

TECHNICAL DATA SHEET

Lowenstein Jensen Medium Base (L.J. Medium)

Principle

Lowenstein-Jensen medium base, is used for isolation of acid-fast microorganisms like *Mycobacterium* species. The base medium is composed of L-asparagine, monopotassium phosphate, magnesium sulphate, magnesium citrate, potato starch soluble and malachite green. L-asparagine is source of nitrogen. Monopotassium phosphate and magnesium sulfate enhance organism growth and act as buffers. Potato starch is source of carbon and absorb toxic metabolites, malachite green is used to prevent the growth of most contaminants and encourages the growth of *Mycobacteria*.

For better result the media can be fortified with egg suspension, glycerol, sodium chloride, penicillin and nalidixic acid alone or in combination, Egg suspension, which provides fatty acids and protein required for the metabolism of mycobacteria. Glycerol serves as carbon source. Sodium chloride helps to differentiate rapid-growing mycobacteria from slow growers. Penicillin and nalidixic acid are added to decrease contamination.

Use: For the isolation and cultivation of *Mycobacterium* species.

Contents*

Ingredients	Gram/Liter
L-Asparagine	3.60
Monopotassium Phosphate	2.40
Magnesium Sulphate	0.24
Magnesium Citrate	0.60
Potato Starch Soluble	30.00
Malachite Green	0.40

*** Formula adjusted for optimum performance and parameters**

OXFORD LAB FINE CHEM LLP

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Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com



Directions: Dissolve 37.3 gm of the medium in 600 ml of distilled water containing 12 ml of glycerol. Heat the medium to dissolve completely, autoclave at 121°C for 15 minutes. Prepare 1000 ml of a uniform suspension of fresh eggs under aseptic conditions. Swirl gently to avoid introducing air into the suspension. Aseptically mix the 1000 ml of egg suspension with 600 ml of the sterile Lowenstein-Jensen Medium base cooled to 50 – 60°C, avoiding air bubbles. Dispense the finished medium into sterile screw-cap test tubes. Place the tubes in a slanted position and heat at 85°C for 45 minutes to coagulate the medium.

Specimens' types analyzed

Pharmaceutical samples, clinical and non-clinical samples etc.

Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	A fine, free flowing, hygroscopic dried powder. blue to greenish blue powder
Color and clarity of ready medium (after addition of egg suspension)	The mixture of sterile basal medium and whole egg emulsion, coagulates to yield pale bluish green colored, opaque smooth slant
Growth Promotion properties	Best at ≤ 100 CFU at 32-37 °C for 18-72 h
Indicative properties	Optimum at ≤ 100 CFU at 32-37 °C for 18-48 h
Negative control	Performed using sterile distilled water

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Different Microbial Response: Cultural characteristics observed after incubation in 5% CO₂ at 33-37°C for 2-4 weeks. Inoculum 50-100 CFU.

Organism	ATCC	Growth	Colony characteristic
<i>Mycobacterium avium</i>	25291	Luxuriant	Smooth, non-pigmented colonies
<i>Mycobacterium gordonae</i>	14470	Luxuriant	Smooth, yellow-orange colonies

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

1. Atlas, R. M. (2005). Handbook of media for environmental microbiology. CRC press.
2. Difco Manual (1998). 11th Edition. Difco Laboratories., Division of Becton Dickinson and Company, Sparks, Maryland, USA.

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