

Cetrimide Agar

This medium is recommended as a selective medium for the isolation of *Pseudomonas aeruginosa* from pharmaceutical products during microbial limit testing.

OREF: BS.1/NZ01.100.0100	100 Gram	REF: BS.1/NZ01.250.0250	250 Gram
REF: BS.1/NZ01.500.0500	500 Gram		

PRINCIPLE AND INTERPERTATION :

Cetrimide Agar, originally described by King et al. (1), is formulated in accordance with the harmonized requirements of USP, EP, BP, and JP (2–5). It is recommended as a selective medium for the isolation of *Pseudomonas aeruginosa* from pharmaceutical products and is widely employed in microbial limit testing of non-sterile products. The selective properties of this medium are based on the incorporation of cetrimide, first introduced by Lowbury (6) as a selective agent for the isolation of *Pseudomonas aeruginosa*. In addition to its selective function, the medium facilitates the detection of *P. aeruginosa* through its ability to promote the production of the characteristic pigments fluorescein and pyocyanin. Cetrimide (N-acetyl-N,N,N-trimethylammonium bromide), a cationic quaternary ammonium detergent, suppresses the growth of microorganisms other than *P. aeruginosa* by disrupting bacterial cell membranes, resulting in the leakage of intracellular nitrogen- and phosphorus-containing compounds. Magnesium chloride and potassium sulphate are incorporated to stimulate the production of pyocyanin, a distinctive blue-green pigment that diffuses into the surrounding medium, thereby improving the recognition of *P. aeruginosa*. In addition, magnesium ions may neutralize EDTA, when present in the test sample, minimizing its potential inhibitory effect. Gelatin peptone supplies essential nutrients required for bacterial growth, while glycerin serves as a slow and sustained carbon source to support the growth of *Pseudomonas* species. For the isolation of *Pseudomonas aeruginosa*, Cetrimide Agar plates should preferably be inoculated from a non-selective enrichment medium such as Soybean Casein Digest Medium (MH011). When the microbial load is high, the test sample may be inoculated directly onto the medium. Typical colonies of *Pseudomonas aeruginosa* appear greenish due to pigment production and may exhibit enhanced fluorescence when examined under ultraviolet (UV) light.

MEDIA COMPOSITION

Item	Formula per liter of medium g/l
peptone	20.0
Magnesium chloride	1.40
Dipotassium sulphate	10.0
Cetrimide	0.3
Agar	13.6

Final pH 7.2 ± 0.2

** Formula adjusted, standardized to suit performance parameters.

PRECAUTIONS AND WARNINGS

Media to be handled by entitled and professionally educated person. Do not ingest or inhale.

Good Laboratories practices using appropriate precautions should be followed in:

- Wearing personnel protective equipment (overall, gloves, glasses.).
- Do not pipette by mouth.
- In case of contact with eyes or skin; rinse immediately with plenty

of soap and water. In case of severe injuries; seek medical advice immediately.

- Respect country requirement for waste disposal.

S56: dispose of this material and its container at hazardous or

special waste collection point.

S57: use appropriate container to avoid environmental contamination.

S61: avoid release in environment.

For further information, refer to the Mueller Hinton Agar material

safety data sheet.

STORAGE AND STABILITY

BioScien Cetrimide Agar Store between 10-30°C in a tightly closed container and the prepared medium at 15-25°C. Use before expiry date on the label. On opening, product should be properly stored dry, after tightly capping the bottle in order to prevent lump formation due to the hygroscopic nature of the product. Improper storage of the product may lead to lump formation. Store in dry ventilated area protected from extremes of temperature and sources of ignition. Seal the container tightly after use Product performance is best if used within stated expiry period.

PREPARATION

Suspend 45.3 grams in 1000 ml purified/distilled water containing 10 ml glycerin/glycerol. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes or as per validated cycle. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

Deterioration

The color of **BioScien** Cetrimide Agar is Cream to yellow homogeneous free flowing powder. Colour and Clarity of prepared medium is Light amber coloured opalescent gel with a slight precipitate forms in Petri plates

EQUIPMENT REQUIRED NOT PROVIDED

- Sterile petri dishes
- Incubator
- Autoclave

PERFORMANCE CHARACTERISTICS

Cultural characteristics observed after incubation at 30-35 °C for 18-72 hours. Recovery rate is considered as 100% for bacteria growth on Soyabean Casein Digest Agar.

Organism	Growth	Incubation period
<i>Pseudomonas aeruginosa</i> ATCC 27853	Luxuriant	<=18 hrs
<i>Pseudomonas paraeruginosa</i> ATCC 9027	Luxuriant	18 -24 hrs
<i>Escherichia coli</i> ATCC 8739	inhibited	72 hrs
<i>Salmonella Typhimurium</i> ATCC 14028	inhibited	72 hrs
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> ATCC 25923	inhibited	72 hrs
<i>Proteus mirabilis</i> ATCC 29906	inhibited	72 hrs

QUALITY CONTROL

To ensure adequate quality control, it is recommended that positive and negative control included in each run. If control still out of range please contact **BioScien** technical support.

REFERENCE

1. King, Ward and Raney, 1954, J. Lab. Clin. Med., 44:301.
2. The United States Pharmacopoeia, 2022, The United States Pharmacopoeial Convention. Rockville, MD.
3. European Pharmacopoeia, 2022 European Dept. for the quality of Medicines.
4. British Pharmacopoeia, 2022, The Stationery office British Pharmacopoeia
5. Japanese Pharmacopoeia, 2016
6. Lowbury E J L., 1951, J.Clin.Path., 4:66.
7. Isenberg, H.D. Clinical Microbiology Procedures Handbook. 2nd Edition
8. Jorgensen, J.H., Pfaller, M.A., Carroll, K.C., Funke, G., Landry, M.L., Richter, S.S and Warnock, D.W. , 11th Ed., 2015, Manual of Clinical Microbiology.

SYMBOLS IN PRODUCT LABELLING

	For in-vitro diagnostic use		Number of <n> test in the pack
	Batch Code/Lot number		Caution
	Catalogue Number		Do not use if package is damaged
	Temperature Limitation		Consult Instruction for use
	Expiration Date		
	Manufactured by		