

# MALT EXTRACT AGAR

**PRODUCTS:**

**Plated Media:**

Malt Extract Agar P1874, P8059, P8059EM

**PURPOSE:**

Malt Extract Agar is a solid general purpose media used for the cultivation and maintenance of yeasts and molds. This media is recommended for the isolation and enumeration of fungi and yeasts from clinical specimens, foods, and cosmetics.

**PRINCIPLE:**

Malt Extract Agar is simple in composition and is desirable to use in parallel with selective media to isolate certain fungi that would otherwise be inhibited by selectivity. Reddish<sup>5</sup> described a culture media prepared from malt extract. Thom and Church<sup>6</sup> following the formula of Reddish, used malt extract as a base from which they prepared the current formulation.

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

**FORMULA:**

Approximate, per liter deionized filtered water.

**Malt Extract Agar:**

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

Final pH 4.6 ± 0.2 at 25°C

**PRECAUTIONS:\***

For *in vitro* diagnostic use only. Observe approved biohazard precautions.

**Storage:** Upon receipt, store at 2-8°C away from direct light. Media should not be used if there are signs of contamination, deterioration (shrinking, cracking, or discoloration), or if the expiration date has passed.

The taping of plates may be necessary to reduce dehydration and aerial dissemination of spores.

**Limitations:**

This media is designed for the isolation and presumptive identification of yeasts and molds. Further testing may be required to establish complete identification of the organism. Biochemical and/or serological procedures are found in standard reference texts.<sup>1,2,3</sup>

If systemic or subcutaneous mycotic agents are suspected, two slants should be inoculated and incubated at 25°C and 35°C, respectively. Additionally, parallel nonselective media such as Brain Heart Infusion Agar should be inoculated if *Nocardia* or *Streptomyces* are suspected.<sup>3</sup>

Some strains of yeast and molds may grow poorly or fail to grow due to nutritional variation.<sup>2,4,5</sup>

**PROCEDURE:\***

**Specimen Collection:** Samples for enumeration should be delivered to the lab and inoculated onto plates as soon as possible using techniques that will yield isolated colonies. Isolated organisms, established isolation techniques, and tests for purity are necessary before inoculating this media for identification. Direct inoculation of samples for identification may produce erroneous results if not a pure culture. Information on specimen collection may be found in standard reference texts.<sup>1,2,3</sup>

**Method of Use:** Prior to inoculation, the media should be brought to room temperature. Samples for enumeration should be spread over the surface of the media with a sterile bent glass rod, calibrated loop, or other technique to yield isolated colonies. If sample contains colonies too numerous to count, then appropriate serial dilutions should be performed. The media may be

inoculated in two ways, for sporulation and pigment production. Incubate at 25°C for 1-5 days.

**Interpretation:** Once growth is established, routine mycological procedures may be performed. Note each specific type of colony morphology by gross appearance (topography, texture, and pigmentation.) Subculture onto appropriate media and perform specific biochemical/serological and microscopic tests to secure a definitive identification of the organism or consult appropriate references for means of identification.<sup>1,2,3</sup>

**Materials Required but Not Provided:** Standard microbiological supplies and equipment commonly found in a laboratory are not provided.

**QUALITY CONTROL:\***

**Microorganisms Used (ATCC #):**

*Aspergillus brasiliensis* (16404)

*Candida albicans* (10231)

*Candida albicans* (60193)

*Trichophyton mentagrophytes* (9533)

**Expected Results:**

Growth

Growth

Growth

Growth

**User Quality Control:** Check for signs of contamination and deterioration. Malt Extract Agar should appear firm, translucent, and light yellow in color.

**BIBLIOGRAPHY:**

1. Koneman, E. W., et al., *Color Atlas and Textbook of Diagnostic Microbiology*, 6th ed., J. B. Lippincott, Philadelphia, 2005.
2. Larone, D.H., *Medically Important Fungi, A Guide to Identification*, 4th ed., American Society for Microbiology, Washington, D.C., 2002.
3. Murray, P.R., et al., *Manual of Clinical Microbiology*, 9th ed., American Society for Microbiology, Washington, D. C., 2007.
4. MacFaddin, J. F., *Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria*, vol. 1, Williams and Wilkins, Baltimore, 1985.
5. Reddish. 1919. *Abstr. Bacteriol.* 3:6.
6. Thom and Church. 1926. *The aspergilli*. Williams & Wilkins, Baltimore, Md.

\*For more detailed information, consult appropriate references.

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