

# Malt Extract Agar • Malt Extract Broth

## Intended Use

Malt Extract Agar is used for isolating, cultivating and enumerating yeasts and molds.

Malt Extract Broth is used for cultivating yeasts and molds.

## Summary and Explanation

The use of malt and malt extracts for the propagation of yeasts and molds is quite common. Reddish<sup>1</sup> described a culture medium prepared from malt extract that was a satisfactory substitute for wort. Thom and Church,<sup>2</sup> following the formula of Reddish, used malt extract as a base from which they prepared the complete media. Malt Extract Broth is recommended for the examination of yeasts and molds in the U.S. Food and Drug Administration's *Bacteriological Analytical Manual*.<sup>3</sup>

## User Quality Control

### Identity Specifications

#### Difco™ Malt Extract Agar

Dehydrated Appearance: Off-white, free-flowing, homogeneous.

Solution: 3.36% solution, soluble in purified water upon boiling. Solution is very light amber, slightly opalescent.

Prepared Appearance: Very light amber, slightly opalescent.

Reaction of 3.36%

Solution at 25°C: pH 4.7 ± 0.2

#### Difco™ Malt Extract Broth

Dehydrated Appearance: Light beige to beige, free-flowing, homogeneous.

Solution: 1.5% solution, soluble in purified water. Solution is light amber, clear.

Prepared Appearance: Very light to light amber, clear.

Reaction of 1.5%

Solution at 25°C: pH 4.7 ± 0.2

### Cultural Response

#### Difco™ Malt Extract Agar or Malt Extract Broth

Prepare the medium per label directions. Inoculate and incubate at 30 ± 2°C for 18-48 hours (agar) or 18-72 hours (broth).

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
<i>Aspergillus brasiliensis (niger)</i>	16404	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Candida albicans</i>	10231	10 <sup>2</sup> -10 <sup>3</sup>	Good
<i>Saccharomyces cerevisiae</i>	9763	10 <sup>2</sup> -10 <sup>3</sup>	Good

## Principles of the Procedure

Malt Extract Agar contains maltose as an energy source. Dextrin, a polysaccharide derived from high quality starch, and glycerol are included as carbon sources. Peptone is provided as a nitrogen source. Agar is the solidifying agent.

Malt Extract Broth contains malt extract which provides the carbon, protein, and nutrient sources required for growth of microorganisms. Maltose is added as an energy source. Dextrose is included as a source of fermentable carbohydrate. Yeast extract provides the vitamins and cofactors required for growth and additional sources of nitrogen and carbon.

The acidic pH of Malt Extract Agar and Broth allows for the optimal growth of molds and yeasts while restricting bacterial growth.

## Formulae

### Difco™ Malt Extract Agar

Approximate Formula\* Per Liter

Maltose, Technical.....	12.75	g
Dextrin.....	2.75	g
Glycerol.....	2.35	g
Peptone.....	0.78	g
Agar.....	15.0	g

### Difco™ Malt Extract Broth

Approximate Formula\* Per Liter

Malt Extract.....	6.0	g
Maltose, Technical.....	1.8	g
Dextrose.....	6.0	g
Yeast Extract.....	1.2	g

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

## Directions for Preparation from Dehydrated Product

### Difco™ Malt Extract Agar

1. Suspend 33.6 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. Avoid overheating which could cause a softer medium.
4. Test samples of the finished product for performance using stable, typical control cultures.

### Difco™ Malt Extract Broth

1. Dissolve 15 g of the powder in 1 L of purified water.
2. Autoclave at 121°C for 15 minutes.
3. Test samples of the finished product for performance using stable, typical control cultures.

## Procedure

See appropriate references for specific procedures.

## Expected Results

Refer to appropriate references and procedures for results.

## References

1. Reddish. 1919. Abstr. Bacteriol. 3:6.
2. Thom and Church. 1926. The aspergilli. Williams & Wilkins, Baltimore, Md.
3. U.S. Food and Drug Administration. 2001. Bacteriological analytical manual, online. AOAC International, Gaithersburg, Md.

## Availability

### Difco™ Malt Extract Agar

**BAM** **COMPF**

Cat. No. 211220 Dehydrated – 500 g

### Difco™ Malt Extract Broth

**BAM**

Cat. No. 211320 Dehydrated – 500 g