Acid Broth

Acid Broth is recommended for the cultivation of acid tolerant microorganisms from canned foods.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invert sugar</td>
<td>10.000</td>
</tr>
<tr>
<td>Peptic digest of animal tissue</td>
<td>10.000</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>7.500</td>
</tr>
<tr>
<td><strong>Final pH (at 25°C)</strong></td>
<td>4.0±0.2</td>
</tr>
</tbody>
</table>

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

**Directions**

Suspend 27.5 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Distribute into tubes or flasks. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

**Principle And Interpretation**

Acid Broth is a very good medium for the recovery of minimal contamination of canned acid food (1) and is formulated as per APHA (1) for the selective cultivation of acid tolerant microorganisms from canned foods. Bacteria such as *Bacillus coagulans*, *Lactobacillus*, *Leuconostoc* and yeasts etc. are capable of causing spoilage in acid product concentrates such as fruit pastes, tomato paste. Some Pediococci and Streptococci, which are aciduric and responsible for canned food spoilage, can also be cultivated in the Acid Broth.

Acid Broth contains an invert sugar, which is a mixture of 50% glucose and 50% fructose obtained by the hydrolysis of sucrose. It is included in the medium to prevent loss of water from the medium and also because the acid tolerant bacteria utilize it. Peptic digest of animal tissue and yeast extract provide the nitrogenous nutrients including amino acids to the microorganisms.

Approximately 100 grams of product to be tested is inoculated aseptically into 300 ml of sterile medium in a 500 ml screw-cap flask. The broth is intended primarily as a mass culture medium for detecting minimal contaminants in aseptically packed acid products. Further, minimum of three flasks per sample should be inoculated. Retain extra aseptic sample from each container and incubate it with the flasks. For the microscopic comparisons, retain an additional sample at the refrigeration temperature. It can also be used if the test has to be repeated. Examine the samples visually for fermentation or biological surface growth daily, which are incubated at 30°C for 5 days. Incubate the extra-retained samples for 10 days. Examine all the samples microscopically, at the end of incubation period for evidence of bacterial or yeast contamination. pH is the most important factor which not only determines the degree of thermal processing of canned foods but also an important parameter of this medium for isolating acid tolerant bacteria from canned foods (1).

**Quality Control**

**Appearance**
Light yellow to beige homogeneous free flowing powder

**Colour and Clarity of prepared medium**
Light amber coloured clear solution, without any precipitate.

**Reaction**
Reaction of 2.75% w/v aqueous solution at 25°C. pH : 4.0±0.2

**pH**
3.80-4.20

**Cultural Response**
M1208: Cultural characteristics observed after an incubation at 30°C for up to 5 days.

<table>
<thead>
<tr>
<th>Organism</th>
<th>Inoculum (CFU)</th>
<th>Growth</th>
</tr>
</thead>
</table>

Please refer disclaimer Overleaf.
Cultural Response

- **Bacillus coagulans ATCC 8038**
  - 50-100
  - good - luxuriant

- **Lactobacillus acidophilus ATCC 4356**
  - 50-100
  - good - luxuriant

- **Leuconostoc mesenteroides ATCC 12291**
  - 50-100
  - good - luxuriant

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