CETRIMIDE AGAR

- For in vitro use only - Catalogue No. PC38 & TC42

Our Cetrimide Agar is a selective medium for the isolation and identification of *Pseudomonas aeruginosa*.

Cetrimide Agar is a modification of Tech Agar developed by King, Ward, and Raney that improved pyocyanin production by *Pseudomonas* species. This formulation was later modified to include the selective agent cetrimide, which specifically selects for *Pseudomonas aeruginosa*. The medium contains pancreatic digest of gelatin, which provides the organism with nitrogen, amino acids, vitamins, and other trace elements important for growth. Cetrimide Agar also contains magnesium chloride and potassium sulfate, which are cationic salts that act as activators and co-activators to intensify the luminescence of pyocyanin and fluorescein. The selectivity is due to the presence of cetrimide, a quaternary ammonium compound, which has detergent-like qualities and is inhibitory to most bacterial species, except for *Pseudomonas aeruginosa*.

Formula per Litre of Medium

Pancreatic Digests of Gelatin	20.0 g
Magnesium Chloride	1.4 g
Potassium Sulfate	10.0 g
Cetrimide	0.3 g
Glycerol	10.0 g
Agar	13.6 g

pH 7.2 ± 0.2

Recommended Procedure

1. Allow medium to adjust to room temperature prior to inoculation.
2. Streak organism from pure culture or directly from the specimen. For plates, perform a four-quadrant streak to obtain well-isolated colonies. If inoculating a tube, streak the surface of the medium in a fish-tail motion from the bottom up.
3. Incubate plates aerobically at 35°C.
4. Examine after 18-24 hours. If no growth is observed, re-incubate for up to 3 days before discarding.

Interpretation of Results

Cetrimide Agar is used to isolate, and detect pigment production by *Pseudomonas aeruginosa*. *Pseudomonas aeruginosa* produces a variety of water-soluble pigments.

Pigment production is determined by visual examination of the plates for coloration of the colonies. Pyocyanin is a blue, phenazine pigment that combines with the yellow pigment, pyoverdin, to give *P. aeruginosa* its characteristic bright green coloration. Pyocyanin usually gives colonies a blue-green coloration although in some instances colonies may adopt a light aqua or dark blue coloration.

Another pigment commonly produced by *Pseudomonas* is fluorescein. Fluorescein appears as a bright yellow-green halo around colonies that fluoresce under short wavelength UV (254-nm). It should be noted that occasionally non-pigmented strains of *P. aeruginosa* may be encountered, and the presence of growth on Cetrimide Agar is indicative of a positive result.

Pseudomonas aeruginosa also produces the pigment pyurubin, a pink to red pigment, which is frequently formed simultaneously with pyocyanin and/ or fluorescein.

Additional biochemical and/or serological tests should be performed on isolated colonies from pure culture in order to complete identification.

- *P. aeruginosa may lose its fluorescence under UV lighting if kept at room temperature for prolonged periods. Re-incubation leads to recovery of fluorescence*

- *Some enteric organisms may exhibit growth with slight yellowing of the medium; this yellowing does not fluoresce*

- *Some nonfermenters and some aerobic spore formers may exhibit a tan to brown pigmentation on this medium; some Serratia strains may exhibit a pink pigmentation*

Quality Control

After checking for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

Organism	**Expected Result**
Pseudomonas aeruginosa ATCC 27853	Growth, green to blue-green colonies, UV (+)
Escherichia coli ATCC 25922	Inhibition

Storage and Shelf Life

Our Cetrimide Agar should be stored away from direct light at 4°C to 8°C. The medium side should be uppermost to prevent excessive accumulation of moisture on the agar surface. Under these conditions this medium has a shelf life of 10 weeks from the date of manufacture.

References

1. King EO, Ward MK, Raney EE. Two simple media for the demonstration of pyocyanin and fluorescein. J Lab Clin Medicine 1954; 44: 301.
2. Lowbury EJL, Collins AG. The use of new cetrimide product in a selective medium for *Pseudomonas aeruginosa*. J Clin Pathol 1955; 8:47.
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4. MacFaddin JF. Media for isolation cultivation identification maintenance of medical bacteria, vol 1. Baltimore, MD: Williams and Wilkins, 1985.
5. Difco Manual. 11th edition. Difco Laboratories: Maryland 1998.
6. Murray, P. R., E. Baron, M. Pfaller, F. Tenover, R. Yolken. Manual of Clinical Microbiology. 7th ed. Washington: ASM, 1999.

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