

Orange Serum Agar (NCM0054)

Intended Use

Orange Serum Agar is used for the cultivation of aciduric microorganisms associated with spoilage of products and is not intended for use in the diagnosis of disease or other conditions in humans.

Description

The low pH of fruit juices makes citrus fruit products susceptible to spoilage by yeasts, molds, and the bacteria *Lactobacillus* and *Leuconostoc*. In the 1950's, Hays investigated spoilage in frozen concentrated orange juice. He found that an agar medium containing orange serum (juice) was superior to Lindegren Agar in isolating the microorganisms responsible for spoilage causing a buttermilk off-odor. Murdock, Folinazzo, and Troy found Orange Serum Agar, pH 5.4 to be a suitable medium for growing *Leuconostoc*, *Lactobacillus*, and yeasts. Orange Serum Agar is recommended for examining fruit beverages.

Typical Formulation

Orange Serum	200 mL
Yeast Extract	3.0 g/L
Enzymatic Digest of Casein	10 g/L
Dextrose	4.0 g/L
Potassium Phosphate	2.5 g/L
Agar	17.0 g/L

Final pH: 5.5 ± 0.2 at 25°C

Formula may be adjusted and/or supplemented as required to meet performance specifications.

Precaution

Refer to SDS

Preparation

1. Suspend 45.5 g of the medium in one liter of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. Autoclave at 121°C for 15 minutes.

Test Procedure

1. For plate count method, prepare serial 10-fold dilutions of the test material.
2. Add 1 mL of test sample to a petri dish.
3. Add 18 – 20 mL of sterile, molten agar (cooled to 45-50°C) and swirl plate gently to mix well.
4. Allow to solidify before incubating at 30°C for 48 hours. Plates can be held up to 5 days.

Quality Control Specifications

Dehydrated Appearance: Powder is homogeneous, free flowing, and tan to beige.

Prepared Appearance: Prepared medium is trace to slightly hazy, and light to medium yellow-beige.

Expected Cultural Response: Cultural response on Orange Serum Agar following incubation for 2-7 days at appropriate temperatures.

Technical Specification Sheet



Microorganism	Approx. Inoculum (CFU)	Expected Results
<i>Aspergillus niger</i> ATCC® 16404	Point Inoculation	Good growth
<i>Lactobacillus casei</i> ATCC® 393	10 – 300	Good growth
<i>Lactobacillus fermentum</i> ATCC® 9338	10 – 300	Good growth
<i>Lactobacillus planatarum</i> ATCC® 8014	10 – 300	Good growth
<i>Leuconostoc mesenteroides</i> ATCC® 10830	10 – 300	Good growth
<i>Saccharomyces cerevisiae</i> ATCC® 9763	10 – 300	Good growth

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

Results

Record colony morphology for each type of growth.

Expiration

Refer to 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.

Limitation of the Procedure

Due to nutritional variation, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage

Store dehydrated culture media at 2 – 30°C away from direct sunlight. Once opened and recapped, place the container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References

1. Vanderzant, C., and D. F. Splittstoesser (eds.). 2015. Compendium of methods for the microbiological examination of foods, 4th ed. American Public Health Association, Washington, D.C
2. Hays, G. L. 1951. The isolation, cultivation and identification of organisms which have caused spoilage in frozen concentrated orange juice. Proc. Fla. State Hortic. Soc. 54:135-137.
3. Murdock, D. I., J. F. Folinazzo, and V. S. Troy. 1952. Evaluation of plating media for citrus concentrates. Food Technol. 6:181-185.
4. MacFaddin, J. F. 1985. Media for isolation-cultivation-identification-maintenance of medical bacteria, vol. 1. Williams & Wilkins, Baltimore, MD.

