



IUT Medium Base

M247

Intended Use:

Recommended for cultivation of *Mycobacterium tuberculosis*.

Composition**

Ingredients	Gms / Litre
L-Asparagine	3.600
Potassium dihydrogen 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

Directions

Suspend 7.3 grams in 600 ml purified / distilled water containing 12 ml glycerol. Heat if necessary to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°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.

Principle And Interpretation

Mycobacterium genus belongs to the family *Mycobacteriaceae*. They are aerobic, non-motile, gram-positive and characteristically acid-alcohol fast bacilli. It grows at temperatures from 30-41°C, optimally at 35-37°C. Although primary isolation may be successful on a variety of media, only Lowenstein Jensen Medium with glycerol i.e. IUT Medium with glycerol has been recommended. This medium is recommended by the International Union against Tuberculosis for the Diagnosis of Mycobacterial Infections (2). It is also commonly known as Lowenstein-Jensen Glycerol Medium (1). It 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 (5). 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.

Type of specimen

Clinical samples : Sputum

Specimen Collection and Handling

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (3,4). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions

In Vitro diagnostic use only. Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling clinical specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations

1. Proper aerobic conditions and increased CO₂ tension if not provided during incubation, may lead to erroneous result.

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

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

Reaction

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

pH

6.80-7.20

Cultural Response

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

Growth

Mycobacterium smegmatis luxuriant

ATCC 14468

Mycobacterium tuberculosis luxuriant

H37RV (25618)

Storage and Shelf Life

Store below 10-30°C in a tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with clinical sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

Reference

1. 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.
2. International Tuberculosis Year Book, 1955, Bulletin of the International Union against Tuberculosis, pg. 89.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. La Placa, Bubani and Raspi., 1956, Riv. Patol. Clin. Tuberc., 29:133.

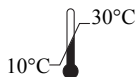
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In vitro diagnostic medical device



CE Marking



Storage temperature



Do not use if package is damaged



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