Malt Extract Glucose Peptone Agar

M1874

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	20.000
Dextrose (Glucose)	20.000
Peptone	1.000
Agar	20.000
Final pH (at 25°C)	5.4±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 61.0 grams in 1000 ml purified / distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15lbs pressure (121°C) for 15 minutes. Cool to 45- 50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Yeasts and moulds are known to cause various degrees of deterioration and decomposition of foods. They can invade and grow on any type of processed or unprocessed foods and in food mixtures. Several food borne moulds and possibly yeasts may also be hazardous to human and animal health because of their ability to produce mycotoxin.

The laboratory diagnosis of fungal infection relies largely on direct as opposed to indirect methods. The use of malt and malt extracts for the propagation of yeasts and moulds is quite common Reddish (6) described a culture medium prepared from malt extract that was a satisfactory substitute for wort. Malt Extract Glucose Peptone Agar is recommended by FDA BAM, 1998 for the detection, isolation and enumeration of yeasts and moulds (2). Malt extract provides an acidic environment and nutrients favorable for growth and metabolism of yeasts and moulds. Peptone being the nitrogen source supports the luxuriant growth of the organisms. For mycological count, it is advisable to adjust the reaction of medium more acidic with addition of 10% lactic acid. Antibiotics such as chloramphenicol may be added as sterile solutions to the molten medium immediately before pouring into sterile Petri plates (3) in order to suppress bacterial growth. *Aspergillus, Penicillium* and most other foodborne mould genera may be directly viewed on this medium with low power (10-30X) magnification.

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. It is advisable to adjust the reaction of medium more acidic with addition of 10% lactic acid for mycological count.

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 beige homogeneous free flowing powder

Gelling
Firm, comparable with 2.0% Agar gel

Colour and Clarity of prepared medium
Amber coloured clear to slightly opalescent gel forms in Petri plates

Reaction
Reaction of 6.1% w/v aqueous solution at 25°C. pH : 5.4±0.2

pH
5.20-5.60

Cultural Response
Cultural characteristics observed after an incubation at 25-30°C for 48-72 hours.

Organism	Inoculum (CFU)	Growth
Aspergillus brasiliensis ATCC 16404 (00053*)	50-100	luxuriant
Candida albicans ATCC 10231 (00054*)	50-100	luxuriant
Penicillium notatum ATCC 10108	50-100	luxuriant
Penicillium chrysogenum ATCC 10106	50-100	luxuriant

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 (4,5).

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. Gallowey, L. D, and Burgess, R. 1952. Applied Mycology and Bacteriology.Leonard Hil Ed. 3 ed. London.
4. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition.
5. 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.
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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