ORANGE SERUM AGAR (7587)

Intended Use

Orange Serum Agar is used for the cultivation of aciduric microorganisms associated with spoilage of products.

Product Summary and Explanation

The low pH of fruit juices makes citrus fruit products susceptible to spoilage by yeasts, molds, and the bacteria *Lactobacillus* and *Leuconostoc*.[1] 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.[2] Murdock, Folinazzo, and Troy[3] 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.[1]

Principles of the Procedure

Enzymatic Digest of Casein provides carbon and nitrogen sources for general growth requirements. Orange Serum provides the acid environment favorable to recovering acid-tolerant microorganisms. Yeast Extract supplies B-complex vitamins that stimulate growth. Dextrose is the fermentable carbohydrate. Potassium Phosphate is a buffering agent. Agar is the solidifying agent.

Formula / Liter

Orange Serum.....200 mL
Yeast Extract..... 3 g
Enzymatic Digest of Casein ..... 10 g
Dextrose..... 4 g
Potassium Phosphate ..... 2.5 g
Agar ..... 17 g
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.
2. IRRITANT. Irritating to eyes, respiratory system, and skin.

Directions

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.

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 at 30-35°C after 2-7 days of incubation.

Microorganism	Approx. Inoculum (CFU)	Expected Resulsts
Aspergillus niger ATCC® 16404	Point Inoculation	Good growth
Lactobacillus casei ATCC® 393	10 - 300	Good growth
Lactobacillus fermentum ATCC® 9338	10 - 300	Good growth
Lactobacillus plantarum ATCC® 8014	10 - 300	Good growth
Saccharomyces cerevisiae ATCC® 9763	10 - 300	Good growth

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

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.

Results

Record colony morphology for each type of growth.

Storage

Store sealed bottle containing the dehydrated medium at 2 - 8°C. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

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.

Packaging

Orange Serum Agar	**Code No.**	**7587A**	**500 g**
		7587B	**2 kg**
		7587C	**10 kg**

References

1. **Vanderzant, C., and D. F. Splittstoesser (eds.).** 1992. Compendium of methods for the microbiological examination of foods, 3rd 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.

Technical Information

Contact Acumedia Manufacturers, Inc. for Technical Service or questions involving dehydrated culture media preparation or performance at (517)372-9200 or fax us at (517)372-2006.

NEOGEN CORPORATION
620 Lesher Place, Lansing MI 48912
517/372-9200 • 800/783-3212 • fax: 800/875-8563
neogen-info@neogen.com • www.neogen.com