

Mycological Media

Mycological Agar • Mycophil™ Agar

Mycophil™ Agar with Low pH

Intended Use

Mycological media are used for the cultivation and maintenance of fungi, for the demonstration of chromogenesis and for obtaining yeast and mold counts.

Summary and Explanation

Many different culture media have been developed for the growth of fungi. In comparison with media for the majority of bacterial strains, fungal media are of simple composition, usually consisting of a peptone, dextrose and agar. Selectivity is achieved by lowering the pH, incorporating dyes or adding antimicrobial agents.

Mycological Agar and **Mycophil Agar** are nonselective media of value in general work with yeasts and molds rather than for isolation from materials possessing mixed flora. It is often desirable to use these media in parallel with selective media as some of the selective agents are inhibitory for certain fungi.

Mycophil Agar with Low pH has had its base adjusted to approximately pH 4.7, which obviates the need for pH adjustment with lactic or tartaric acids in the laboratory. It also differs from **Mycophil Agar** in that an additional 2 g/L of agar has been incorporated so that the medium may be sterilized and remelted without losing its ability to solidify.

Wetzler et al. employed **Mycophil Agar with Low pH** for enumeration of yeasts and molds in poultry processing plants.¹ The formulation also has been recommended for isolation of yeasts and most filamentous fungi from clinical material.²

Principles of the Procedure

The peptone and dextrose ingredients supply sufficient nutrients for the metabolism of fungal species.

Formulae

Difco™ Mycological Agar

Approximate Formula* Per Liter	
Soy Peptone	10.0 g
Dextrose	10.0 g
Agar	15.0 g

BBL™ Mycophil™ Agar

Approximate Formula* Per Liter	
Papaic Digest of Soybean Meal	10.0 g
Dextrose	10.0 g
Agar	16.0 g

BBL™ Mycophil™ Agar with Low pH

Approximate Formula* Per Liter	
Papaic Digest of Soybean Meal	10.0 g
Dextrose	10.0 g
Agar	18.0 g

*Adjusted and/or supplemented as required to meet performance criteria.

Directions for Preparation from Dehydrated Product

Difco™ Mycological Agar

1. Suspend 35 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

BBL™ Mycophil Agar

1. Suspend 36 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 118°C for 15 minutes.
4. For yeast and mold counts, adjust the pH to 4.0 by adding 15 mL of sterile 10% lactic acid to each L of sterile melted medium prior to plating.
5. Test samples of the finished product for performance using stable, typical control cultures.

User Quality Control

NOTE: Differences in the Identity Specifications and Cultural Response testing for media offered as both **Difco™** and **BBL™** brands may reflect differences in the development and testing of media for industrial and clinical applications, per the referenced publications.

Identity Specifications

Difco™ Mycological Agar

Dehydrated Appearance:	Light beige, free-flowing, homogeneous.
Solution:	3.5% solution, soluble in purified water upon boiling. Solution is light to medium amber, very slightly to slightly opalescent.
Prepared Appearance:	Light to medium amber, slightly opalescent.
Reaction of 3.5% Solution at 25°C:	pH 7.0 ± 0.2

Cultural Response

Difco™ Mycological Agar

Prepare the medium per label directions. Inoculate and incubate at 30 ± 2°C (incubate *Penicillium* at 20-25°C) for 18-72 hours.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Aspergillus niger</i>	16404	30-300	Good
<i>Candida albicans</i>	10231	30-300	Good
<i>Penicillium abeanum</i>	22346	30-300	Good
<i>Saccharomyces cerevisiae</i>	9080	30-300	Good
<i>Staphylococcus aureus</i>	25923	10 ³ -10 ⁴	Good

BBL™ Mycophil Agar with Low pH

1. Suspend 38 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for about 30 seconds to completely dissolve the powder.
3. Autoclave at 118°C for 15 minutes or at 121°C for 10 minutes.
4. The medium should be cooled and used at once. If the medium is allowed to solidify after autoclaving, it may be remelted once. DO NOT OVERHEAT.
5. Test samples of the finished product for performance using stable, typical control cultures.

Procedure

Inoculate plated media with test specimens or materials so as to obtain isolated colonies. Consult appropriate references for information about the processing and inoculation of specimens.^{3,4} For isolation of fungi from potentially contaminated specimens, also inoculate a selective medium. Incubate plates at 25-30°C in an inverted position (agar side up) with increased humidity. For isolation of fungi causing systemic mycoses, two sets of media should be inoculated, with one set incubated at 25-30°C and a duplicate set at 35 ± 2°C. All cultures should be examined at least weekly for fungal growth and should be held for 4-6 weeks before being reported as negative.

Expected Results

After sufficient incubation, the plates should show isolated colonies in streaked areas and confluent growth in areas of heavy inoculation. Examine plates for fungal colonies exhibiting typical color and morphology. Yeast and mold colonies

Identity Specifications

BBL™ Mycophil™ Agar

Dehydrated Appearance:	Fine, homogeneous, free of extraneous material, may contain a large number of minute to small yellow specks.
Solution:	3.6% solution, soluble in purified water upon boiling. Solution is light to medium, yellow to tan, clear to slightly hazy.
Prepared Appearance:	Light to medium, yellow to tan, clear to slightly hazy.
Reaction of 3.6% Solution at 25°C:	pH 7.0 ± 0.2

BBL™ Mycophil™ Agar with Low pH

Dehydrated Appearance:	Fine, homogeneous, free of extraneous material, may contain tan specks.
Solution:	3.8% solution, soluble in purified water upon boiling. Solution is light to medium, yellow to tan, clear to slightly hazy.
Prepared Appearance:	Light to medium, yellow to tan, clear to slightly hazy.
Reaction of 3.8% Solution at 25°C:	pH 4.7 ± 0.2

Cultural Response

BBL™ Mycophil™ Agar or Mycophil™ Agar with Low pH

Prepare the medium per label directions. Inoculate with fresh cultures and incubate at 25 ± 2°C for 7 days.

ORGANISM	ATCC™	RECOVERY MYCOPHIL™ AGAR	RECOVERY MYCOPHIL™ AGAR WITH LOW PH
<i>Aspergillus niger</i>	16404	Good	Good
<i>Candida albicans</i>	60193	Good	Good
<i>Nocardia asteroides</i>	19247	Good	N/A
<i>Penicillium roquefortii</i>	9295	Good	N/A
<i>Penicillium roquefortii</i>	10110	N/A	Good
<i>Saccharomyces cerevisiae</i>	9763	N/A	Good
<i>Trichophyton mentagrophytes</i>	9533	Good	N/A

can be counted to determine the level of contamination in the test sample. Biochemical tests and serological procedures should be performed to confirm findings.⁵

References

1. Wetzler, Musick, Johnson and MacKenzie. 1962. Am. J. Public Health 52:460.
2. Von Riesen and Jensen. 1958. Am. J. Med. Technol. 24:123.
3. Isenberg (ed.). 1992. Clinical microbiology procedures handbook, vol. 1. American Society for Microbiology, Washington, D.C.
4. Merz and Roberts. 1999. In Murray, Baron, Pfaller, Tenover and Tenover (eds.), Manual of clinical microbiology, 7th ed. American Society for Microbiology, Washington, D.C.
5. Larone. 1995. Medically important fungi: a guide to identification, 3rd ed. American Society for Microbiology, Washington, D.C.

Availability

Difco™ Mycological Agar

Cat. No. 240520 Dehydrated – 500 g

BBL™ Mycophil™ Agar

Cat. No. 211445 Dehydrated – 500 g

BBL™ Mycophil™ Agar with Low pH

Cat. No. 211450 Dehydrated – 500 g