



## Orange Serum Broth

M934

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\*\*

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

\*\*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 are 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 .

#### Cultural Response

Organism	Inoculum (CFU)	Growth
----------	-------------------	--------

**Cultural Response**

<i>*Aspergillus brasiliensis</i> ATCC 16404	50-100	good-luxuriant
<i>Lactobacillus acidophilus</i> ATCC 4356	50-100	good-luxuriant
<i>Lactobacillus fermentum</i> ATCC 9338	50-100	good-luxuriant
<i>Leuconostoc mesenteroides</i> ATCC 12291	50-100	good-luxuriant
<i>Saccharomyces cerevisiae</i> ATCC 9763	50-100	good-luxuriant
<i>Candida albicans</i> 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**

1. Downes F. P. and Ito K., (Ed.), 2001, Compendium of Methods for the Microbiological Examination of Foods, 4th Ed., American Public Health Association, Washington, D.C.
2. Murdock P. I., Folinazzo J. F., and Troy V. S., 1951, Food Technol., 6:181.
3. Stevens J. W., 1954, Food Technol., 8:88.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore
5. Murdock P. I. and Brokaw C. H., 1958, Food Technol., 12:573.

Revision : 2 / 2015

**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.