

## Technical Information

### Staphylococcus Agar No 110 with Azide

#### Product Code: DM 1156

**Application:** Staphylococcus Agar No.110 is used as a selective medium for the isolation and testing of pathogenic Staphylococci.

#### Composition\*\*

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	2.500
Gelatin	30.000
Lactose	2.000
D-Mannitol	10.000
Sodium chloride	75.000
Dipotassium phosphate	5.000
Sodium azide	0.100
Agar	15.000
Final pH ( at 25°C)	7.0±0.2

\*\*Formula adjusted, standardized to suit performance parameters

#### Principle & Interpretation

Staphylococcus Agar No. 110 is devised by Chapman <sup>(1-3)</sup> for selective isolation and enumeration of *Staphylococci* from clinical as well as nonclinical specimens. Staphylococcus Agar No. 110 with azide is used for determination of coagulase positive *Staphylococci* in meat pies even in the presence of large number of *Bacillus* species <sup>(4)</sup>. This medium is also recommended by APHA <sup>(5)</sup>. The addition of blood in the medium enables to study haemolytic reaction <sup>(6)</sup> and egg yolk enables to study lecithinase production by *Staphylococcus aureus* <sup>(7)</sup>. This medium is selective due to high salt concentration and differential also on the basis of ability of organism to ferment mannitol, produce pigment and gelatin liquefaction.

This medium is very nutritive as it contains Casein enzymic hydrolysate and yeast extract which provide essential growth factors like vitamins, nitrogen, carbon compounds, sulphur and trace nutrients etc. to the organisms. High concentration of sodium chloride inhibits the growth of many bacterial species except Staphylococci. Sodium azide inhibits the growth of gram-negative organisms.

Mannitol fermentation can be visualized as yellow colouration by addition of a few drops of bromo thymol blue to the areas of the plates from where colonies have been removed. Gelatin liquefaction can be seen when the plates are flooded with a saturated aqueous solution of ammonium sulphate. *Enterococcus faecalis* may grow on this medium as small colonies with little mannitol fermentation <sup>(8)</sup>.

#### Methodology

Suspend 149.6 grams of powder media in 1000 ml of warm distilled water. Mix thoroughly. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Resuspend the precipitate by gentle agitation to avoid bubbles and pour the plates while the medium is hot. Alternatively, cool the medium to 45 - 50°C and add blood or egg yolk if desired.

Caution: Sodium azide has a tendency to form explosive metal azides with plumbing materials. It is advisable to use enough water to flush off the disposables.

## Quality Control

### Physical Appearance

Cream to yellow homogeneous free flowing powder

### Gelling

Firm, comparable with 1.5% Agar gel and 3.0% gelatin gel

### Colour and Clarity of prepared medium

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

### Reaction

Reaction of 14.96% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH range 6.80-7.20

### Cultural Response/Characteristics

DM 1156: Cultural characteristics observed after an incubation at 35-37°C for 48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Mannitol fermentation (on addition of BTB)	Pigment Production	Gelatinase production (flooding plate with standard aqueous solution of ammonium sulphate)
<i>Staphylococcus aureus</i> ATCC 25923	50-100	good-luxuriant	>=50%	positive reaction	positive	positive reaction
<i>Staphylococcus epidermidis</i> ATCC 12228	50-100	good-luxuriant	>=50%	variable reaction	positive	positive reaction
<i>Enterococcus faecalis</i> ATCC 29212	50-100	none-poor	<=10%	slight reaction	negative	variable reaction
<i>Escherichia coli</i> ATCC 25922	>=10 <sup>3</sup>	inhibited	0%			

## Storage and Shelf Life

**Dried media:** Store below 30°C in tightly closed container and use before expiry date as mentioned on the label.

**Prepared Media:** 2-8<sup>o</sup> in sealable plastic bags for 2-5 days.

## Further Reading

1. Chapman G.H., 1946, J. Bact., 5 1:409.
2. Chapman G.H., 1948, Food Res., 13:100.
3. Chapman G.H., 1952, J. Bact., 63:147.
4. Smucker S.A. and Appleman M.D., 1964, Appl. Microbiol., 12(4):355.
5. Speck M. (Ed.), 1984, Compendium of Methods for the Microbiological Examination of Foods, 2nd ed., APHA, Washington, D.C.
6. Shaffer J. C. and McDade J. J., 1962, Arch. Environ. Health, 5:547.
7. Carter C.H., 1960, J. Bact., 79:753.
8. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.

## Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is a true and accurate.
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
- Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing of diagnostic reagents extra.
- Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.
- Do not use the products if it fails to meet specifications for identity and performance parameters.