

Technical Information

Orange Serum Broth

Product Code: DM 1934

Application: - Orange Serum Broth is recommended 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

Principle & 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 supplies essential nitrogenous nutrients while dextrose acts 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.

Methodology

Suspend 28.5 grams of dehydrated powder media in 1000 ml distilled water. Mix thoroughly & 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.

Quality Control

Appearance

Cream to yellow homogeneous free flowing powder

Colour and Clarity

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



Dehydrated Culture Media
Bases / Media Supplements

pH Range

5.30-5.70

Cultural Response

DM1934: Cultural characteristics observed after an incubation at 35-37°C for 40-48 hours.

Organism	Inoculum (CFU)	Growth
* <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

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

Prepared Media: 2-8° in sealable plastic bags for 2-5 days.

Further Reading

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.

Disclaimer :

- User must ensure suitability of the product(s) in their application prior to use.
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