Chapman Stone Agar

M215

Intended Use:

Recommended for selective isolation of Staphylococci causing food poisoning.

Composition**

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

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 20.25 grams in 100 ml purified / distilled water. Heat to boiling 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.

Principle And Interpretation

Staphylococcus aureus is one of the pathogens most frequently isolated from clinical specimens. In fact, *S. aureus* is currently the most common cause of nosocomial infections (1). Treatment of infection caused by *S. aureus* has become more problematic since the development of multiple drug resistant strains. To identify *S. aureus* from contaminated samples more easily and reliably, selective media have been developed.

Chapman Stone Agar is a selective media used for the isolation of food poisoning staphylococci. Foods commonly contaminated with *S. aureus* included synthetic creams, custards and high-salted food.

Chapman Stone Agar is prepared according to the modification of Staphylococcus Medium 110 described by Chapman (1). It is similar to Staphylococcus Medium 110, previously described by Chapman (2), except that the sodium chloride concentration is reduced to 5.5% and additionally ammonium sulfate is included in the formulation. The main modification consists the inclusion of ammonium sulfate in the medium that allows the direct observation of gelatin hydrolysis, instead of adding reagents to the plate medium. Chapman Stone Medium is especially recommended for suspected food poisoning studies involving *Staphylococcus* (3). It is selective, due to the relatively high salt content, and is differential due to pigmentation, mannitol fermentation and the presence or absence of gelatin liquefaction.

Tryptone, 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).

Reference

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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