SABOURAUD MALTOSE AGAR

Dehydrated culture medium

1-INTENDED USE

General purposes medium for the isolation and cultivation of yeasts and moulds.

2-COMPOSITION - TYPICAL FORMULATION *

Peptocomplex	10 g
Maltose	40 g
Agar	15 g

*The formula may be adjusted and/or supplemented to meet the required performances criteria.

3-PRINCIPLE OF THE METHOD AND EXPLANATION OF THE PROCEDURE

By the end of the 1890's, Raymond Jacques Sabouraud had crystallized and organized the scattered observations regarding the role of pathogenic fungi in dermatophytic infections and proposed a medium for their isolation and classification.[1,2]
Sabouraud Maltose Agar is a modification of Sabouraud Dextrose Agar with maltose substituted for the dextrose. The medium does not contain selective agents, and the inhibition of bacteria is exclusively due to its acid pH. The medium provides an excellent base for the cultivation of yeasts and moulds. Glucose is replaced by maltose because the latter carbohydrate is especially suitable to fulfil the nutritional requirements of fungi.[3]
The peptones mix Peptocomplex provides nitrogen, carbon and trace elements for microbial growth. The low pH is favourable for the growth of fungi and is slightly inhibitory to contaminating bacteria. Maltose, at high concentration is a carbon and energy source.

4- DIRECTIONS FOR MEDIUM PREPARATION

Suspend 65 g in 1000 mL of cold purified water. Heat to boiling with frequent agitation and sterilize by autoclaving at 121°C for 15 minutes. Cool to 47-50°C and pour into sterile Petri dishes. Do not exceed the boiling and sterilization times and temperatures.
Alternatively distribute in screw capped tubes before sterilization and solidify in slanted position.

5-PHYSICAL CHARACTERISTICS

Dehydrated medium appearance	yellow, fine, homogeneous, free-flowing powder
Solution and prepared plates appearance	yellow, limpid
Final pH at 20-25 °C	5,6 ± 0.2

6-MATERIALS PROVIDED

Product	Type	REF	Pack
Sabouraud Maltose Agar	Dehydrated medium	4020102 4020104	500 g (7,7 L) 5 kg (77 L)

7 - MATERIALS REQUIRED BUT NOT PROVIDED

Autoclave, water-bath, sterile loops and swabs, incubator and laboratory equipment as required, Petri dishes, Erlenmeyer flasks, ancillary culture media and reagents for the identification of the colonies.

8-SPECIMENS

Sabouraud Maltose Agar can be directly inoculated with many specimens. Good laboratory practices for collection, transport and storage of the specimens should be applied.

9-TEST PROCEDURE

Allow plates to come to room temperature and to dry the surface of the medium. Inoculate the clinical specimen as soon as possible after collection; streak with a loop over the four quadrants of the plate to obtain well isolated colonies. Alternatively, if the material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area. For cutaneous samples, press specimen lightly into medium.
Inoculate each specimen in duplicate; incubate one set in aerobic condition at 22-25°C, the other at 33-37°C.[10]
For dermatophytes, examine cultures every 4-6 days for a period of up to 20 days; for others incubate 2-5 days. Plates should be incubated under conditions of increased humidity during prolonged incubation.
The user is responsible for choosing the appropriate incubation time and temperature depending on the processed specimen, the requirements of organisms to be recovered and the local applicable protocols.

10-READING AND INTERPRETATION

After incubation, observe the bacterial growth and record the specific morphological and chromatic characteristics of the colonies and subculture to appropriate media for further identification tests.

11-USER QUALITY CONTROL

All manufactured lots of the product are released for sale after the Quality Control has been performed to check the compliance with the specifications. However, it is responsibility of the end-user to perform Quality Control testing in accordance with the local applicable regulations, in compliance with accreditation requirements and the experience of the Laboratory. Here below are listed some test strains useful for the quality control.

