S.T.A. Agar Base

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

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone</td>
<td>20.000</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>2.000</td>
</tr>
<tr>
<td>Dipotassium hydrogen phosphate</td>
<td>1.000</td>
</tr>
<tr>
<td>Magnesium sulphate, heptahydrate</td>
<td>1.000</td>
</tr>
<tr>
<td>Agar</td>
<td>13.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.0±0.2</td>
</tr>
</tbody>
</table>

**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 0-30°C, with an optimum of 20-25°C. 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 guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Please refer disclaimer Overleaf.
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).

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

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


Disclaimer:

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