



L.mono Selective Agar Base (LM Selective Agar Base)

M1994

Intended Use:

Recommended for presumptive enumeration of *Listeria* sp. Using membrane filtration technique.

Composition**

Ingredients	Gms / Litre
Tryptone	10.000
Yeast extract	1.000
Sodium pyruvate	10.000
HL extract #	10.000
Sodium carbonate	1.000
Magnesium sulfate	7.400
Dextrose (Glucose)	1.000
Lithium chloride	5.000
Acriflavin	0.015
Agar	15.000
Final pH (at 25°C)	7.4±0.1

**Formula adjusted, standardized to suit performance parameters

- Equivalent to Liver extract

Directions

Suspend 60.42 grams in 950 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45- 50°C. Aseptically add 50ml of concentrated Egg yolk emulsion (FD045) and rehydrated contents of 1 vial of LM Selective Supplement (FD330). Mix well and pour into sterile Petri plates.

Warning : Lithium chloride is harmful. Avoid bodily contact and inhalation of vapours. On contact with skin, wash with plenty of water immediately.

Principle And Interpretation

The genus *Listeria* constitutes *Listeria monocytogenes*, *Listeria ivanovii*, *Listeria seeligeri*, *Listeria welshimerii*, *Listeria innocua*, *Listeria grayi*, *Listeria murrayi* and *Listeria denitrificans*. Among these, *L. monocytogenes* and *L. ivanovii* are associated with diseases in humans. The pathogenicity of *L. ivanovii* is uncertain. *L. monocytogenes* is found in a wide variety of habitats, including the normal microflora of healthy ruminants, gastrointestinal tract of asymptomatic humans and environmental sources (2).

LM Selective Agar Base is recommended for the direct presumptive enumeration of *Listeria* species especially *Listeria monocytogenes* from meat, poultry, dairy products and environmental samples using membrane filtration technique (1).

Tryptone and HL extract supplies nitrogenous compounds, amino acids and long chain peptides. Yeast extract supplies vitamins especially vitamin B required by the organisms. Dextrose(Glucose) is the carbohydrate and energy sources. Sodium chloride maintains the osmotic equilibrium of the medium. Sodium pyruvate serves as a energy source and helps in the recovery of microorganisms.Sodium carbonate buffers the medium. Lithium chloride and Acriflavin are selective agents. Polymyxin B Sulphate, Nalidixic acid and Moxalactum sodium helps in inhibiting the accompanying microflora. Triphenyltetrazolium chloride is reduced by *Listeria* species resulting in pink to dark pink-orange coloured colonies.

Prepare the sample homogenate for the sample to be tested. Filter 1 ml of the homogenate through membrane filter. Place the membrane on plates of L.mono Selective Agar Base. Incubate the plates at 35-37°C for 18-48 hours. After incubation observe for pink to pink -red coloured colonies as presumptive *Listeria* species.

Type of specimen

Food and dairy samples; Environmental samples.

Specimen Collection and Handling

For food samples, follow appropriate techniques for sample collection and processing as per guidelines (2).

For environmental samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards. (2)

After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

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 specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. *Staphylococcus aureus* shows poor growth on the medium.
2. Further biochemical tests should be carried out for confirmation.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium

Basal medium : Yellow coloured clear to slightly opalescent gel.

After addition of Egg yolk emulsion : Yellow coloured opaque gel forms in Petri plates.

Reaction

Reaction of 6.04% w/v aqueous solution at 25°C. pH : 7.4±0.1

pH

7.30-7.50

Cultural Response

Cultural characteristics observed on membrane filter with added Egg Yolk emulsion (FD045) and LM Selective Supplement (FD330), after an incubation at 35-37°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Colony characteristics
Cultural Response				
<i>Escherichia coli</i> ATCC 25922	≥10 ⁴	inhibited	0%	
<i>Listeria monocytogenes</i> ATCC 19111	50-100	luxuriant	≥50%	pink to dark pink-red
<i>Listeria monocytogenes</i> ATCC 19112	50-100	luxuriant	≥50%	pink to dark pink-red
<i>Listeria monocytogenes</i> ATCC 19117	50-100	luxuriant	≥50%	pink to dark-pink-red
<i>Listeria monocytogenes</i> ATCC 19118	50-100	luxuriant	≥50%	pink to dark pink-red
<i>Staphylococcus aureus</i> ATCC 25923	50-100	none-poor	≤10%	pale to dark orange

Reference

- Entis, P. and I. Lerner. 2000. Twenty-four hour direct presumptive enumeration of *Listeria monocytogenes* in food and environmental samples using ISO-GRID method with LM-137 Agar. J. Food Prot. 63:354- 363
- Watkin J., Sleath K. P., J. Appl. Bacteriol., 50: 1-9, 1981.

Revision : 0 / 2015

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