Lowenstein-Jensen Medium Base Catalog : HB9285-5K

Lowenstein-Jensen (LJ) Medium base is used for the isolation and cultivation of mycobacteria and as bases for selective, differential and enriched media for mycobacteria.

Approximate Formula:

Ingredients	gm/liter
L-Asparagine	3.6
Monopotassium phosphate	2.4
Magnesium sulphate	0.24
Magnesium citrate	0.6
Potato starch, soluble	30.0
Malachite green	0.4

*Adjusted and/or supplemented as required to meet performance criteria.

Directions:

Suspend 37.24 grams in 600 mL distilled water containing 12 mL glycerol (for bovine bacteria or other glycerophobic organisms' additions of glycerol are not desirable). Heat if necessary to dissolve the medium completely. Sterilize in an autoclave at 121℃ (15 lbs.) for 15 minutes. Meanwhile prepare 1000 mL of whole egg emulsion collected aseptically. Aseptically add and mix 1000 mL egg emulsion to sterile medium base. Mix gently to obtain uniform mixture. Distribute 8mL in sterile screw capped tubes. Arrange tubes in a slanted position. Coagulate and inspissate the medium in an inspissator water bath or autoclave at 85°C for 45 minutes.

Principle and Interpretation:

Lowenstein-*Jensen* Medium Base is a relatively simple formulation that requires supplementation in order to support the growth of mycobacteria. Glycerol and egg mixture are added prior to the inspissation process. These substances provide fatty acids and protein required for the metabolism of mycobacteria. The coagulation of the egg albumin during sterilization provides a solid medium for inoculation purposes. Malachite green selectively inhibits contaminants.

Low-level concentrations of penicillin (50.0 units/mL) and nalidixic acid (35.0 mg/mL) are included in the LJ Medium, to inhibit gram-positive as well as some gram-negative bacterial contaminants. The addition of RNA (0.05 mg/mL) enhances the recovery of tubercle bacilli. In the iron uptake test, most rapid growers take up the iron salt in the medium (ferric ammonium citrate, 25mg/mL), producing rusty brown colonies and a tan discoloration in the surrounding medium. Slow-growing species and most strains of M. chelonae do not take up the iron in the medium. Pyruvic acid (2.5 mg/mL) enhances the growth of tubercle bacilli.

The ability to tolerate 5% sodium chloride is a characteristic of certain strains of mycobacteria (e.g., M. fortuitum and M. chelonae subsp. abscessus).Catalase is an intracellular, soluble enzyme capable of splitting hydrogen peroxide into water and oxygen. The oxygen bubbles into the reaction mixture creating a column of bubbles.

With a column height breakpoint of 45 mm, the mycobacteria can be divided into groups: those producing less than 45 mm (M. tuberculosis, M. marinum, M. avium complex and M. gastri); and those producing more than 45 mm (M. kansasii, M. simiae, most scotochromogens, the nonphotochromogenic saprophytes and the rapid growers)

Appearance:

Dehydrated medium is a free-flowing blue-green powder.
The prepared medium is a kind of pale to blue-green gel.

Precautions:

This medium is for laboratory use only.
Dried medium which is past shelf life, caking or color variation cannot be used.

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Storage conditions and Shelf life:

Lowenstein-*Jensen* Medium Base must be stored tightly capped in the original container at 5-30°C. The dehydrated medium has a shelf life of 5 years from date of manufacturing. Prepared medium may be stored, out of direct light at 2-8°C.

Quality control:

Prepare the culture medium as per label directions. Inoculate and incubate at 35±1℃ for 7-21 days.

Microorganism	Strains Number	Inocolum(CFU)	Growth
Mycobacterium abscessus	ATCC 19977	100-300	luxuriant
Mycobacterium phlei	ATCC 37	100-300	luxuriant
Mycobacterium tuberculosis	ATCC 27294	100-300	luxuriant

Reference：

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