Orange Serum Broth

Orange Serum Broth is used for cultivation and enumeration of microorganisms associated with the spoilage of citrus products, cultivation of Lactobacilli, other aciduric organisms and pathogenic fungi.

**Composition**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Gms / Litre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casein enzymic hydrolysate</td>
<td>10.000</td>
</tr>
<tr>
<td>Yeast extract</td>
<td>3.000</td>
</tr>
<tr>
<td>Dextrose</td>
<td>4.000</td>
</tr>
<tr>
<td>Dipotassium phosphate</td>
<td>2.500</td>
</tr>
<tr>
<td>Orange serum (Solids from 200 ml)</td>
<td>9.000</td>
</tr>
<tr>
<td>Final pH (at 25°C)</td>
<td>5.5±0.2</td>
</tr>
</tbody>
</table>

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

**Directions**

Suspend 28.5 grams in 1000 ml distilled water. Heat if necessary to dissolve the medium completely. Dispense as desired. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. AVOID OVERHEATING.

**Principle And Interpretation**

Fruit juices are generally acidic, with pH values ranging from approximately 2.4 for lemon juice, to 4.2 for tomato juice. The low pH of these foods is selective for yeast, moulds and a few groups of aciduric bacteria. The microorganisms of greatest significance in citrus juices are the lactic acid bacteria, primarily species of *Lactobacillus* and *Leuconostoc*, yeast and moulds. Microbial spoilage of these citrus fruit juices is most commonly due to aciduric microbes such as lactic acid bacteria and yeast. The lactic acid bacteria include *Lactobacillus fermentum*, *L. plantarum*, and *Leuconostoc mesenteroides*.

Orange Serum Broth is recommended by APHA (1) for cultivation of Lactobacilli and other aciduric organisms. Murdock and Brokaw (5) employed Orange Serum Broth for studies of sanitary control of the processing of citrus concentrates. Hays and Reister (4) recommended Orange Serum Broth, pH 5.5 which is accepted as a control medium by the citrus industry since at this reaction, the medium is most productive for the growth of spoilage organisms. Dehydrated agar medium containing orange serum was reported by Stevens (2). Orange Serum Broth is used to initiate growth of saprophytic, pathogenic fungi in small samples (3).

Casein enzymic hydrolysate provides essential nitrogenous nutrients while dextrose serves as the fermentable carbohydrate and energy source. Yeast extract supplies B-complex vitamins, which stimulate growth. Orange serum provides an optimal environment for the recovery of acid tolerant microorganisms from citrus fruit products.

**Quality Control**

**Appearance**

Cream to yellow homogeneous free flowing powder

**Colour and Clarity of prepared medium**

Medium to dark amber coloured clear solution in tubes

**Reaction**

Reaction of 2.85% w/v aqueous solution at 25°C. pH : 5.5±0.2

**pH**

5.30-5.70

**Cultural Response**

Cultural characteristics observed after an incubation at 35-37°C for 40-48 hours.

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

*Please refer disclaimer Overleaf.*
Cultural Response

*Aspergillus brasiliensis ATCC 16404
50-100
good-luxuriant

Lactobacillus acidophilus ATCC 4356
50-100
good-luxuriant

Lactobacillus fermentum ATCC 9338
50-100
good-luxuriant

Leuconostoc mesenteroides ATCC 12291
50-100
good-luxuriant

Saccharomyces cerevisiae ATCC 9763
50-100
good-luxuriant

Candida albicans ATCC 10231
50-100
good-luxuriant

Key: *- Formerly known as Aspergillus niger

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

Disclaimer:
User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal or therapeutic use but for laboratory, diagnostic, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.