**Modified Listeria Oxford Agar Base**

**Intended use**

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

**Composition**

**Ingredients**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peptone special</td>
<td>23.000</td>
</tr>
<tr>
<td>Corn starch</td>
<td>1.000</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>5.000</td>
</tr>
<tr>
<td>Aesculin</td>
<td>1.000</td>
</tr>
<tr>
<td>Iron (III) Ammonium citrate</td>
<td>0.500</td>
</tr>
<tr>
<td>Lithium chloride</td>
<td>12.000</td>
</tr>
<tr>
<td>Agar</td>
<td>10.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>7.2±0.2</td>
</tr>
</tbody>
</table>

**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 Modified Listeria Oxford 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 litre 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 ; Food and dairy samples ; Water samples

**Specimen Collection and Handling**

For clinical samples follow appropriate techniques for handling specimens as per established guidelines (5,6).

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (3,7,8).

For water samples, follow appropriate techniques for sample collection, processing as per guidelines and local standards(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:**
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 the expiry 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**
M1897: Cultural characteristics observed with added Modified Listeria Oxford selective Supplement(FD306)after an incubation at 30°C for 24-48 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Esculin Hydrolysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Proteus mirabilis ATCC 25933</em></td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td>0%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Enterococcus faecalis ATCC 29212 (00087</em>)*</td>
<td>&gt;=10³</td>
<td>inhibited</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td><em>Listeria monocytogenes serovar 1 ATCC 19111 (00020</em>)*</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td></td>
</tr>
<tr>
<td><em>Listeria monocytogenes ATCC 19112</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Listeria monocytogenes ATCC 19117</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Listeria innocua ATCC 33090 (00017</em>)*</td>
<td>&gt;=10³</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Listeria grayi ATCC 19120</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Listeria ivanovii subsp. ivanovii serovar 5 ATCC 19119 (00018</em>)*</td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
<tr>
<td><em>Listeria seeligeri ATCC 35967</em></td>
<td>50-100</td>
<td>luxuriant</td>
<td>&gt;=50%</td>
<td>positive reaction, blackening of medium around the colony</td>
</tr>
</tbody>
</table>

Please refer disclaimer Overleaf.
**Listeria welshimeri ATCC 43549**

- 50-100 luxuriant
- $\geq 50\%$ 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 inorder 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. Use before expiry date on the label.

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 (5,6).

**Reference**


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