Technical Information

Coagulase Mannitol MiVeg Broth Base

Product Code : VM1277

Application:- Coagulase Mannitol MiVeg Broth Base with plasma is used for the simultaneous detection of mannitol fermentation and coagulase production during differentiation of *Staphylococci*.

Composition

Ingredients	Gms / Litre
MiVeg infusion	10.0
MiVeg peptone	10.0
D-Mannitol	10.0
Sodium chloride	5.0
Phenol red	0.025
Final pH (at 25°C)	7.4±0.2

** Formula adjusted, standardized to suit performance parameters.

Principle & Interpretation

Coagulase Mannitol MiVeg Broth is prepared by using vegetable peptone in place of animal based peptones which makes the medium BSE/TSE risk free. This medium is used for the isolation and differentiation of *Staphylococcus aureus* from other species when isolated from clinical specimens from other species on the basis of coagulase production and mannitol fermentation. Chapman for the first time introduced medium for selective isolation and differentiation of *Staphylococci* (1). Tellurite-glycine media were designed by Zebovitz et al (2) and Marwin (3) for selectively isolating coagulase positive *Staphylococcal* species. Present medium is modified and based on Esber and Faulconer formulation (4).

This medium is the modification of Coagulase Mannitol Broth Base using vegetable peptones and serving the same purpose. The mutant or old cultures of *Staphylococcus aureus* may produce coagulase weakly. They should be freshly subcultured and rechecked. *Escherichia coli* ferments mannitol and may be weakly coagulase positive. Production of coagulase depends upon the presence of a fermentable sugar like mannitol in this case. It is also dependent on the presence of a protein factor in the MiVeg infusion and blood plasma (4). Mannitol fermentation drops the pH of the medium with change in colour of medium from red-orange to yellow due to phenol red. Plasma coagulates due to the growth of coagulase positive organisms which results in an opaque broth formation. *Staphylococcus epidermidis* is coagulase negative and mannitol nonfermenting species, therefore it does not make any changes in the colour of the medium. Coagulase negative species may ferment mannitol and produce a yellow colour but clearity of media will not be changed.

Methodology

Suspend 35 grams of powder media in 1000 ml distilled water. Mix thoroughly. Heat if necessary to dissolve the medium completely. Dispense as desired and sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Just before used aseptically add 12-15% sterile, pretested normal plasma. Mix well.

Quality Control

Physical Appearance

Light pink coloured, homogeneous, free flowing powder.

Colour and Clarity of prepared medium

Red coloured, clear to slightly opalescent solution.

Reaction

Reaction of 3.5 % w/v aqueous solution pH: 7.4 ±0.2 at 25°C

pH range

7.2-7.6

Cultural Response/Characteristics

Cultural characteristics observed after an incubation at 35-37°C for 18-48 hours with added 12-15% sterile pretested normal plasma.

Organisms (ATCC)	Inoculum (CFU)	Growth	Mannitol fermentation	Coagulase activity
Staphylococcus aureus (25923)	10^2-10^3	luxuriant	+(yellow)	+(opaque zone)
Staphylococcus epidermidis (12228)	10^2-10^3	luxuriant	-(red)	-

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: 2-8^0 in sealable plastic bags for 2-5 days.

Further Reading

1. Chapman,1946, J. Bact., 51:409.
2. Zebovitz, Evans and Nivens, 1955, J. Bact., 70:686.
3. Marwin, 1958, Am. J. Clin. Pathol., 30:470.
4. Esber and Faulconer, 1959, Am. J. Clin. Pathol., 32:192.

Disclaimer :

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