Technical Information

Stuart Transport Medium w/o Methylene Blue with Charcoal

Product Code: DM 2735

Application: - Stuart Transport Medium w/o Methylene Blue with Charcoal is used for the preservation and transportation of *Neisseria* species and other fastidious organisms from the clinic to laboratory.

Composition**

Ingredients	Gms / Litre
Sodium thioglycollate	0.900
Sodium glycerophosphate	10.000
Calcium chloride	0.100
Charcoal	10.000
Agar	3.000
Final pH (at 25°C)	7.4±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Stuart Transport medium w/o Methylene Blue with Charcoal were originally designed by Stuart while studying *Gonococci* (1). Stuart et al (2) later on modified the Stuart Medium for the transportation of gonococcal specimens for culturing. Ringertz included thioglycollate in the Stuart Medium and omitted charcoal (3). This medium may be used for the transportation of many fastidious organisms including the anaerobes by maintaining organism's viability without significant multiplication (4). Crooks and Stuart (5) suggested the addition of Polymyxin B sulphate which facilitates the recovery of *Neisseria gonorrhoeae*.

The medium is chemically defined, semisolid, non-nutrient. It prevents microbial proliferation. Composition of the medium ensures that microorganisms present are able to survive for a sufficiently long period of time. The medium provides adequate degree of anaerobiosis. Prepared sterile medium undergoes a slight degree of oxidation at the upper periphery of the medium. Calcium chloride along with sodium glycerophosphate act as good buffering agent and also maintains osmotic equilibrium in the medium.

Charcoal helps to neutralize materials, which are toxic to sensitive pathogens like *Neisseria gonorrhoeae*. Calcium and magnesium, potassium, sodium salts help the survival of gonococcal cells and also control permeability of bacterial cells.

Methodology

Suspend 24 grams of dehydrated powder media in 1000 ml double distilled water. Mix thoroughly & heat to boiling to dissolve the medium completely. Dispense into tubes with screw caps to give a depth of approximately 7 cm. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes and after sterilization, tighten the caps. Cool in an upright position. Turn the tubes several times while agar is solidifying, to maintain uniform suspension of charcoal particles. Care should be taken that the water is free from chlorine.

Quality Control

Appearance

Black coloured homogeneous free flowing powder.

Gelling

Semisolid, comparable with 0.3% Agar gel.

Colour and Clarity

Black coloured slightly opalescent butt with upper 10% or less portion blue on standing.

Reaction

Reaction of 2.4% w/v aqueous solutions at 25°C. pH : 7.4±0.2

pH Range

7.20-7.60

Cultural Response

DM 2735: Cultural characteristics observed after an incubation at 35 - 37°C for 72 hours when subcultured from Stuart Transport Medium.

Organism	Growth	Subculture Medium
Haemophilus influenzae ATCC 49247	good	Chocolate Agar(incubated in CO_2 atmosphere)
Neisseria gonorrhoeae ATCC 19424	good	Chocolate Agar(incubated in CO_2 atmosphere)
Streptococcus pneumoniae ATCC 6303	good	Tryptone Soya Agar with 5% sheep blood

Storage and Shelf Life

Dried Media: Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.
Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

1. Stuart, 1946, Glasgow Med. J. 27:131.
2. Stuart, Toshach and Patsula, 1954, Can. J. Public Health, 45:73.
3. Ringertz, 1960, Acta Pathol. Microbiol. Scand., 48:105.
4. MacFaddin J., 1985, Media for Isolation-Cultivation-Identification Maintenance of Medical Bacteria, Vol. I, Williams and Wilkins, Baltimore.
5. Crookes E.M.L. and Stuart R.D., 1959, J. Path. Bact., 78:283.

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