



## Malt Agar, Modified

M1873

### Intended Use:

Recommended for isolation and enumeration of yeasts and moulds from food products in accordance with FDA BAM, 1998.

### Composition\*\*

Ingredients	Gms / Litre
Malt extract (Powdered)	20.000
Agar	20.000
Final pH ( at 25°C)	5.4±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 40 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 121°C for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

### Principle And Interpretation

Media based on malt extract is appreciated by many microbiologists due to their richness and nutrient balance especially for the cultivation of fastidious microorganisms. With acidic pH, they are used for the isolation, cultivation and maintenance of yeast and moulds. In 1919, Reddish (6) prepared a satisfactory substitute for beer wort from malt extract. Malt Agar, Modified is recommended for the isolation and enumeration of yeasts and moulds from food products in accordance with FDA BAM, 1998 (2,5). This medium can also be used as a general maintenance medium for fungi. Malt extract provides carbon, protein and nutrient sources required for the growth of microorganisms. The acidified medium inhibits the growth of bacteria and allows good recovery of yeasts and moulds.

According to the BAM protocol, 25-50g of the sample should be considered for evaluation. Appropriate dilutions are made using 0.1% peptone water. Spread plate or pour plate can be used for plating the sample. Dichloran Glycerol Medium Base (M1129) can be used for pour plate technique while Dichloran Glycerol Medium Base (M1129) or Dichloran Glycerol Medium Base w/Rose Bengal (M1000) can be used for spread plate techniques. Incubate the plates at 25°C for 5 days and the average number of colonies of 3 tests is reported. These colonies are further sub cultured into Potato Dextrose Agar w/2% Agar (M096F) or Malt Agar, Modified (M1873).

### Type of specimen

Food and dairy samples.

### Specimen Collection and Handling:

For food and dairy samples, follow appropriate techniques for sample collection and processing as per guidelines (1,7,8). After use, contaminated materials must be sterilized by autoclaving before discarding.

### Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/ face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

### Limitations :

1. Further biochemical and serological tests must be carried out for complete identification.

## Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

## Quality Control

### Appearance

Cream to yellow homogeneous free flowing powder

### Gelling

Firm, comparable with 2.0% Agar gel

### Colour and Clarity of prepared medium

Yellow coloured clear to slightly opalescent gel forms in Petri plates or tubes as slants

### Cultural Response

Cultural characteristics observed after an incubation at 25 - 30°C for 40 - 48 hours .

Organism	Inoculum (CFU)	Growth	Recovery
<i>Aspergillus brasiliensis</i> ATCC 16404 (00053*)	50-100	good-luxuriant	
<i>Candida albicans</i> ATCC 10231 (00054*)	50-100	good-luxuriant	>=70%
<i>Saccharomyces cerevisiae</i> ATCC 9763 (00058*)	50-100	good-luxuriant	>=70%

Key : (\*) Corresponding WDCM numbers.

## Storage and Shelf Life

Store between 10-30°C in a tightly closed container and the prepared medium at 20-30°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use. Product performance is best if used within stated expiry period.

## Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (3,4).

## Reference

1. American Public Health Association, Standard Methods for the Examination of Dairy Products, 1978, 14th Ed., Washington D.C.
2. FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, MD: AOAC International.
3. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
4. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.
5. Official Methods of Analysis of the Association of Official Analytical Chemists. 2005A. S Williams Ed. 19 ed. Washington, D. C: AOAC.
6. Reddish, A. 1919. Abstr. Bacteriol 3(6).
7. Salfinger Y., and Tortorello M.L. Fifth (Ed.), 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
8. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.

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