Bile Esulin Agar

Bile Esulin Agar is recommended for the isolation and identification of *Yersinia enterocolitica* from food and animal feeding stuffs. The composition and performance criteria of this medium are as per the specifications laid down in ISO 10273:1994.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
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</thead>
<tbody>
<tr>
<td>Peptic digest of animal tissue</td>
<td>5.000</td>
</tr>
<tr>
<td>Beef extract</td>
<td>3.000</td>
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<tr>
<td>Esulin</td>
<td>1.000</td>
</tr>
<tr>
<td>Bile salts</td>
<td>40.000</td>
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<tr>
<td>Ferric citrate</td>
<td>0.500</td>
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<tr>
<td>Agar</td>
<td>15.000</td>
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<tr>
<td><strong>Final pH (at 25°C)</strong></td>
<td>6.6±0.2</td>
</tr>
</tbody>
</table>

**Formula adjusted, standardized to suit performance parameters**

**Directions**

Suspend 64.5 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense into tubes or flasks. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Allow the tubed medium to solidify in a slanted position with a butt of 2.5cm deep or pour into sterile Petri plates.

**Principle And Interpretation**

*Yersinia enterocolitica* is the causative agent of Yersiniosis, a severe form of human gastroenteritis. Bile Esulin Agar (M972I) is recommended for the isolation and identification of *Y. enterocolitica*, as per ISO 10273-1994 (1). Bile Esulin Agar containing 4% bile salts was formulated by Swan (2) and modified by Facklam and Moody (3). Bile Esulin Agar is also recommended by APHA for identification of Group D Streptococci (4). Organisms hydrolyze esculin to esculetin and dextrose. Esculetin further reacts with ferric citrate to form a dark brown or black complex (5).

Peptic digest of animal tissue and beef extract serve as source of carbon, nitrogen and essential growth factors. Bile salts inhibit the accompanying gram-positive bacteria.

The sample under test is enriched in either PSB Broth (M941) or ITC Broth (M1220). After enrichment transfer a loopful (or 0.5ml) of culture onto Yersinia Selective Agar Base (M834). Incubate at 30°C for 24 hours. Typical red centered colonies are further tested for biochemicals. For studying fermentation of esculin, a loopful is streaked on Bile Esulin Agar (M972I). A black halo around the colonies indicates a positive reaction.

**Quality Control**

**Appearance**

Light yellow to brownish yellow homogeneous free flowing powder

**Gelling**

Firm, comparable with 1.5% Agar gel

**Colour and Clarity of prepared medium**

Amber coloured, clear to slightly opalescent gel with bluish tinge forms in Petri plates or in tubes as slants.

**Reaction**

Reaction of 6.45% w/v aqueous solution at 25°C. pH : 6.6±0.2

**pH**

6.40-6.80

**Cultural Response**

M972I: Cultural characteristics observed after an incubation at 35-37°C for 18 - 24 hours.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
<th>Recovery</th>
<th>Esulin Hydrolysis</th>
</tr>
</thead>
<tbody>
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</table>

Please refer disclaimer Overleaf.
**Enterococcus faecalis ATCC 50-100**
29212

good-luxuriant  >=50%

positive reaction, blackening of medium

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**Escherichia coli ATCC 25922**

50-100
good  40-50%
negative reaction

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**Enterococcus faecium ATCC 50-100**
27273
good-luxuriant  >=50%

positive reaction, blackening of medium around the colony

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**Yersinia enterocolitica ATCC 27729**

50-100
good-luxuriant  >=50%

positive reaction, blackening of medium

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### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2-8°C. Use before expiry date on the label.

### Reference


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**Disclaimer:**

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