Dehydrated Culture Media
Bases / Media Supplements

Technical Information

Chapman Stone Agar

Product Code: DM 1215

Application: - Chapman Stone Agar is recommended for the selective isolation of Staphylococci causing food poisoning.

Composition**

Ingredients	Gms / Litre
Casein enzymic hydrolysate	10.000
Yeast extract	2.500
Gelatin	30.000
D-Mannitol	10.000
Sodium chloride	55.000
Ammonium sulphate	75.000
Dipotassium phosphate	5.000
Agar	15.000
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Staphylococcus aureus is one of the commonest pathogens isolated from clinical specimens. Curently S. aureus is the most common cause of nosocomial infections [1]. Treatment of infection due to S. aureus has become more problematic with the development of multiple drug resistant strains. Therefore more easily and reliably, selective media have been developed in recent past for identification of S. aureus from contaminated samples.

Chapman Stone Agar is a selective media used for the isolation of food poisoning staphylococci from synthetic creams, custards and high-salted food.. Which are mostly contaminated with S. aureus.

Chapman Stone Agar is prepared according to the modification of Staphylococcus Medium 110 described by Chapman[1,2] in which sodium chloride concentration is reduced to 5.5% and ammonium sulfate is included in the formulation. The inclusion of ammonium sulfate in the medium allows the direct observation of gelatin hydrolysis, High salt content differential pigmentation due to mannitol fermentation and the presence or absence of gelatin liquefaction mekes the media from selective for the isolation of S. aureus causing food posioning out breaks [3].

Casein enzymic hydrolysate, yeast extract provide nitrogen, carbon, sulphur, vitamin B and trace elements. Sodium chloride acts as a selective agent, which inhibits most of the bacterial species. Mannitol is the fermentable carbohydrate and its fermentation can be detected by adding a few drops of bromocresol purple resulting in production of yellow colour. Gelatin hydrolysis is observed as clear zones around colonies. Due to the presence of ammonium sulphate in the medium itself there is no need to flood the plate with ammonium sulphate solution for detection of gelatin liquefaction by the isolates, which is known as Stones method [3]. Dipotassium phosphate provides buffering capability. Material under test is inoculated on the surface and incubated at 30°C for 48 hours to produce separated colonies. After incubation, cream to golden yellow colonies surrounded by clear zones are presumptively identified as S. aureus . White or non-pigmented colonies, with or without a clear zone, are presumptively identified as S. epidermidis. Coagulase activity should be performed to confirm the findings.

Enterococci and/or Group D streptococci may exhibit growth on the medium and show slight mannitol fermentation. The colonies, however, are tiny and can easily be differentiated from staphylococci by gram stain and the catalase test [4].

Methodology

Suspend 202.5 grams of powder media in 100 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 10 minutes. Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance
Cream to yellow coarse 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, opalescent gel forms in Petri plates

Reaction
Reaction of 20.25% w/v aqueous solution at 25°C. pH : 7.0±0.2

pH range 6.80-7.20

Cultural Response/ characteristices

DM 1215: Cultural characteristics observed after an incubation at 25 - 30°C for 18-24 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Mannitol fermentation	Gelatinase production
Escherichia coli ATCC 25922	>=10^3	inhibited	0%		
Staphylococcus aureus ATCC 25923	50-100	luxuriant	>=50%	Positive reaction, production of yellow colour on addition of Bromo cresol purple	Positive reaction, clearing or halo
Staphylococcus epidermidis ATCC 12228	50-100	luxuriant	>=50%	Negative reaction, production of yellow colour on addition of Bromo cresol purple	Positive reaction, clearing or halo

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° in sealable plastic bags for 2-5 days.

Further Reading

1. Chapman G. H., 1949, J. Bacteriol., 58:823
2. Chapman G. H., 1948, Food Res., 13:100.
3. Stone, 1935, Proc. Soc. Exp. Biol. N.Y., 33:185.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification -Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore

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