PEPTONE YEAST EXTRACT AGAR

Dehydrated culture medium

1-INTENDED USE

For the selective isolation of yeasts, moulds and dermatophytes.

2-COMPOSITION - TYPICAL FORMULA * (AFTER RECONSTITUTION WITH 1 L OF WATER)

Soy peptone	10.00 g
Yeast extract	5.00 g
Glucose	40.00 g
Streptomycin sulphate	0.03 g
Chloramphenicol	0.05 g
Agar	15.0 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

Antibiotic-containing media are superior to acidified media and are widely used for the isolation of yeasts and moulds from clinical and non-clinical samples.
Peptone Yeast Extract Agar is a modification of the classical formula of Sabouraud dextrose agar, devised by Carmichael and Kraus primarily to selectively recover *Trichophyton verrucosum*, one of the species associated with ringworm.[1,2]
Peptone Yeast Extract Agar is useful for the isolation of yeasts and moulds and for the early detection of dermatophytes.
Soy peptone and yeast extract provide the nutrients for microbial growth. Glucose is a source of carbon and energy for enhancing dermatophytes growth. Chloramphenicol and streptomycin inhibit bacterial growth and assist isolation of dermatophytes and other fungi.

4- DIRECTIONS FOR MEDIUM PREPARATION

Suspend 70 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 mix well and pour into sterile Petri dishes. Avoid overheating.

5-PHYSICAL CHARACTERISTICS

Dehydrated medium appearance	yellow, fine, homogeneous, free-flowing powder
Solution and prepared plates appearance	yellowish, limpid
Final pH at 20-25°C	6.6 ± 0.2

6-MATERIALS PROVIDED

Product	Type	REF	Pack
Peptone Yeast Extract Agar	Dehydrated medium	4018952	500 g (7.1 L)

7 - MATERIALS REQUIRED BUT NOT PROVIDED

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

8 - SPECIMENS

Non-clinical and clinical cutaneous specimens such as nails, hair, skin. Refer to appropriate references and standard procedures for collection, transport and storage of the specimens.[3-5]

9 - TEST PROCEDURE

Allow plates to reach room temperature.

General procedure

1. Streak specimen onto the medium as to obtain isolated colonies.
2. Incubate aerobically at 25°C or 35°C, if necessary for up to 4 weeks.
3. Examine after 48 hours and intermittently thereafter.

Dermatophyte detection

1. Press cutaneous specimens by gently pressing lightly the samples onto the agar surface.
2. Incubate aerobically, at 25-30°C or at 30-37°C if *T. verrucosum* is suspected.
3. Examine microscopically after 48 and 72 hours to observe growth of microcolonies.
4. If microcolonies are observed, they must be transferred to new plates before overgrowth develops.
5. Re-incubate plates for up to 14 days and observe intermittently for growth.

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 surface and reverse of the colonies. Dermatophytes develop in the form of fuzzy colonies of various colours depending on the species and may require a long incubation period.

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, the end user can perform its own Quality Control 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
T. mentagrophytes ATCC 9533	25°C / up to 72 h / A	growth

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C. albicans ATCC 10231	25°C / up to 72 h / A	growth
E. coli ATCC 25922	25°C / up to 72 h / A	inhibited

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

12 - PERFORMANCES CHARACTERISTICS

Prior to release for sale a representative sample of all lots of dehydrated Peptone Yeast Extract Agar is assessed for productivity and selectivity by comparing the results with a previously approved Reference Batch.
Productivity is tested by semi-quantitative ecometric technique with the following target strains: *T. mentagrophytes* ATCC 9533, *M. canis* ATCC 36299, *C. albicans* ATCC 18804, *T. rubrum* ATCC 28188, *P. chrysogenum* ATCC 10106. After incubation at 25°C for 72 hours, the amount of growth and the colony characteristics are evaluated: target strains exhibit good growth with typical colonies.
Selectivity is assessed with modified Miles-Misra surface drop method by inoculating the plates with suitable decimal dilutions in saline of a 0.5 McFarland suspension of *E. coli* ATCC 25922 and *S. aureus* ATCC 25923. The growth of non-target strains is totally inhibited.

13 - LIMITATIONS OF THE METHOD

- Care must be taken in handling culture plates since moulds can form spores which are easily released.
- When looking for dermatophytes in samples collected from certain body sites, *Candida* overgrowth can be a problem.
- Additional physiological or biochemical tests may be needed for complete identification of isolates.

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.
- Since Peptone Yeast Extract Agar is a multipurpose mycological medium, the specific application chosen by the end-user should be validated, especially when used for the examination of clinical specimens.
- 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 medium 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 and the storage method (temperature and packaging).

16 - REFERENCES

1. Carmichael JW, Kraus HJ. Alberta Med Bull 1959; 24:201.
2. Carmichael JW. Mycopathologia 1961; 14:129.
3. Public Health England. Investigation of dermatological specimens for superficial mycoses. SMI B 39, Issue no: 3.1, 2016.
4. McGowan K. Specimen Collection, Transport and Processing: Mycology. In Jorgensen JH, Pfaller et al. editors. Manual of clinical microbiology,11th ed. Washington, DC: American Society for Microbiology; Vol.2, 2015.
5. APHA Compendium of Methods for the Microbiological Examination of Foods. American Public Health Association, Washington D.C. 5th Ed, 2015.

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	2023/02

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

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