

YM-11 AGAR (6904)

Intended Use

YM-11 Agar is used for the selective enumeration of yeasts and molds using the ISO-GRID[®] and/or NEO-GRID[™] Membrane Filtration System.

Product Summary and Explanation

YM-11 Agar was formulated to stimulate rapid growth and colonial development of a wide range of fungi. Peptone sources were selected to maximize growth in this medium. YM-11 Agar is buffered at a neutral pH, and selective agents were included to inhibit bacterial growth.

YM-11 Agar is recommended for the rapid enumeration of yeasts and molds in all foods using the ISO-GRID and/or NEO-GRID Membrane Filtration System method.^{1,2}

Principles of the Procedure

Enzymatic Digest of Soybean Meal and Enzymatic Digest of Casein are the nitrogen and vitamin sources in YM-11 Agar. Dextrose is the fermentable carbohydrate. Sodium Chloride maintains the osmotic balance. Potassium Phosphate, Dibasic is a buffering agent. Trypan Blue is a nontoxic dye, staining yeasts and molds colonies blue to enhance their visibility.³ Chloramphenicol and Chlortetracycline-HCl are selective agents used to inhibit bacterial growth. Agar is the solidifying agent.

Formula / Liter

Enzymatic Digest of Soybean Meal	20 g
Enzymatic Digest of Casein	20 g
Dextrose.....	5 g
Sodium Chloride	5 g
Potassium Phosphate, Dibasic	2.4 g
Trypan Blue.....	0.03 g
Chloramphenicol.....	0.1 g
Agar	15 g

Final pH: 7.0 ± 0.2 at 25°C

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

Presterilized Antibiotic Supplement, Chlortetracycline-HCl, 20 mL (6912E)

To reconstitute, aseptically add 100 mL sterile distilled water to a bottle containing 0.5 g pre-sterilized powder and shake to dissolve. Store Chlortetracycline solution at 2 - 8°C for up to 60 days.

Precautions

1. For Laboratory Use.
2. TOXIC. Toxic by inhalation and if swallowed. Irritating to eyes, respiratory system, and skin. May cause cancer.

Directions

1. Suspend 67.5 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.
4. Cool to 45 - 50°C. Aseptically add 20 mL of a 0.5 A% (wt/v) aqueous solution of Chlortetracycline HCl. Mix thoroughly.
5. Check pH and adjust, if necessary to obtain a final pH of 7.0 ± 0.2 in the solidified medium.
6. Dispense 18 - 20 mL volumes into Petri dishes, cool until plates are solidified.

Quality Control Specifications

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

Prepared Appearance: Prepared medium is clear to trace hazy and dark blue-gray.

Expected Cultural Response: Cultural response on YM-11 Agar, supplemented with Chlortetracycline-HCl, using the ISO-GRID and/or NEO-GRID Membrane Filtration System method. Inoculated YM-11 Agar was incubated at the appropriate atmosphere and temperature and examined for growth up to 52 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results	Expected Reactions
<i>Aspergillus niger</i> ATCC® 16404	10 - 300	Good to excellent growth	Blue colonies
<i>Saccharomyces cerevisiae</i> ATCC® 9763	10 - 300	Good to excellent growth	Blue colonies
<i>Bacillus subtilis</i> QA-057	1000	Inhibited	---
<i>Escherichia coli</i> ATCC® 25922	1000	Inhibited	---

Test Procedure

For sample details refer to the ISO-GRID Methods Manual and NEO-GRID Protocols.

1. Prepare a sample homogenate.
2. Filter 1 mL of the homogenate through the pre-filter and ISO-GRID membrane filter.
3. Place the membrane filter on the surface of a pre-dried YM-11 Agar plate.
4. Incubate the inoculated YM-11 Agar in an inverted position in a dry air incubator at $25 \pm 1^\circ\text{C}$ for 50 ± 2 hours.
5. Examine membrane filter for colonies.

Results

Yeast colonies appear blue. Molds appear blue-grey. If no blue or blue-grey colonies are present, the test for yeast and molds is complete. Results are reported as less than 10 yeasts and mold per gram.

If positive colonies are present, count the number of positive squares (those containing one or more colonies). The number of positive squares are converted to the corresponding most probably number (MPN) using one of the methods described in the ISO-GRID Methods Manual, and the yeast and mold MPN per gram is calculated.

Storage

Store sealed bottle containing the dehydrated medium at $2 - 30^\circ\text{C}$. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light.

Expiration

Refer to 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. Some strains may be encountered that grow poorly or fail to grow on this medium.
2. Antimicrobial agents incorporated into a medium to inhibit bacteria may also inhibit certain pathogenic fungi. Non-selective fungal media should be used concurrently with selective media when isolating fungi.

Packaging

YM-11 Agar **Code No. 6904A 500 g**

References

1. **Entis, P.** 1996. Two-day hydrophobic grid membrane filter method for yeast and mold enumeration in food using YM-11 Agar: collaborative study. J. AOAC Int. **79**:1069-1082.
2. **Entis, P., and I. Lerner.** 1996. Two-day yeast and mold enumeration using the ISO-GRID membrane filter system in conjunction with YM-11 Agar. J. Food Prot. **59**:416-419.
3. **Lin, C.C.S., D. Y. C. Fung, and P. Entis.** 1984. Growth of yeast and mold on Trypan Blue Agar in conjunction with the ISO-GRID system. Can J. Microbiol. **30**:1405-1407.

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.