CONTROL STRAINS	INCUBATION T°/ T / ATM	EXPECTED RESULTS
C.albicans ATCC 18804	20-25°C / up to 72 h / A	good growth, white yeast-like colonies
T.mentagrophytes ATCC 28185	20-25°C / up to 72 h / A	good growth, white colonies with typical morphology

A: aerobic incubation; ATCC is a trademark of American Type Culture Collection

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12-PERFORMANCES CHARACTERISTICS

Prior to release for sale a representative sample of all lots of dehydrated Sabouraud Maltose Agar (Test Batch-TB) is tested for productivity and selectivity by comparing the results with a previously approved Reference Batch (RB).
Productivity characteristics are tested by semi-quantitative ecometric technique with the following strains *C.albicans* ATCC 18804, *A.brasiliensis* ATCC 9642, *S.cerevisiae* ATCC 9763, *P.chrysogenum* ATCC 10106, *T.mentagrophytes* ATCC 28185, *T.rubrum ATCC 28188, M.canis* ATCC 36299. After incubation at 20-25°C for up to 72 hours, the amount of growth on the plates and colonies' characteristics are evaluated and recorded: they shall be comparable in both batches.
The selectivity is evaluated with modified Miles-Misra surface drop method by inoculating the plates with suitable decimal dilutions in saline of a 0.5 McFarland suspension of the non-target strains *E.coli* ATCC 25922 and *S.aureus* ATCC 25923. The growth of non-target strain is partially inhibited in both batches.

13-LIMITATIONS OF THE METHOD

- Sabouraud Maltose Agar has poor selective properties; a selective medium should be inoculated in parallel for isolation of fungi from potentially contaminated specimens.
- Even if the microbial colonies on the plates are differentiated on the basis of their morphological and chromatic characteristics, it is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on isolates, from pure culture, for complete identification. If relevant, perform antimicrobial susceptibility testing.

14 - PRECAUTIONS AND WARNINGS

- This product is for microbiological control and for professional use only; it is to be used by adequately trained and qualified laboratory personnel, observing approved biohazard precautions and aseptic techniques.
- Dehydrated media must be handled with suitable protection. Before use, consult the Safety Data Sheet.
- This culture medium contains raw materials of animal origin. The *ante* and *post mortem* controls of the animals and those during the production and distribution cycle of the raw materials, cannot completely guarantee that this product doesn't contain any transmissible pathogen. Therefore, it is recommended that the culture medium be treated as potentially infectious, and handled observing the usual specific precautions: do not ingest, inhale, or allow to come into contact with skin, eyes, mucous membranes. Download the TSE Statement from the website www.biolifeitaliana.it, describing the measures implemented by Biolife Italiana for the risk reduction linked to infectious animal diseases.
- Apply Good Manufacturing Practice in the production process of prepared media.
- All laboratory specimens should be considered infectious.
- The laboratory area must be controlled to avoid contaminants such as culture medium or microbial agents.
- Sterilize all biohazard waste before disposal. Dispose the unused medium and the sterilized plates inoculated with samples or microbial strains in accordance with current local legislation.
- Do not use the culture medium as active ingredient for pharmaceutical preparations or as production material intended for human and animal consumption
- The Certificates of Analysis and the Safety Data Sheet of the product are available on the website www.biolifeitaliana.it.
- The information provided in this document has been defined to the best of our knowledge and ability and represents a guideline for the proper use of the product but without obligation or liability. In all cases existing local laws, regulations and standard procedures must be observed for the examination of samples collected from human and animal organic districts, for environmental samples and for products intended for human or animal consumption. Our information does not relieve our customers from their responsibility for checking the suitability of our product for the intended purpose.

15 - STORAGE CONDITIONS AND SHELF LIFE

Upon receipt, store at +10°C /+30°C away from direct light in a dry place. If properly stored, it may be used up to the expiration date. Do not use beyond this date. Avoid opening the bottle in humid places. After use, the container must be tightly closed. Discard the product if the container and/or the cap are damaged, or if the container is not well closed, or in case of evident deterioration of the powder (colour changes, hardening, large lumps).
The user is responsible for the manufacturing and quality control processes of prepared media and for the validation of the shelf life of the finished products, according to the type (plates/tubes/bottles) and the storage method (temperature and packaging).

16 - REFERENCES

1. Espinel-Ingroff A. History of medical mycology in the United States. Clin Microbiol Rev 1966;9:235-272
2. Sabouraud R. Contribution a l'etude de la trichophytie humaine. Etude clinique, microscopique et bacterioloqique sur la pluralite des trichophytons de l'homme. Ann Dermatol Syphil1892; 3:1061-1087.
3. MacFaddin JF. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Baltimore: Williams & Wilkins; 1985.

TABLE OF APPLICABLE SYMBOLS

REF or REF Catalogue number	LOT Batch code	Manufacturer	Store in a dry place	Use by
Temperature limitation	Contents sufficient for <n> tests	Consult Instructions for Use	Keep away from direct light	

REVISION HISTORY

Version	Description of changes	Date
Revision 1	Updated layout and content	2022/05

Note: minor typographical, grammatical, and formatting changes are not included in the revision history.

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