CETRIMIDE SELECTIVE AGAR

INTENDED USE

Remel Cetrimide Selective Agar is a solid medium recommended for use in qualitative procedures for selective isolation and presumptive identification of *Pseudomonas aeruginosa* and other nonfermentative, gram-negative bacilli.

SUMMARY AND EXPLANATION

King et al. developed a medium called Tech Agar which was used to enhance pyocyanin production by *Pseudomonas*.[1] In 1955, Lowbury described the use of cetrimide in a selective medium for *P. aeruginosa*.[2] Cetrimide Agar has the formula of Tech Agar, but is modified by the addition of cetrimide. This formulation is recommended by the United States Pharmacopeia (USP) and the AOAC International (AOAC).[3,4]

PRINCIPLE

P. aeruginosa is characterized by production of pyocyanin, a blue-green, water-soluble, nonfluorescent phenazine pigment. Potassium sulfate and magnesium chloride stimulate the production of pyocyanin and fluorescein. An ultraviolet light is used to visualize fluorescein production. Cetrimide (N-acetyl-NNN-trimethyl-ammonium bromide, cetavlon) inhibits bacteria other than *P. aeruginosa*, by causing nitrogen and phosphorus to be released from bacterial cells.

REAGENTS (CLASSICAL FORMULA)*

Gelatin Peptone	20.0 g	Cetrimide	0.3 g
Potassium Sulfate	10.0 g	Glycerol	10.0 ml
Magnesium Chloride	1.4 g	Agar	13.6 g
		Demineralized Water	1000.0 ml

pH 7.2 ± 0.2 @ 25°C

*Adjusted as required to meet performance standards.

PRECAUTIONS

This product is For Laboratory Use only. It is not intended for use in the diagnosis of disease or other conditions.

PREPARATION OF DEHYDRATED CULTURE MEDIUM

1. Suspend 45.3 g of medium in 1000 ml of demineralized water.
2. Add 10 ml of glycerol.
3. Heat to boiling with agitation to completely dissolve.
4. Sterilize by autoclaving at 121°C for 15 minutes or following established laboratory procedures.
5. Dispense into appropriate containers.

PROCEDURE

1. Consult current editions of appropriate references for the recommended procedure for sample preparation, inoculation, testing, and interpretation.

INTERPRETATION OF THE TEST

Pyocyanin Production:

Positive Test - Blue-green pigmentation surrounding growth
Negative Test - No color development

Fluorescein Production (requires the use of ultraviolet light):

Positive Test - Yellow-green fluorescence
Negative Test - No fluorescence

QUALITY CONTROL

Each lot number of Cetrimide Selective Agar has been manufactured, packaged, and processed in accordance with current Good Manufacturing Practice regulations. All lot numbers have been tested using the following quality control organisms and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. If aberrant quality control results are noted, sample results should not be reported.

CONTROL	INCUBATION	RESULTS
Pseudomonas aeruginosa ATCC® 9027	Ambient, 18-24 h @ 33-37°C	Growth, pyocyanin positive, fluorescein positive
Pseudomonas aeruginosa ATCC® 27853	Ambient, 18-24 h @ 33-37°C	Growth, pyocyanin positive, fluorescein positive
Escherichia coli ATCC® 25922	Ambient, 18-24 h @ 33-37°C	Inhibition (partial to complete)

LIMITATIONS

1. Some enteric gram-negative bacilli may exhibit growth on Cetrimide Selective Agar and produce slight yellowing of the medium. This yellow color is easily distinguished from fluorescein by its lack of fluorescence.[5]
2. Of the pseudomonads, only *P. aeruginosa* is known to excrete pyocyanin as well as produce pyorubin simultaneously with pyocyanin and/or fluorescein. Pyorubin is a pink to red or dark maroon pigment.[5]
3. Occasional strains of *P. aeruginosa* may fail to produce pyocyanin.[5]
4. *P. aeruginosa* may lose its fluorescence under ultraviolet light if the cultures are left at room temperature for a short time. Fluorescence reappears after plates are reincubated.[5]
5. Cetrimide Selective Agar is both selective and differential. As such, low levels of the target organism may not be recoverable when inoculated directly onto this medium. Consult appropriate references to determine methods for recovery optimization.

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BIBLIOGRAPHY

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3. The United States Pharmacopeia. 2006. 24th ed., Sup. 2., 29th rev. United States Pharmacopeial Convention, Rockville, MD.
4. AOAC International. 2001. Bacteriological Analytical Manual Online. 8th ed. AOAC, Gaithersburg, MD.
5. MacFaddin, J.F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria. Vol. 1. Williams & Wilkins, Baltimore, MD.

Refer to the front of Remel *Technical Manual of Microbiological Media* for **General Information** regarding precautions, product storage and deterioration, sample collection, storage and transportation, materials required, quality control, and limitations.

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remel

12076 Santa Fe Drive, Lenexa, KS 66215, USA
General Information: (800) 255-6730 Website: www.remel.com Email: remel@remel.com
Local/International Phone: (913) 888-0939 International Fax: (913) 895-4128