



# PRODUCT SPECIFICATION SHEET

## Orange Serum Broth (DM1818)

### Intended Use

Orange Serum Broth (DM1818) is recommended for cultivation of microorganisms associated with spoilage of citrus products, cultivation of *Lactobacilli*, other aciduric organisms and pathogenic fungi.

### Product Summary and Explanation

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 fruit juices makes citrus fruit products susceptible to spoilage by yeasts, molds and the bacteria *Lactobacillus* and *Leuconostoc*.<sup>(1)</sup> 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<sup>(1)</sup> for cultivation of Lactobacilli and other aciduric organisms. Orange Serum Broth was employed by Murdock and Brokaw<sup>(2)</sup> for studies of sanitary control of the processing of citrus concentrates. Hays and Reister<sup>(3)</sup> 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.<sup>(4)</sup> Orange Serum Broth is used to initiate growth of saprophytic, pathogenic fungi in small samples.<sup>(5)</sup>

### Principles of the Procedure

Orange Serum Broth contains casein enzymic hydrolysate which 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 acid environment favourable for the recovery of acid tolerant microorganisms from citrus fruit products.

### Formula / Liter

Ingredients	Gms / Liter
Casein enzymic hydrolysate	10.00
Yeast extract	3.00
Dextrose	4.00
Dipotassium phosphate	2.50
Orange serum (Solids from 200 ml)	9.00
Final pH: 5.5 ± 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. IRRITANT. Irritating to eyes, respiratory system, and skin.

### Directions

1. Suspend 28.5 grams of the medium in one liter of distilled water.
2. Heat, if necessary, to dissolve the medium completely.
3. Dispense as desired.
4. Autoclave at 121°C, 15 psi pressure, for 15 minutes / validated cycle.
5. AVOID OVERHEATING.

### Quality Control Specifications

Dehydrated Appearance	Cream to yellow homogeneous free flowing powder
Prepared Medium	Medium to dark amber coloured clear solution in tubes
Reaction of 2.85% solution	pH 5.5 ± 0.2 at 25°C
Gel Strength	Not Applicable





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

Sr. No.	Organisms	Results to be achieved	
		Inoculum (CFU)	Growth
1.	<i>Aspergillus brasiliensis</i> ATCC 16404	50-100	good-luxuriant
2.	<i>Lactobacillus acidophilus</i> ATCC 4356	50-100	good-luxuriant
3.	<i>Lactobacillus fermentum</i> ATCC 9338	50-100	good-luxuriant
4.	<i>Leuconostoc mesenteroides</i> ATCC 12291	50-100	good-luxuriant
5.	<i>Saccharomyces cerevisiae</i> ATCC 9763	50-100	good-luxuriant
6.	<i>Candida albicans</i> ATCC 10231	50-100	good-luxuriant

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

### Test Procedure

Refer to appropriate references for standard test procedures.

### Results

Refer to appropriate references and standard test procedures for interpretation of results.

### Storage

Store the sealed bottle containing the dehydrated medium at 10 - 30°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

### Expiration

Refer to the expiration date stamped on the 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. For identification, organisms must be in pure culture. Morphological, biochemical and/or serological tests should be performed for final identification.
2. Consult appropriate texts for detailed information and recommended procedures.

### Packaging

**Product Name : Orange Serum Broth**

**Product Code : DM1818**

**Available Pack sizes : 500gm**

### References

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. and Brokaw C. H., 1958, Food Technol., 12:573.
3. Hays. 1951. Proc. Fla. State Hort. Soc. 54:135.
4. Stevens J. W., 1954, Food Technol., 8:88.
5. MacFaddin J. F., 1985, Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

### Further Information

For further information please contact your local MICROMASTER Representative.





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