



Dehydrated Culture Media
Bases / Media Supplements

Technical Information

IUT Medium Base

Product Code: DM 1247

Application: - IUT Medium Base with added glycerol and egg yolk emulsion is used for cultivation of *Mycobacterium tuberculosis* .

Composition**

Ingredients	Gms / Litre
L-Asparagine	3.600
Monopotassium phosphate	2.460
Magnesium sulphate	0.240
Magnesium citrate	0.600
Malachite green	0.400
Final pH (at 25°C)	7.0±0.2

**Formula adjusted, standardized to suit performance parameters

Principle & Interpretation

Mycobacterium genus are aerobic, non-motile, gram-positive and characteristically acid-alcohol fast bacilli belongs to the family *Mycobacteriaceae* grows at temperatures ranged from 30-41°C but optimally at 35-37°C. Although primary isolation may be obtained on a variety of media, yet only Lowenstein Jensen Medium with glycerol i.e. IUT Medium with glycerol has been recommended. It is also commonly known as Lowenstein-Jensen Glycerol Medium ⁽²⁾ and differs from Lowenstein-Jensen Medium since it does not contain potato flour/starch. This medium has been reported to provide higher proportion of tests positives ⁽³⁾ and the is recommended by the International Union against Tuberculosis for the Diagnosis of Mycobacterial Infections ⁽¹⁾. The medium supports rapid and luxuriant growth of primary cultures. The addition of glycerol to the medium improves the growth of *M.tuberculosis*.

Malachite green has an inhibitory effect on the growth of organisms other than Mycobacteria and provides a colour contrast that facilitates the recognition of colonies, which, especially when small, would be difficult to see without the dye. The medium is recommended for the isolation of human type of tubercle bacillus, whose growth is enhanced by glycerol. Colonial morphology allows the differentiation of the human and bovine types of bacillus, but the bovine bacilli may be inhibited by glycerol and so may fail to grow on this medium. L-Asparagine serves as a source of nitrogen for the cultivation of tubercle bacilli. Inorganic salts provide necessary ions for the metabolism of Mycobacteria.

Methodology

Suspend 7.3 grams of powder media in 600 ml distilled water containing 12 ml glycerol. Shake well & heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 50°C and aseptically add 1 litre of sterile whole egg emulsion, prepared under aseptic conditions. Mix well avoiding the formation of air bubbles and dispense in screw-capped containers. Sterilize by inspissation at 85°C for 1 hour.

Quality Control

Physical Appearance

Greenish blue to peacock blue homogeneous free flowing powder

Colour and Clarity of prepared medium

Basal medium yields bluish green colour, when basal medium (7.3gm in 600ml distilled water) is mixed with 1000ml whole egg emulsion and inspissated, it coagulates to yield pale blue coloured opaque smooth slants





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Reaction

Reaction of aqueous solution (7.3gm in 600ml distilled water) at 25°C. pH : 7.0±0.2

pH Range 6.80-7.20

Cultural Response/Characteristics

DM 1247: Cultural characteristics observed in presence of 5-10% Carbon dioxide (CO₂) with added whole egg emulsion, after an incubation at 35-37°C for 2-4 weeks.

Organism

Mycobacterium smegmatis ATCC 14468

Growth

luxuriant

Mycobacterium tuberculosis H37RV (25618)

luxuriant

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: 2-8⁰ in sealable plastic bags for 2-5 days.

Further Reading

1. International Tuberculosis Year Book, 1955, Bulletin of the International Union against Tuberculosis, pg. 89. 2. Cruickshank R., Duguid J. P., Marmion, B. P., Swain, R. H. A., (Eds.), 1975, Mackie and McCartney Practical Medical Microbiology, Vol. 2, 12 th Edition, Edinburgh, Churchill Livingstone. 3. La Placa, Bubani and Raspi., 1956, Riv. Patol. Clin. Tuberc., 29:133.

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