



Malt Extract Agar w/Chloramphenicol

M2199I

Intended Use

Recommended for enumeration of yeast and mould from cosmetics. The composition and performance criteria are in accordance with ISO 16212:2017(E).

Composition**

ISO 16212:2017(E)- Malt Extract Agar w/ Chloramphenicol

| Ingredients | g / L |
|---|---------|
| Malt extract | 30.000 |
| Soya peptone, papaic digest of soybean meal | 3.000 |
| Chloramphenicol | 0.050 |
| Agar | 15.000 |
| Final pH (at 25°C) | 5.6±0.2 |

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**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 48.05 grams in 1000 ml purified/distilled water. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 115°C for 10 minutes. Avoid overheating, as it will result in a softer and darker agar. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Principle And Interpretation

Media based on malt extract may be considered as general growth substrates due to their richness and nutrient balance. They are very suitable for the cultivation of fastidious microorganisms. With acidic pH, they are used for the isolation, cultivation and maintenance of yeast and moulds.

Malt media for yeasts and moulds have been widely used for many years. In 1919, Reddish (1) prepared a satisfactory substitute for beer wort from malt extract. Malt Agar is included in Official Methods of Analysis of AOAC International (2). Malt Extract Agar w/Chloramphenicol is recommended by ISO Committee (3). This medium is also used for maintaining stock cultures of fungi.

Malt Agar contains malt extract, which 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 (4). Heating process during rehydration and sterilization should be for shorter period as excessive heat causes partial hydrolysis of the agar, which results in inability to gel properly when cooled. If desired additional 5 grams of agar may be added.

Type of specimen

Cosmetic samples.

Specimen Collection and Handling

For cosmetics , follow appropriate techniques for sample collection and processing as per guidelines (3).

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. Heating process during rehydration and sterilization should be for shorter period as excessive heat causes partial hydrolysis of the agar, which results in inability to gel properly when cooled. If desired additional 5 grams of agar may be added.

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 brownish yellow homogeneous free flowing powder

Gelling

Firm, comparable with 1.5% Agar gel

Colour and Clarity of prepared medium

Light amber coloured clear to slightly opalescent gel forms in tubes or Petri plates

Reaction

Reaction of 4.5% w/v aqueous solution at 25°C. pH : 5.5±0.2

pH

5.30-5.70

Cultural Response

Cultural characteristics was 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 | luxuriant | |
| <i>Candida albicans</i> ATCC 10231 (00054*) | 50-100 | luxuriant | ≥70% |
| <i>Saccharomyces cerevisiae</i> ATCC 9763 (00058*) | 50-100 | luxuriant | ≥70% |
| ## <i>Penicillium rubens</i> ATCC 9179 | 50-100 | luxuriant | |
| ** <i>Trichophyton interdigitale</i> ATCC 9533 | 50-100 | luxuriant | |

Key:(*) Corresponding WDCM numbers

(#) Formerly known as *Aspergillus niger*

(##) Formerly known as *Penicillium chrysogenum*

(**) Formerly known as *Trichophyton mentagrophytes*

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 (5,6).

Reference

1. Reddish, 1919, Abstr. Bacteriol., 3:6.
2. Williams, (Ed.), 2005, Official Methods of Analysis of the Association of Official Analytical Chemists, 19th Ed., AOAC, Washington, D.C.
3. Cosmetics Microbiology —Enumeration of yeast and mould ,International Organization for Standardization ISO 16212:2017(E).
4. Can. Dept. Agr. Pamphlet, 92-N.S.
5. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
6. 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.

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Disclaimer :

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