

Total Plate Count Agar Plate w/ β -Lactamase

MP1810

Intended use

Recommended for determination of plate counts of microorganisms in foods, water and wastewater and inactivation of β -lactam antibiotics.

Composition**

Ingredients	Gms / Litre
Tryptone	5.000
Yeast extract	2.500
Dextrose (Glucose)	1.000
Agar	15.000
β -Lactamase	330.000IU
Final pH (at 25°C)	7.0 \pm 0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Either streak, inoculate or surface spread the test inoculum (50-100 CFU) aseptically on the plate.

Principle And Interpretation

Plate Count Agar is formulated as described by Buchbinder et al (1) which is recommended by APHA (2,3,4) and FDA (5). Tryptone provides nitrogenous and carbonaceous compounds, long chain amino acids, and other essential nutrients. Yeast extract supplies Vitamin B complex. β -Lactamase inactivates of β lactam antibiotics. APHA recommends the use of pour plate technique. The samples are diluted and appropriate dilutions are added in Petri plates. Sterile molten agar is added to these plates and plates are rotated gently to ensure uniform mixing of the sample with agar. The poured plate count method is preferred to the surface inoculation method, since it gives higher results. Plate Count Agar is also suitable for enumerating bacterial count of sterile rooms.

Type of specimen

Environmental sampling

Specimen Collection and Handling:

For Environmental sampling, follow appropriate techniques for sample collection and processing as per guidelines (6,7). After use, contaminated materials must be sterilized by autoclaving before discarding.

Warning and Precautions :

Read the label before opening the container. Wear protective gloves/protective clothing/eye protection/face protection. Follow good microbiological lab practices while handling specimens and culture. Standard precautions as per established guidelines should be followed while handling specimens. Safety guidelines may be referred in individual safety data sheets.

Limitations :

1. Individual organisms differ in their growth requirement and may show variable growth patterns on the medium.
2. Each lot of the medium has been tested for the organisms specified on the COA. It is recommended to users to validate the medium for any specific microorganism other than mentioned in the COA based on the user's unique requirement

Performance and Evaluation

Performance of the medium is expected when used as per the direction on the label within the expiry period when stored at recommended temperature.

Quality Control

Appearance

Sterile Soyabean Casein Digest Agar w/ beta-lactamase I in 90mm disposable plates with smooth surface & absence of black particles/cracks/ bubbles

Colour

Light yellow coloured medium

Quantity of Medium

25ml of medium in 90 mm plate

Sterility Check

Passes release criteria

pH

7.10-7.50

Concentration

Concentration of Penicillinase added: 330 IU/lit of media (approximately 2,00,000 LU/lit)

Cultural Response

Growth Promotion Test of as such plates was carried out and growth was observed after incubation at 30-35°C for <= 3 days. Simultaneously growth promotion test was carried out on plates which were seeded with Recovery rate is considered 100% for bacteria 100 mcg/0.1ml of Benzyl Penicillin.

Organism	Inoculum (CFU)	Growth	Recovery	Growth w/ antibiotic	Recovery w/ antibiotic
<i>Enterococcus faecalis</i> ATCC 29212 (00087*)	50-100	luxuriant	>=70%	luxuriant	>=70%
<i>Escherichia coli</i> ATCC 25922 (00013*)	50-100	luxuriant	>=70%	luxuriant	>=70%
<i>Staphylococcus aureus</i> ATCC 29213 (00131*)	50-100	luxuriant	>=70%	luxuriant	>=70%
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923 (00034*)	50-100	luxuriant	>=70%	luxuriant	>=70%

25923 (00034*)

Key : *Corresponding WDCM numbers.

Storage and Shelf Life

On receipt store between 20-30°C Use before expiry date on the label. Product performance is best if used within stated expiry period.

Disposal

User must ensure safe disposal by autoclaving and/or incineration of used or unusable preparations of this product. Follow established laboratory procedures in disposing of infectious materials and material that comes into contact with sample must be decontaminated and disposed of in accordance with current laboratory techniques (6,7).

Reference

1. Buchbinder L., Baris Y., Aldd E., Reynolds E., Dilon E., Pessin V., Pincas L. and Strauss A., 1951, Publ. Hlth. Rep., 66:327.
2. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard methods for the Examination of Water and Wastewater, 24th ed. Washington DC:APHA Press; 2023.
3. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.
4. Wehr H. M. and Frank J. H., 2004, Standard Methods for the Microbiological Examination of Dairy Products, 17th Ed., APHA Inc., Washington, D.C.
5. FDA Bacteriological Analytical Manual, 2005, 18th Ed., AOAC, Washington, DC.
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook 2nd Edition.
7. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock., D.W. (2015) Manual of Clinical Microbiology, 11th Edition. Vol. 1.

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