MEAT LIVER SR AGAR

Dehydrated culture medium

1 - INTENDED USE

For the enumeration of spores of sulphite reducing anaerobic bacteria.

2 – COMPOSITION*

TYPICAL FORMULA (AFTER RECONSTITUTION WITH 1 L OF WATER)

Meat-liver peptone	30.0 g
Glucose	1.0 g
Sodium sulphite	0.5 g
Ferric ammonium citrate	0.5 g
Starch	1.0 g
Agar	8.0 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

Sulphite reductase activity is a common property among clostridia, however some species such as *Clostridium butyricum*, *Clostridium saccharobutyricum*, *Clostridium septicum, Clostridium tertium*, are particularly sensitive to sulphite.[1] For this reason most enumeration media, including Meat Liver SR Agar, contain no more than 0.5 g/L sulphite.
Meat-liver peptone provides a rich supply of nutrients for the microbial growth, particularly that of anaerobic bacteria. Glucose is a source of carbon and energy. Starch promotes spore germination. Reduction of sodium sulphite and precipitation of the resultant sulphide involves ferric ammonium citrate that yields iron sulphide.

4- DIRECTIONS FOR MEDIUM PREPARATION

Suspend 41 g in 1000 mL of cold purified water. Heat to boiling with frequent agitation and dispense 20 mL portions into test tubes 20x200 mm. Sterilise by autoclaving at 115°C for 20 minutes. Cool and maintain the medium in a molten state at 44-47 °C.

5 - PHYSICAL CHARACTERISTICS

Dehydrated medium appearance	yellow, fine, homogeneous, free-flowing powder
Solution and prepared medium appearance	dark yellow with a flocculent precipitate
Final pH at 20-25 °C	7.4 ± 0.2

6 - MATERIALS PROVIDED - PACKAGING

Product	Type	REF	Pack
Meat Liver SR Agar	Dehydrated medium	4016892	500 g (12.2 L)

7 - MATERIALS REQUIRED BUT NOT PROVIDED

Autoclave, water-bath, sterile loops and pipettes, incubator and laboratory equipment as required, Erlenmeyer flasks, microbiological tubes, ancillary culture media and reagents.

8 – SPECIMENS

Water, food, environmental specimens. For sample collection, storage, transport and preparation, follow good laboratory practice and refer to applicable International Standards and regulations.

9 - TEST PROCEDURE

1. Heat the sample 10 minutes at 80 ± 2 °C in order to destroy vegetative cells and activate spores.
2. Inoculate the tubes containing 20 mL of medium cooled to 44-47°C, with 1mL of sample and/or with 1 mL of its decimal dilutions.
3. Homogenise thoroughly by inversion, avoiding the incorporation of air.
4. Cool in an ice water bath.
5. Incubate at 37°C for up to 48 hours.

Alternatively, inoculation can be performed by the pour plate method or by surface spreading. Inoculated plates must be incubated in an anaerobic atmosphere.

10 - READING AND INTERPRETATION

Examine the tubes for growth and blackening of the medium (iron sulphide precipitate).

11 - USER QUALITY CONTROL

All manufactured lots of the products 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
C. perfringens ATCC 13124	37°C/ 18-24 H / AN	growth with presence of a black precipitate

AN: anaerobic 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 Meat Liver SR Agar is tested for productivity by comparing the results with a previously approved Reference Batch.
Productivity is tested by dilution to extinction method, by inoculating the tubed medium with appropriate decimal dilutions of target organisms, incubating at 37°C for 24 hours in anaerobic atmosphere and recording the highest dilution showing growth and blackening in Reference Batch (Gr_{RB}) and in Test Batch (Gr_{TB}). Productivity is tested with the following target strains: *C. perfringens* ATCC 13124, *C. sporogenes*

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ATCC 3584, *C. difficile* ATCC 9689, *B. fragilis* ATCC 25285. The productivity index Gr_{RB}-Gr_{TB} for each test strain shall be ≤ 1. *C. perfringens* and *C. sporogenes* exhibit the typical blackening of the medium.

13 – Limitations of the method

- The identification of isolated strains must be confirmed by suitable tests.

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 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 the validation of their shelf life, according to the type (tubes/plates) and the applied storage conditions (temperature and packaging).

16 - References

1. Mead GC. Principles involved in the detection and enumeration of clostridia in foods. Int J Food Microbiol 1992; 17:113

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	2022/08

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

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