Technical Information

Hoyle Medium Base

Product Code: DM 1015

Application: Hoyle Medium Base is a highly selective medium used for the isolation and differentiation of *Corynebacterium diphtheriae* types.

Composition**

Ingredients	Gms / Litre
Peptic digest of animal tissue	10.000
Beef extract	10.000
Sodium chloride	5.000
Agar	15.000
Final pH (at 25°C)	7.8±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

The most common disease caused by *Corynebacterium diphtheriae* is diphtheria. It is an acute communicable disease manifested by both local infection of the upper respiratory tract and the systemic effects of the toxin, which mostly effect the heart and peripheral nerves [1]. Hoyle Medium Base, devised by Hoyle [2], is the modification of the original formulation of Neill, for the isolation and differentiation of *C. diphtheriae.* This medium is not inhibitory to some mitis types of Corynebacterium.

Peptic digest of animal tissue and beef extract supply essential growth nutrients. Potassium tellurite is a selective agent, which inhibits most of the normal flora of the upper respiratory tract except *Corynebacterium.* Hoyles Medium is a highly selective medium and should be used in conjunction with a non-selective media such as Loeffler Serum Medium (DM1537) and Blood Agar Base (DM1089) with 10% horse blood [3].

C.diphtheriae are usually present in small numbers permitting the formation of well isolated colonies. So, inoculation is done by directly rubbing the swab over the entire surface of the medium. Incubation should be carried out till 72 hours if the results are negative. To study the morphology, gentian violet staining is done. To demonstrate the characteristic morphology and staining reactions of *C. diphtheriae* by Neissers or Alberts method, it is advisable to use colonies from Loeffler Medium. The toxigenicity of *C. diphtheriae* strains can be determined by Eleks [4] method.

Methodology

Suspend 40 grams of powder media in 940 ml distilled water. Shake well & heat to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 55°C and aseptically add 50 ml of laked blood and 10 ml of 3.5% Potassium Tellurite Solution (MS2047). Mix well and pour into sterile Petri plates.

Quality Control

Physical Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Basal Medium: Amber coloured, clear to slightly opalescent gel After Addition of blood & Tellurite : Brownish red coloured opaque gel forms in Petri plates

Reaction

Reaction of 4.0% w/v aqueous solution at 25°C. pH : 7.8±0.2

pH Range: 7.60-8.00

Cultural Response/Characteristics

DM1015: Cultural characteristics observed with added 50 ml of laked blood and tellurite solution, after an incubation at 35-37°C for 18-24 hours

Organism	Inoculum (CFU)	Growth	Recovery	Colony characteristics
Bacillus subtilis ATCC 6633	>=10^3	inhibited	0%	
C. diphtheriae type intermedius 14779	50-100	Good-luxuriant	>=50%	Grey colonies with darker centers
Corynebacterium diphtheriae type mitis	50-100	Good-luxuriant	>=50%	Grey colonies with shining surface
Escherichia coli ATCC 25922	>=10^3	Inhibited	0%	
Enterococcus faecalis ATCC 29212	50-100	Good-luxuriant	>=50%	Black minute colonies

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 .Murray P. R., Baron J. H., Pfaller M. A., Jorgensen J. H. and Yolken R. H., (Ed.), 2003, Manual of Clinical Microbiology, 8th Ed., American Society for Microbiology, Washington, D.C.

2. Hoyle I., 1941, Lancet., 1:175.

3. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

4. Elek S. D., 1948, Brit. Med. A1:493.

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