**Listeria Enrichment Broth (7398)**

**Intended Use**
Listeria Enrichment Broth is used for selective enrichment of *Listeria* spp. in a laboratory setting. Listeria Enrichment Broth is not intended for use in the diagnosis of disease or other conditions in humans.

**Product Summary and Explanation**
Listeria Enrichment Broth is based on the formula developed by Lovett et al.\(^1\) in which Tryptic Soy Broth is supplemented with Yeast Extract for optimum growth. *Listeria* spp. grow over a pH range of 5.0 - 9.6, and survive in food products with pH levels outside these parameters.\(^2\) *Listeria* spp. are microaerophilic, Gram-positive, asporogenous, non-encapsulated, non-branching, short, motile rods. Motility is pronounced at 20°C. Identification of *Listeria* is based on successful isolation of the organism, biochemical characterization, and serological confirmation.

**Principles of the Procedure**
Enzymatic Digest of Casein, Enzymatic Digest of Soybean Meal, and Yeast Extract provides nitrogen, vitamins, and minerals in Listeria Enrichment Broth. Dextrose is a carbohydrate source. Sodium Chloride maintains osmotic balance of the medium. Dipotassium Phosphate is a buffering agent. Nalidixic Acid inhibits growth of Gram-negative organisms. Acriflavin inhibits Gram-positive bacteria. Cycloheximide is used to inhibit growth of saprophytic fungi.

**Formula / Liter**
- Enzymatic Digest of Casein ........................................ 17 g
- Enzymatic Digest of Soybean Meal .............................. 3 g
- Yeast Extract ......................................................... 6 g
- Dextrose .............................................................. 2.5 g
- Sodium Chloride ..................................................... 5 g
- Dipotassium Phosphate ............................................. 2.5 g
- Cyclohexamide ....................................................... 0.05 g
- Acriflavin ............................................................. 0.015 g
- Nalidixic Acid ....................................................... 0.04 g

Final pH:  7.3 ± 0.2 at 25°C
Formula may be adjusted and/or supplemented as required to meet performance specifications.

**Precautions**
1. For Laboratory Use Only.
2. TOXIC. Toxic if swallowed, inhaled, or absorbed through the skin. Irritating to eyes, respiratory system, and skin. Possible risk of harm to unborn child. Possible carcinogen.

**Directions**
1. Dissolve 36.1 g of the medium in one liter of purified water.
2. Mix thoroughly.
3. Autoclave at 121°C for 15 minutes.

**Quality Control Specifications**
**Dehydrated Appearance:** Powder is homogeneous, free flowing, and light beige.

**Prepared Appearance:** Prepared medium is clear to slightly hazy, gold to orange-amber with green opalescent top, and may have light precipitate.

**Expected Cultural Response:** Cultural response in Listeria Enrichment Broth incubated aerobically at 30± 2°C and examined for growth after 18 - 48 hours.
<table>
<thead>
<tr>
<th>Microorganism</th>
<th>Approx. Inoculum (CFU)</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Escherichia coli</em> ATCC® 25922</td>
<td>1000</td>
<td>Inhibited</td>
</tr>
<tr>
<td><em>Listeria monocytogenes</em> ATCC® 7644</td>
<td>10 - 300</td>
<td>Good growth</td>
</tr>
<tr>
<td><em>Listeria monocytogenes</em> ATCC® 15313</td>
<td>10 - 300</td>
<td>Good growth</td>
</tr>
<tr>
<td><em>Staphylococcus aureus</em> ATCC® 25923</td>
<td>10 - 300</td>
<td>Suppressed at 24 hours; none to fair growth at 48 hours</td>
</tr>
</tbody>
</table>

The organisms listed are the minimum that should be used for quality control testing.

**Test Procedure**

Use recommended laboratory procedures for isolating *Listeria* in food samples.

**Results**

Refer to appropriate references and procedures for results.

**Storage**

Store the sealed bottle containing the dehydrated medium at 2 - 30°C. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

**Expiration**

Refer to expiration date stamped on container. The dehydrated medium should be discarded if not free flowing, or if the appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

**Limitations of the Procedure**

1. Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.
2. *Listeria* spp., other than *Listeria monocytogenes*, can grow on isolation media. An identification of *Listeria monocytogenes* must be confirmed through biochemical and serological testing.

**Packaging**

<table>
<thead>
<tr>
<th>Listeria Enrichment Broth</th>
<th>Code No.</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7398A</td>
<td>500 g</td>
</tr>
<tr>
<td></td>
<td>7398B</td>
<td>2 kg</td>
</tr>
<tr>
<td></td>
<td>7398C</td>
<td>10 kg</td>
</tr>
</tbody>
</table>

**References**


**Technical Information**

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.