

TECHNICAL DATA SHEET

Mannitol Egg Yolk Polymyxin Agar

Principle

MYP Agar Base is also referred to as Mannitol-Egg Yolk-Polymyxin Agar. Mossel et al. (1998) developed MYP Agar for the isolation of *Bacillus cereus* in foods. MYP Agar Base is recommended by FDA BAM M95 to isolate and enumerate *B. cereus* from foods. This medium differentiates *B. cereus* from other bacteria on the basis of lecithinase activity, mannitol fermentation and resistance to polymyxin. Peptone and meat extract provide nitrogen and carbon source, long chain amino acids, vitamins and other essential nutrients. Mannitol acts as the carbon source that upon fermentation changes color of medium from red to yellow. Phenol red is pH indicator dye use to check Mannitol fermentation. Egg yolk emulsion aids in the differentiation of lecithinase producing colonies, which are surrounded by a zone of white precipitate. Polymixin B Sulphate acts as the inhibitor to restrict the growth of gram-negative bacteria. These properties also help in the differentiation of *B. cereus* from other bacillus species.

Use: For the enumeration of *B.cereus* in foodstuffs and other samples.

Contents*

Ingredients	Gram/Litre
Peptone#	1.000
Meat extract	10.000
Mannitol	10.000
Sodium chloride	10.000
Phenol red	0.0250
Agar	15.000
pH at 25 °C	7.2±0.2

*** Formula adjusted for optimum
performance and parameters # Equivalent
to Beef extract**

OXFORD LAB FINE CHEM LLP

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Regd Office: Unit no 12, 1st Floor,
Neminath Industrial Estate No.6,
Navghar, Vasai (East), Palghar - 410210.
Maharashtra, INDIA.

Tel: +91 250 2390032 / 2390989 / 2390990
Email: sales@oxfordlabchem.com /
info@oxfordlabchem.com
Web: www.oxfordlabchem.com



Directions: Dissolve 46.00 grams in 950 ml distilled water, boil to dissolve the medium completely and sterilize by autoclaving at 15 lbs. pressure (121°C) for 15 min, cool it to 42-45 °C, aseptically add 200 units of polymyxin B sulphate solution and 50 ml egg yolk emulsion, mix well and pour into sterile petri plates. Ensure complete solidification and inoculate test sample aseptically.

Specimens' types analyzed
Brewery and food samples etc.

Precautions to be taken

These microbial media are intended for the in-vitro use only. All the handling, experiments, storage, and discarding should be performed with the help of skilled and knowledgeable technicians and as per the established guidelines. The material should be disposed only after proper sterilization by autoclaving. Please go through the MSDS of the media to avoid any accidents or in emergency.

Performance and Evaluation

The expected performance of the medium is liable to use as per the direction on the label when stored at optimum conditions and within expiry date.

Quality Control

Appearance	Beige colored free flowing, homogeneous powder
Reaction of 4.6% solution	7.2 ±0.2 at 25 °C
pH	7.00 – 7.40
Gelling	Firm comparable with 1.5% agar gel
Color and clarity of ready medium	Basal medium: Red colored clear to slightly opalescent gel. After Addition of Egg Yolk Emulsion: Light orange colored opaque gel forms in Petri plates
Growth Promotion properties	Best at ≤ 100 CFU at 25-30 °C for 18-72 h
Negative control	Performed using sterile distilled water

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Different Microbial Response: Cultural characteristics observed with added Egg Yolk Emulsion and Polymyxin B Sulphate after incubation at $30 \pm 1^\circ\text{C}$ for 18-48 hours. Inoculum 50-100 CFU.

Organism	ATCC	Growth	Recovery	Color of colony	Lecithinase activity
<i>Bacillus cereus</i>	10876	Luxuriant	$\geq 60\%$	Red	Positive opaque zone
<i>Bacillus subtilis</i>	6633	Luxuriant	$\geq 60\%$	Yellow	Negative
<i>Proteus mirabilis</i>	12453	Luxuriant	$\geq 60\%$	Red	Negative
<i>Escherichia coli</i>	8739	None-poor	$\geq 10\%$	Cream	Negative

Storage and Shelf Life: The product is highly hygroscopic; keep the container tightly closed at all times and store it properly as per the conditions mentioned on the label. The declared expiry is valid only when stored as per the conditions mentioned on the label. Note: Sterilize media immediately after reconstitution.

Disposal: To avoid the contamination or propagation of any hazardous microbes the used, unusable or modified preparation of this product must be disposed after autoclaving after completion of task.

Reference

1. Andrews W. (1995). Microbial methods. In Official methods of analysis of AOAC International, 16th Ed. AOAC International. Arlington, VA.
2. Atlas, R. M. (2005). Handbook of media for environmental microbiology. CRC press.
3. Bacteriological Analytical Manual, 8th Edition, Revision A, 1998. Chapter 14.
4. Downes, F. P. and K. Ito (eds). (2001). Compendium of methods for the microbiological examination of foods, 4th Ed. American Public Health Association, Washington, D.C.
5. Mossel, D. A. A., M. J. Koopman, and E. Jongerijs. (1967). Enumeration of *Bacillus cereus* in foods. Appl. Microbiol. 15:650-653.
6. www.fda.gov/Food/ScienceResearch/LaboratoryMethods/BacteriologicalAnalyticalmanualBAM/default.htm

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