is recommended for the isolation of *Brochothrix thermosphacta* from meat products.

Composition**

Ingredients	Gms / Litre
Peptone	20.000
Yeast extract	2.000
Dipotassium hydrogen phosphate	1.000
Magnesium sulphate, heptahydrate	1.000
Agar	13.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 18.24 grams (the equivalent weight of dehydrated powder) in 495 ml distilled water containing 7.5 grams glycerol. 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 and aseptically add rehydrated contents of 1 vial of S.T.A. Selective Supplement (FD127). Mix well and pour into sterile Petri plates.

Principle And Interpretation

Brochothrix thermosphacta is of concern as a food spoilage organism. *B. thermosphacta* is the predominant spoilage organism in chilled raw meats and processed meat products stored aerobically or under modified atmospheres. Spoilage is greatest in depleted aerobic conditions, often aided by increased carbon dioxide levels. Such conditions are common in vacuum packed products. As a facultative anaerobe, *B. thermosphacta* is well suited to grow under modified atmosphere environments. The successful spoilage of chilled products is mainly due to its psychrotrophic nature. It has a growth range of 0-30ºC, with an optimum of 20-25ºC. S.T.A. (Streptomycin Thallous Acetate) Agar Base was developed by Gardner (1) and is used for the isolation and quantitative enumeration of *B. thermosphacta* from meat and meat products (2, 3).

Peptone and yeast extract provide nitrogenous and carbonaceous compounds, long chain amino acids, vitamin B complex and other essential growth nutrients. Phosphate buffers the medium. The supplement contains streptomycin, cycloheximide, thallous acetate which makes the medium selective by inhibiting most of the organisms.

Prepare homogenate of meat product to be tested by blending or in a stomacher. Prepare decimal dilutions of it in saline peptone water and spread on the whole plate or inoculate by streaking. Incubate at 22°C for 48 hours. After incubation observe white or semi-transparent convex colonies with or without an irregular margin which may be seen as masses of woven threads. Occasional yeast and *Pseudomonas* colonies may grow. The latter may be confirmed by flooding oxidase reagent on the plate, blue colonies should be subtracted from the total (3).

Type of specimen

Food samples

Specimen Collection and Handling

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (4).
After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

In Vitro diagnostic Use only. 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 guidleines should be followed while handling clincal specimens. Saftey guidelines may be referred in individual safety data sheets

Limitations :

Due to variable nutritional requirements, some strains show poor growth on this medium.

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 1.3% Agar gel.

Colour and Clarity of prepared medium

Light straw coloured clear to slightly opalescent gel forms in Petri plates

Reaction

Reaction of 3.7% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH

6.80-7.20

Cultural Response

M1299: Cultural characteristics observed after an incubation at 20-25°C for 48 hours with added S.T.A. Supplement (FD127).

Organism	Inoculum (CFU)	Growth	Recovery
Brochothrix thermosphacta ATCC 11509	50-100	good-luxuriant	>=50 %
Escherichia coli ATCC 25922 (00013*)	>=10³	inhibited	0%
Enterococcus faecalis ATCC 29212 (00087*)	>=10³	inhibited	0%
Pseudomonas aeruginosa ATCC 27853 (00025*)	50 -100	none-poor	0 -10 %
Salmonella Enteritidis ATCC 13076 (00030*)	>=10³	inhibited	0%
Staphylococcus aureus ATCC 25923 (00034*)	>=10³	inhibited	0%
Canida albicans ATCC 10231 (00054*)	50 -100	none-poor	0 -10 %

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle inorder 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 clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (5,6).

Reference

1. Gardner G. A., 1966, J. Appl. Bacteriol., 29:455.
2. Gardner G. A., 1981, Psychrotrophic Microorganisms in Spoilage and Pathogenicity, Roberts and Others (Ed.), Academic Press, London.
3. Corry J. E. L., Curtis G. D. W. and Baird R. M., (Eds.), 1995, Culture Media for Food Microbiology, Vol. 34, Elsevier Science B.V.
4. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
5.Isenberg, H.D. Clinical Microbiology Procedures Handb0ook. 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.

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