Modified Listeria Oxford Agar Base

M1897

Intended use

Recommended for the selective isolation and cultivation of *Listeria* species from food samples, clinical samples etc.

Composition**

Ingredients	g/ L
Peptone special	23.000
Corn starch	1.000
Sodium chloride	5.000
Aesculin	1.000
Iron (III) Ammonium citrate	0.500
Lithium chloride	12.000
Agar	10.000
Final pH (at 25°C)	7.2±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 52.5 grams in 1000 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 and aseptically add the rehydrated contents of 1 vial of ColCef Selective Supplement (FD306). Mix well before pouring into sterile Petri plates.

Principle And Interpretation

Listeria monocytogenes is the only species of the genus *Listeria* that is important as a human pathogen. *Listeria seeligeri, Listeria welshimeri* and *Listeria ivanovii* have been related with animal diseases. In any case, all the species are pathogenic between the ovine and bovine cattle. Positive diagnosis of Listeriosis can be obtained only by the isolation and cultivation of the responsible bacteria from blood or CSF samples of the affected organisms.

Listeria Oxford Medium Base is based on the formulation described by Curtis et al (1) for isolation of *L.monocytogenes* from clinical and food specimens. Modified Listeria Oxford Medium Base is a modification of Listeria Oxford Medium wherein the concentration of lithium chloride in the medium is reduced to 12 grams per liter to allow sensitive *Listeria* species to grow in the medium (2). Ceftazidime and colistin sulphate is used as the selective agent instead of acriflavine, cyclohehimide, cefotetan and fosfomycin as in Listeria Oxford medium Base.

Peptone special serves as the source of essential nutrients to the organisms. Corn starch serves to neutralize the toxic metabolites formed. Lithium chloride and the antibiotics inhibit gram-negative bacteria and most gram-positive organisms. *L. monocytogenes* hydrolyzes esculin to esculetin and dextrose. Esculetin reacts with ferric ions and produces black zones around the colonies. Although the selectivity of the medium is enough to allow the isolation and differentiation by direct surface inoculation, a previous dilution of the inoculum is advisable or even more when the sample is highly polluted. Incubation is recommended at 30°C for better recovery of the organisms. The sample is enriched in an enrichment medium and then isolated on Modified Listeria Oxford Medium Base.

Type of specimen

Clinical samples - Blood and body fluid; Food and dairy samples; Water samples

Specimen Collection and Handling:

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (3,4).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (5,6,7).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards.(8)

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

Warning and Precautions :

In Vitro diagnostic Use. For professional 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.Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2.Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement.
3.Further biochemical tests must be carried out for confirmation.

Performance and Evaluation

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

Quality Control

Appearance

Light yellow to dark yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.0% Agar gel.

Colour and Clarity of prepared medium

Dark amber coloured clear to slightly opalescent gel with a blue cast forms in Petri plates

Reaction

Reaction of 5.25% w/v aqueous solution at 25°C. pH : 7.2±0.2

pH

7.00-7.40

Cultural Response

Cultural characteristics observed with added ColCef Selective Supplement (FD306)after an incubation at 30°C for 24-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery	Esculin Hydrolysis
Proteus mirabilis ATCC 25933	>=10^4	inhibited	0%	
Enterococcus faecalis ATCC 29212 (00087*)	>=10^4	inhibited	0%	
Listeria monocytogenes serovar 1 ATCC 19111 (00020*)	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria monocytogenes ATCC 19112	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria monocytogenes ATCC 19117	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria innocua ATCC 33090 (00017*)	>=10^4	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria grayi ATCC 19120	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria ivanovii subsp. ivanovii serovar 5 ATCC 19119 (00018*)	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony
Listeria seeligeri ATCC 35967	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony

Listeria welshimeri ATCC 43549	50-100	luxuriant	>=50%	positive reaction, blackening of medium around the colony

* Corresponding WDCM Numbers

Storage and Shelf Life

Store between 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

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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.
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8. Lipps WC, Braun-Howland EB, Baxter TE,eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.

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IVD ***In vitro* diagnostic medical device**

10°C – 30°C **Storage temperature**

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